MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

NAAC Accredited & ISO 21001: 2018 Certified

PROGRAMME REGISTER: 2023-26

DEPARTMENT OF ENGLISH

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PROGRAMME OUTCOMES (POs)

2023-2026

Students of all Undergraduate Programmes at the time of graduation will be able to possess

PO1: Essential Knowledge:

Have comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multi-disciplinary or multi-professional contexts.

PO2: Creative and critical thinking and problem solving abilities:

Be effective problem solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and communication skills:

Be able to convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivation and preparation in life-long learning:

Exhibit life-long skills; broad based multiple career oriented general skills; self and field based learning skills; digital skills; social responsibility and compassionate commitment; preparedness for living, learning and working in any environment.

PO5: Professionalism and leadership readiness:

Be able to engage in professional behavior and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and ethical competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and emotional intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social responsibility:

Be sensitive to and demonstrate agency in matters of environment, gender and other social issues to promote an equitable society.

PROGRAMME SPECIFIC OUTCOMES (PSOs)
2023-2026

At the end of the programme students will be able to possess/exhibit:

PSO1: Domain Knowledge:

Demonstrate fundamental knowledge of domain areas.

PSO2: Analytical Expertise:

Acquire competence to apply and communicate principles, techniques and skills to analyze and interpret texts and data and draw conclusions.

PSO3: Problem Solving:

Demonstrate problem-solving skills in real life situations by drawing from imbibed theories and principles.

PSO4: Skill Development:

Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)

2023-2026

S. No.	Semester	Course Code	Course Title	Course Outcomes (COs)
1	I	23ENAECS13	A Course in Communication & Soft Skills	**CO1:** Understand the importance of listening and practice effective listening.
				CO2: Use grammar effectively for accuracy in writing and speaking.
				CO3: Use relevant vocabulary in everyday communication.
2	I	23ENSECCS12	Communication Skills	**CO1:** Learn the process involved in communication.
				CO2: Develop interview skills.
				CO3: Effectively play their roles in group discussions
3	II	23ENAERW23	A Course in Reading & Writing Skills	**CO1:** Use reading skills effectively and comprehend different texts.
				CO2: Analyze what is being read and use good writing strategies.
				CO3: Build up a repository of active vocabulary and apply it to everyday situations
				CO4: Improve writing skills independently for future needs.
4	II	23SECBW22	Business Writing	**CO1:** Produce well-structured and concise business documents, such as emails, memos, and reports.
				CO2: Apply principles of effective communication in business letters and interoffice correspondence.
				CO3: Craft persuasive and well-organized business proposals and formal reports.
5	II	23ENCCEN24	An Introduction to English Literature	**CO1:** Learn the features of Old English, Middle English and Renaissance Periods.
				CO2: Develop writing skill to produce evaluation of literary texts.
				CO3: Understand and identify the characteristics of poetry, drama and literary criticism.
				CO4: Analyze texts using different critical lenses and approaches.

6	II	23ENCCEL24	An Introduction to Elizabethan Literature	**CO1:** Understand and develop insights into the literary texts and periods of literary history
				CO2: Cultivate a better understanding of the literary forms, genres and movements
				CO3: Apply the concepts and theories to prescribed texts and contemporary situations.
				CO4: Analyze the texts and develop critical thinking while practicing writing skills.
7	III	23ENCCJL34	An Introduction to Jacobean Literature	**CO1:** Understand the evolution of prose as a literary genre.
				CO2: Identify the characteristics of poetry, prose, drama and literary criticism
				CO3: Analyze the aspects of literary genres, forms and terms of the period.
				CO4: Evaluate any literary texts of Jacobean period to produce a successful critical analysis.
8	III	23ENCCRL34	An Introduction to Restoration Literature	**CO1:** Know about the features of Elizabethan and Jacobean periods.
				CO2: Recognize the aspects of different literary genres, forms and terms.
				CO3: Identify the characteristics in literature that reflected the changing trends in society.
				CO 4: Interpret literature of these periods critically.
9	III	23ENCCAL34	An Introduction to Augustan Literature	**CO1:** Learn the features of Augustan literature.
				CO2: Identify the characteristics of poetry, prose, drama and literary criticism
				CO3: Critically appreciate the literary texts of the period
				CO 4: Extend the knowledge of life in literature (of the environment, gender, politics, nationalities, personal and ideological differences) and living situations.

10	III	23ENCCRO34	An Introduction to Romantic Literature	**CO1:** Develop a deep understanding of the characteristics of poetry, prose, drama and literary criticism.
				CO2: Analyze the literary texts of the period with the progression of age.
				CO3: Critically appreciate the literary texts of the period.
				CO4: Evaluate the strengths and limitations of different theoretical approaches in interpreting Romantic literature.
11	IV	23ENCCVL44	An Introduction to Victorian Literature	**CO1:** Develop a deep understanding of the characteristics of poetry, prose, drama and literary criticism.
				CO2: Analyze the literary texts of the period with the progression of age.
				CO3: Critically appreciate the literary texts of the period.
				CO4: Evaluate the strengths and limitations of different theoretical approaches in interpreting Romantic literature.
12	IV	23ENCCML44	An Introduction to Modern Literature	**CO1:** Learn the features of Modern literature.
				CO2: Identify the characteristics of poetry, drama and literary criticism.
				CO3: Analyze the aspects of literary genres, forms and terms of the period.
				CO4: Demonstrate detailed understanding of the literary texts.
13	IV	23ENCCWL44	Glimpses of World Literature	**CO1:** **A**nalyze the sense and sensibilities across the globe.
				CO2: **I**nterpret the meaning of a literary text by reading between the lines.

				CO3: Identify cultural influences on Modern English literature.
				CO4: Evaluate the similarities and differences in literary expressions across global traditions.
14	V	23ENCCWM54	Writing for the Media	CO1: Write with confidence with correct Grammar, Punctuation and Appropriate Style.
				CO2: Differentiate between various types of media writing
				CO3: Gather and synthesize information from authentic sources.
				CO4: Use digital resources for media writing Understand the central issues of Translation
15	V	23ENCCCL54	Creative Writing and Literary Appreciation	CO1: Understand, define and demonstrate the art of Creative Writing.
				CO2: Identify different literary genres.
				CO3: Review the published works of others.
				CO4: Deliver presentations on the literary works.
16	V	23ENEC11ET54	English Language Teaching Skills	CO1: Understand the central principles of Teaching English.
				CO2: Demonstrate different classroom management techniques
				CO3: Acquire the skills of Teaching English.
				CO4: Make use of Technology for Teaching English.
17	V	23ENEC12SP54	Skills and Procedures of Translation (English & Telugu)	CO1: Understand the central issues of Translation.
				CO2: Translate different genres using methods of translation.
				CO3: Translate from English to Telugu and Vice-versa.
				CO4: Make use of Technology for Translation
18	V	23ENEC21TE54	Teaching English Online	CO1: Understand and acquire skills of teaching English online.
				CO2: Identify online resources for teaching.
				CO3: Conduct classes online.
				CO4: Use Technology for evaluating students' performance.
				CO1: Understand the Principles of Journalism.

19	V	23ENEC22EJ54	English for Journalism and Advertising (Print Media)	CO2: Acquire Language Skills for effective communication.
				CO3: Identify online resources for personal improvement.
				CO4: Analyse events for authentic reporting.

Mapping of COs with PSOs & POs

S. No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	23ENAECS13	A Course in Communication & Soft Skills	CO1	PSO1, PSO2, PSO3 PSO4	PO1,PO2, PO3, PO4 PO5, PO7 PO8
				CO2	PSO1, PSO3 PSO4	PO1, PO2 PO3, PO4, PO7 PO8
				CO3	PSO1,PSO2, PSO3 PSO4	PO2, PO3, PO4 PO5, PO6 PO7, PO8
2	I	23ENSECCS12	Communication Skills	CO1	PSO1,PSO2, PSO3 PSO4	PO1,PO2, PO3,PO4 PO5, Po6 PO7,PSO8
				CO2	PSO1,PSO2, PSO3 PSO4	PO2 PO3, PO4 PO5, PO6 PO7, PO8
				CO3	PSO1, PSO2, PSO3 PSO4	PO2 PO3, PO4 PO5,PO7,PO8
3	II	23ENAERW23	A Course in Reading & Writing Skills	CO1	PSO1, PSO2, PSO3 PSO4	PO1,PO2,PO3, PO4,PO5,PO6, PO7,PO8
				CO2	PSO1, PSO2, PSO3 PSO4	PO1,PO2,PO3, PO4,PO5,PO6, PO7,PO8
				CO3	PSO1, PSO2, PSO3 PSO4	PO1,PO2,PO3, PO4,PO5,PO6, PO7,PO8
				CO4	PSO1, PSO2, PSO3 PSO4	PO1,PO2,PO3, PO4,PO5,PO6, PO7,PO8

4	I	23SECBW22	Business Writing	CO1	PSO1,PSO2, PSO3 PSO4	PO1,PO2,PO3,PO4, PO5, PO6, PO7,PO8
				CO2	PSO1,PSO2, PSO3 PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1,PSO2, PSO3 PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
5	II	23ENCCEN24	An Introduction to English Literature	CO1	PSO1,PSO2, PSO3 PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1,PSO2, PSO3 PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1,PSO2, PSO3 PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1,PSO2, PSO3 PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
6	II	23ENCCEL24	An Introduction to Elizabethan Literature	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3,PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1,PSO2, PSO3,PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1,PSO2, PSO3 PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
7	III	23ENCCJL34	An Introduction to Jacobean Literature	CO1	PSO1,PSO2, PSO3,PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1,PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1,PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1,PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
8	III	23ENCCRL34	An Introduction to Restoration Literature	CO1	PSO1,PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1,PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4, PO5,PO6, PO7, PO8
				CO3	PSO1,PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4, PO5,PO6, PO7, PO8

				CO4	PSO1,PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4, PO5,PO6, PO7, PO8
9	III	23ENCCAL34	An Introduction to Augustan Literature	CO1	PSO1,PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4, PO5,PO6, PO7, PO8
				CO2	PSO1,PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4, PO5,PO6, PO7, PO8
				CO3	PSO1,PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4, PO5,PO6, PO7, PO8
				CO4	PSO1,PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4, PO5,PO6, PO7, PO8
10	III	23ENCCRO34	An Introduction to Romantic Literature	CO1	PSO1,PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4, PO5,PO6, PO7, PO8
				CO2	PSO1,PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4, PO5,PO6, PO7, PO8
				CO3	PSO1,PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4, PO5,PO6, PO7, PO8
				CO4	PSO1,PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4, PO5, PO6, PO7, PO8
11	IV	23ENCCVL44	An Introduction to Victorian Literature	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
12	IV	23ENCCML44	An Introduction to Modern Literature	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
13	IV	23ENCCWL44	Glimpses of World Literature	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
14	V	23ENCCWM54	Writing for the Media	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
15	V	23ENCCCL54	Creative Writing and Literary Appreciation	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
16	V	23ENEC11ET54	English Language Teaching Skills	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
17	V	23ENEC12SP54	Skills and Procedures of Translation (English & Telugu)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

18	V	23ENCCCL54	Creative Writing	CO1	PSO1, PSO2,	PO1, PO2, PO3, PO4,

			and Literary Appreciation		PSO3, PSO4	PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

18	V	23ENEC21TE54	Teaching English Online	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
19	V	23ENEC22EJ54	English for Journalism and Advertising (Print Media)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

Mapping of Courses with PSOs

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4

A Course in Communication & Soft Skills	23ENAECS13	✔	✔	✔	✔
Coomunication Skills	23ENSECCS12	✔	✔	✔	✔
A Course in Reading & Writing Skills	23ENAERW23	✔	✔	✔	✔
Business Writing	23ENSECBW22	✔	✔	✔	✔
An Introduction to English Literature	23ENCCEN24	✔	✔	✔	✔
An Introduction to Elizabethan Literature	23ENCCEL24	✔	✔	✔	✔
An Introduction to Jacobean Literature	23ENCCJL34	✔	✔	✔	✔
An Introduction to Restoration Literature	23ENCCRL34	✔	✔	✔	✔
An Introduction top Augustan Literature	23ENCCAL34	✔	✔	✔	✔
An Introduction to Romantic Literature	23ENCCRO34	✔	✔	✔	✔

An Introduction to Victorian Literature	23ENCCVL44	✔	✔	✔	✔
An Introduction to Modern Literature	23ENCCML44	✔	✔	✔	✔
Glimpses of World Literature	23ENCCWL44	✔	✔	✔	✔
Writing for the Media	23ENCCWM54	✔	✔	✔	✔
Creative Writing and Literary Appreciation	23ENCCCL54	✔	✔	✔	✔
English Language Teaching Skills	23ENEC11ET54	✔	✔	✔	✔

Skills and Procedures of Translation (English & Telugu)	23ENEC12SP54	✓	✓	✓	✓
Teaching English Online	23ENEC21TE54	✓	✓	✓	✓
English for Journalism and Advertising (Print Media)	23ENEC22EJ54	✓	✓	✓	✓

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO 3 Teamwork and communication skills	PO4 Motivation and preparation in life-long learning	PO 5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO 7 Self-awareness and emotional intelligence	PO8 Social Responsibility
23ENAECS13	✔	✔	✔	✔	✔		✔	✔
23ENSECCS12		✔	✔	✔	✓	✓	✓	✔
23ENAERW23	✔	✔	✔	✔	✔	✔	✔	✔
23ENSECBW22	✔	✔	✔	✔	✔	✔	✔	✔
23ENCCEN24	✔	✔	✔	✔	✔	✔	✔	✔

23ENCCEL24	✔	✔	✔	✔	✔	✔	✓	✔
23ENCCJL34	✔	✔	✔	✔	✔	✔	✓	✔
23ENCCRL34	✔	✔	✔	✔	✔	✔	✔	✔
23ENCCAL34	✔	✔	✔	✔	✔	✔	✔	✔
23ENCCRO34	✔	✔	✔	✔	✔	✔	✔	✔
23ENCCVL44	✔	✔	✔	✔	✔	✔	✔	✔
23ENCCML44	✔	✔	✔	✔	✔	✔	✔	✔
23ENCCWL44	✔	✔	✔	✔	✔	✔	✔	✔
23ENCCWM54	✔	✔	✔	✔	✔	✔	✔	✔
23ENCCCL54	✔	✔	✔	✔	✔	✔	✔	✔

23ENEC11ET54	✓	✓	✓	✓	✓	✓	✓	✓
23ENEC12SP54	✓	✓	✓	✓	✓	✓	✓	✓
23ENEC21TE54	✓	✓	✓	✓	✓	✓	✓	✓
23ENEC22EJ54	✓	✓	✓	✓	✓	✓	✓	✓

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

NAAC Accredited & ISO 9001:2015 Certified

PROGRAMME REGISTER

2023-2026

DEPARTMENT OF TELUGU

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PROGRAMME OUTCOMES (POs)

2023- 26

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PO1: Essential Knowledge:

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PO2: Creative and critical thinking and problem solving abilities:

Be effective problem solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Team work and communication skills:

Be able to convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivation, Self-directed, and life-long learning:

Exhibit life-long skills; broad based multiple career oriented general skills; self and field based learning skills; digital skills; social responsibility and compassionate commitment; preparedness for living, learning and working in any environment

PO5: Professionalism and leadership readiness:

Be able to engage in professional behavior and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and ethical competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and emotional intelligence:

Be self- aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social responsibility and Effective Citizenship:

Exhibit social responsibility and compassionate commitment; Be sensitive to and demonstrate institution in matters of environment, gender and other social issues to promote an equitable society and sustainable development.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2023 -2026

At the end of the program students will be able to possess/ exhibit.

PSO1: Essential Knowledge

Demonstrate fundamental knowledge of domain areas.

PSO2: Analytical Skills:

Acquire competence to apply and communicate principles, techniques and skills to analyze and interpret texts and data and draw conclusions

PSO3: Logical and Critical Thinking:

Demonstrate problem - solving skills in real life situations by drawing from imbibed theories and principles.

PSO4: Teamwork and Communication:

Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)

2023-2026

S. No.	Sem	Course Code	Course Title	Course Out comes(COs)
1	I	23TLAESS13	Sahiti Sourabham .	**CO1:** తెలుగు సాహిత్యం యొక్క ప్రాచీన విశిష్టతను గుర్తించగలరు.
				CO2: ప్రాచీన, ఆధునిక సాహిత్యాల ద్వారా సామాజిక స్థితిగతుల పట్ల అవగాహనను పొందురు.
				CO3: తెలుగు వ్యాకరణాంశాల అధ్యయనం ద్వారా భాషా సామర్థ్యాన్ని పొందుదురు.
				CO4: జీవిత చరిత్ర ప్రక్రియను ఎలా రచించాలో తెలుసుకుంటారు.
2	II	23TLAESR23	Srujanatmaka Rachana	**CO1:** భాష యొక్క ఆవశ్యకత ప్రాధాన్యతను గుర్తించడం వలన భాషా నైపుణ్యాలను మెరుగుపరుచుకోగలరు.
				CO2: భాషా నైపుణ్యాలను, సృజనాత్మక రూపంలో వ్యక్తీకరించగలరు.
				CO3: అనువాద నైపుణ్యాలను పెంపొందించుకొని, ప్రసార మాధ్యమ రంగాలలో ఉపాధి అవకాశాలను అందిపుచ్చుకోగలరు.
				CO4: సాంకేతిక రంగంలో తెలుగు ప్రాధాన్యతను గుర్తించి అవగాహన పొందగలరు.
3	IV	23MDCPA42	Performing arts.	**CO1**: లలితకళల ప్రదర్శనలలోప్రాథమిక జ్ఞానాన్నిపొందుదురు
				CO2: వివిధ తెలుగు జానపద కళలప్రాథమిక జ్ఞానాన్నిపొందుదురు
				CO3: దశవిధ రూపకములలో అభినయ నైపుణ్యం పొందుదురు.

Mapping of Cos with PSOs & POs

S. No.	Sem	Course Code	Course Title	Cos	PSOs	POs
1	I	23TLAESS13	Sahiti Sourabham	CO1	PSO1, PSO2,PSO3, PSO4.	PO1,PO2, PO3,PO4, PO6 PO7,PO8.
				CO2	PSO1, PSO2,PSO3, PSO4.	PO1,PO2,PO4, PO6.
				CO3	PSO1,PSO2 ,PSO3..	PO1,PO4,PO6, PO7,PO8
				CO4	PSO1, PSO2,PSO3, PSO4	PO1,PO4,PO6 , PO7,PO8
2	II	23TLAESR23	Srujanatmaka Rachana	CO1	PSO1,PSO2, PSO3,PSO4	PO1,PO2, PO3,PO4, PO7,PO8
				CO2	PSO1,PSO2, PSO3, PSO4.	PO1,PO2, PO3,PO4,
				CO3	PSO1,PSO2, PS04,	PO1,PO4,PO6, PO7,PO8
				CO4	PSO1, PSO2, PSO4	PO1,PO3 ,PO5,PO6, PO8.
3.	IV	23MDCPA42	**Performing Arts**	CO1	PSO1.	PO1,PO4,PO6, PO7,PO8
				CO2	PSO1,PSO2..	PO1,PO4,PO6, PO7,PO8
				CO3	PSO1,PSO2, PSO3 PSO4.	PO1,PO2,PO3, PO4, PO5,PO6, PO7,PO8

Mapping of Courses with PSOs

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
Sahiti Sourabham	23TLAESS13	✓	✓	✓	✓
Srujanatmaka Rachana	23TLAESR23	✓	✓	✓	✓
Performing Arts	23MDCPA42	✓	✓	✓	✓

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO3 Teamwork and communication skills	PO4 Digital capabilities	PO5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO7 Self-awareness and emotional intelligence	PO8 Social Responsibility
23TLAESS13	✓	✓	✓	✓	-	✓	✓	✓
23TLAESR23	✓	✓	✓	✓	✓	✓	✓	✓
23MDCPA42	✓	✓	✓	✓	✓	✓	✓	✓

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PROGRAMME REGISTER

2023-2026

UG DEPARTMENT OF HINDI

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PROGRAMME OUTCOMES (POs)

2023-2026

At the end of the program students will have:

PO1: Essential Knowledge:

Comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multi-disciplinary or multi-professional contexts.

PO2: Creative and critical thinking and problem solving abilities:

Be effective problem solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Team work and communication skills:

Be able to convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivation and preparation in life-long learning:

Exhibit life-long skills; broad based multiple career oriented general skills; self and field based learning skills; digital skills; social responsibility and compassionate commitment; preparedness for living, learning and working in any environment

PO5: Professionalism and leadership readiness:

Be able to engage in professional behavior and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and ethical competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and emotional intelligence:

Be self- aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social responsibility:

Be sensitive to and demonstrate agency in matters of environment, gender and other social issues to promote an equitable society.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2023-2026

At the end of the program students will be able to:

PSO1: Demonstrate fundamental knowledge of domain areas.

PSO2: Acquire competence to apply and communicate principles, techniques and skills to analyze and interpret texts and data and draw conclusions

PSO3: Demonstrate problem - solving skills in real life situations by drawing from imbibed theories and principles.

PSO4: Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)

2023-2024

S. No.	Sem	Course Code	Course Title	Course Out comes(COs)
1	I	23HNAEGS13	Hindi Gadya Sahitya	CO1; निबंध , रेखाचित्र , कहानी जसी गद्य की विभिन्न विधाओं को समझ पाना एवंविश्लेषण कर पाना |
				CO2; सच्चेमित्र के गुणों सेअवगत हो पाना , जो की स्नातक स्तर के विद्यार्थियर्थि ों केलिए अति आवश्यक है|
				CO3; "पठित रचनाओंमेंसामाजिक, ऐतिहासिक, सांस्कृतिक आदि संदर्भों का मल्यांकन और उत्तम भावनाओंको जागतृ करना।"
				CO4; हिदं साहित्योतिहास के संक्षिप्त अध्ययन सेविविध काल एवंतत्कालीन परिस्तितियों सेअवगत होना |
				CO5; व्याकरणिक इकाइयों की समझ एवंप्रभावपर्णू र्णपत्र लेखन का ज्ञान अर्जितर्जि कर सकना|
2	II	23HNAEPS23	Hindi Padya Sahitya	CO1; प्राचीन कविता के अध्ययन सेविद्यार्थिओर्थि ंमेंसामाजिक चेतना जागतृ होगी ,काव्यगत विशषताओ े ंसे परिचित होंगे|
				CO2; आधनि क काल की विविध प्रक्रियाओंका आकलन तथा विश्लेषण |
				CO3; विभिन निबंधों के माध्यम सेविद्यार्थियर्थि ों के सामाजिक ज्ञान की श्रीवद्धि |
				CO4; प्रयोजन मलक हिदं का ज्ञान प्राफ्त कर विद्यार्थी सरकारी तथा गैर सरकारी संगठनों मेंअनवादक पद के लिए अपनेआप को तयार कर पायगें |
				CO5; अनवाद ु अभ्यास जो साहित्यिक एवंअनप्रयक्ुत माध्यम सेकरवाया जाता है, यह विद्यार्थियर्थि ों के लिए उपयोगी सिदध होगा | संक्षेपण कला के अभ्यास सेभाषाई निपणता ु प्राप्त कर सकतेहैं|

Mapping of Cos with PSOs & POs

S. No.	Sem	Course Code	Course Title	Cos	PSOs	POs
1	I	23HNAEGS13	Hindi Gadya Sahitya	CO1	PSO1, PSO2,PSO3	PO1,PO2, PO3,PO4, PO7,PO8.
				CO2	PSO1, PSO2,PSO3.	PO3,PO4.
				CO3	PSO1, PSO2,PSO3.	PO1,PO2, PO3,PO4, PO7,PO8.
				CO4	PSO1, PSO2,PSO3.	PO1,PO2, PO3,PO4, PO7,PO8.
				CO5	PSO1,PSO2 ,PSO4.	PO1,PO4,PO6, PO7,PO8
2	II	23HNAEPS23	Hindi Padya Sahitya	CO1	PSO1,PSO2, PSO3	PO1,PO2, PO3,PO4, PO7,PO8
				CO2	PSO1,PSO2, PSO3	PO3,PO4,
				CO3	PSO1,PSO2, PS04	PO1,PO2, PO3,PO4, PO7,PO8.
				CO4	PSO1,PSO2, PS04	PO1,PO2, PO3,PO4, PO7,PO8.
				CO5	PSO1,PSO2, PS04	PO1,PO4,PO6, PO7,PO8

Mapping of Courses with PSOs

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
Hindi Gadya Sahitya	23HNAEGS13	✔	✔	✔	✔
Hindi Padya Sahitya	23HNAEPS23	✔	✔	✔	✔

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO3 Teamwork and communication skills	PO4 Digital capabilities	PO5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO7 Self-awareness and emotional intelligence	PO8 Social Responsibility
23HNAEGS13	✔	✔	✔	✔	✔	✔	✔	✔
23HNAEPS23	✔	✔	✔	✔	✔	✔	✔	✔

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PROGRAMME REGISTER

2023-2026

UG DEPARTMENT OF SANSKRIT

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PROGRAMME OUTCOMES

(POs) 2023-2026

At the end of the Programme students will have:

PO1: Essential Knowledge:

Comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multi-disciplinary or multi-professional contexts.

PO2: Creative and critical thinking and problem solving abilities:

Be effective problem solvers, able to apply critical and evidence-based thinking to conceive innovativeresponsesto future challenges.

PO3: Team work and communication skills:

Be able to convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivation and preparation in life-long learning:

Exhibit life-long skills; broad based multiple career oriented general skills; self and field based learning skills; digital skills; social responsibility and compassionate commitment; Preparedness for living, learning and working in any environment

PO5: Professionalism and leadership readiness:

Be able to engage in professional behavior and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Inter cultural and ethical competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7:Self-awareness and emotional intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social responsibility:

Be sensitive to and demonstrate agency in matters of environment, gender and other social issues to promote an equitable society.

PROGRAMME SPECIFIC OUTCOMES

(PSOs) 2023-2026

At the end of the Programme students will be able to:

PSO1: Essential Knowledge:
Demonstrate fundamental knowledge of domain areas.

PSO2: Analytical Skills:
Acquire competence to apply and communicate principles, techniques and skills to analyze and interpret texts and data and draw conclusions.

PSO3: Logical and Critical thinking:
Demonstrate problem-solving skills in real life situations by drawing from imbibed theories and principles

PSO4: Team work and communication skills:
Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)

2023-2026

S.No.	Sem	Course Code	CourseTitle	Course Outcomes(COs)
1	Sem I	23SNAEPP 13	Poetry, Prose & Grammar- I	**CO1:** १. साहित्यकार, ऋषि, कवि हृदय विवेचनम् ।
				CO2: २. मानवीयमूल्यसम्पादनाभिलाषः।
				CO3: ३. मौलिकव्याकरणज्ञानेन प्रयोगे अर्थात् पठन लेखन वेलासु भाषाशुद्ध्यै प्रयत्नः।
2	Sem II	23SNAEPP 23	Poetry, Prose & Grammar- II	**CO1:** १. संस्कृतकवीनां पदवाक्यप्रयोगसरणेरवगतिः।
				CO2: २. संस्कृतकवीनां भावगाम्भीर्यपरिज्ञानम् ।
				CO3: ३. वाक्यरचनायां दोषराहित्य प्रप्तिः ।

Mapping of Cos with PSOs

S.No.	Sem	Course Code	Course Title	Cos	PSOs	Pos
1	I	23SNAEPP13	**Poetry, Prose & Grammar- I**	CO1	PSO1, PSO2,PSO3, PSO4	PO1, PO2, PO3, PO4, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3. PSO4	PO1, PO2, PO3, PO4, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4.	PO1, PO2, PO3, PO4,
2	II	23SNAEPP23	**Poetry, Prose & Grammar-II**	CO1	PSO1,PSO2,PSO3, PSO4.	PO1, PO2, PO3, PO4, PO6, PO7, PO8
				CO2	PSO1,PSO2,PSO3, PSO4.	PO1, PO2, PO3, PO4, PO6, PO7, PO8
				CO3	PSO1,PSO2, PSO3,PS04	PO1, PO2, PO3, PO4,

Mapping of Courses with PSOs

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
Poetry, Prose & Grammar- I	**23SNAEPP13**	✓	✓	✓	✓
Poetry, Prose & Grammar- II	**23SNAEPP23**	✓	✓	✓	✓

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO3 Teamwork and communication skills	PO4 Digital capabilities	PO5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO7 Self-awareness and emotional intelligence	PO8 Social Responsibility
23SNAEPP13	✓	✓	✓	✓	✓	✓	✓	✓
23SNAEPP23	✓	✓	✓	✓	✓	✓	✓	✓

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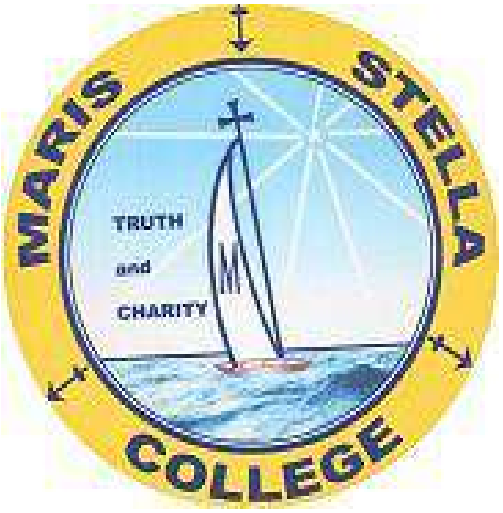

PROGRAMME REGISTER

2023-2026

DEPARTMENT OF FRENCH

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PROGRAMME OUTCOMES

(POs) 2023-2026

At the end of the Programme students will have:

PO1: Essential Knowledge:

Comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi-professional contexts.

PO2: Creative and critical thinking and problem solving abilities:

Be effective problem solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and communication skills:

Be able to convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivation and preparation in life-long learning:

Exhibit life-long skills; broad based multiple career oriented general skills; self and field based learning skills; digital skills; social responsibility and compassionate commitment; Preparedness for living, learning and working in any environment

PO5: Professionalism and leadership readiness:

Be able to engage in professional behavior and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Inter cultural and ethical competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7:Self-awareness and emotional intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social responsibility:

Be sensitive to and demonstrate agency in matters of environment, gender and other social issues to promote an equitable society.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2023-2026

At the end of the Programme students will be able to:

PSO1: Essential Knowledge:
Demonstrate fundamental knowledge of domain areas.

PSO2: Analytical Skills:
Acquire competence to apply and communicate principles, techniques and skills to analyze and interpret texts and data and draw conclusions.

PSO3: Logical and Critical thinking:
Demonstrate problem-solving skills in real life situations by drawing from imbibed theories and principles

PSO4: Team work and communication skills:
Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)

2023-2026

S.No.	Sem	Course Code	CourseTitle	Course Outcomes(COs)
1	Sem I	23FNAEFN13	French	CO1: Understand the French and francophone cultures
				CO2: Read, and understand the main ideas in French
				CO3: Write sentences and short paragraphs on familiar topics relating to personal interests and practical needs
				CO4: Comprehend French with sufficient ability to grasp the main ideas and supporting detail in short conversations
				CO4: Comprehend French with sufficient ability to grasp the main ideas and supporting detail in short conversations
2	Sem II	23FNAECF23	La vie et la culture de la France	CO1: Understand the French and francophone cultures
				CO2: Read, and understand the main ideas in French
				CO3: Write sentences and short paragraphs on familiar topics relating to personal interests and practical needs
				CO4: Comprehend French with sufficient ability to grasp the main ideas and supporting detail in short conversations

Mapping of Cos with PSOs

S.No.	Sem	Course Code	Course Title	Cos	PSOs	Pos
1	I	23FNAEFN13	French	CO1	PSO4, PSO1	PO6
				CO2	PSO2	PO1
				CO3	PSO4	PO3
				CO4	PSO4	PO1,PO3
2	II	23FNAECF23	La vie et la culture de la France	CO1	PSO4, PSO1	PO6
				CO2	PSO2	PO1
				CO3	PSO4	PO3
				CO4	PSO4	PO1,PO3

Mapping of Courses with PSOs

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
French	23FNAEFN13	✔	✔		✔
La vie et la culture de la France	23FNAECF23	✔	✔		✔

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO3 Teamwork and communication skills	PO4 Digital capabilities	PO5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO7 Self-awareness and emotional intelligence	PO8 Social Responsibility
French	✔		✔			✔		
La vie et la culture de la France	✔		✔			✔		

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DEPARTMENT OF HISTORY

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PROGRAMME OUTCOMES
(POs) 2023-26

Students of all Undergraduate Programmes at the time of graduation will be able to possess

PO1: Essential Knowledge:

Have comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi-professional contexts.

PO2: Creative, Critical Thinking and Problem-Solving Abilities:

Be effective problem-solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and Communication Skills:

Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated, Self-directed, and Life-long Learning:

Exhibit life-long skills; broad-based multiple career oriented general skills; self and field-based learning skills; digital skills; preparedness for living, learning and working in any environment.

PO5: Professionalism and Leadership Readiness:

Engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and Ethical Competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and Emotional Intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social Responsibility and Effective Citizenship:

Exhibit social responsibility and compassionate commitment; Be sensitive to and demonstrate institution in matters of environment, gender and other social issues to promote an equitable society and sustainable development.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2023-26

At the end of the programme students will be able to possess/exhibit:

PSO1: Domain knowledge

Demonstrate fundamental knowledge of domain areas

PSO2: Analytical Expertise

Acquire competence to apply and communicate principles, techniques and skills to analyze and interpret texts and data and draw conclusions

PSO3: Problem Solving

Demonstrate problem-solving skills in real life situations by drawing from imbibed theories and principles

PSO4: Skills Development:

Develop communicative competence, creative and critical thinking, practical, technical and

employability skills, social sensibility and responsibility.

Course Outcomes (COs)

2023-26

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	I	23ARCCSS14	Fundamentals of Social Sciences	CO1: Explain the definition and scope of Social Science and its branches.
				CO1: Understand the emergence of culture and history.
				CO3: Define Psychology and assess its nature, scope and relevance to society.
				CO4: Comprehend the nature of Polity and Economy.
				CO5: Acquire knowledge on application of computer technology
2	I	23ARCCIS14	Perspectives on Indian Society	CO1:Learn about the significance of human behavior and social dynamics.
				CO2:Remembers the Indian Heritage and freedom struggle
				CO3:Comprehend the philosophical foundations of Indian Constitution
				CO4: Acquire Knowledge on Indian Economy
				CO5:Examine the role of Computers and its impact on human
3	II	23HSCCSH24	Science & Human Past	**CO1:** Understand the essence of History and its relevance to other social sciences
				CO2: Trace the origin of human culture –from stone age to Iron age
				CO3: Summarize the first urbanization in India and highlight the ancient Indian civilization and its significance
				CO4: Assess the richness of Vedic Culture
				CO5: Interpret the second Urbanization in India
4	II	23HSCCES24	Age of Enlightenment and state formation	CO1: Know the philosophies of Indian religions.
				CO2: Appraise the formation of states and their growth.
				CO3: Analyze the causes of the rise of Magadha and its political history.
				CO4: Summarize the Mauryans history and Ashoka Dhamma policy.
				CO5: Will know the significance of post-Mauryan conditions
5	III	23HSCCEH34	Early Medieval History of India(300 CE-1206 CE)	CO1: Gain a comprehensive understanding of the political, administrative, economic, and socio-cultural conditions during the Gupta Dynasty period in ancient India

				CO2: Summarize historical, political and cultural significance of Harshavardhana, Rastrakhutas, Rajputs, and the prominent Indian universities
				CO3: Analyze the impact of Arab and Turkish invasions on Indian society and culture, as well as the significance of primary sources in shaping historical narratives related to this period
				CO4: Estimate the socio-political and cultural contribution of the Pallava and Chola Kingdoms, to South Indian history and heritage
				CO5: Compare and contrast the ancient philosophies and architectural styles of India
6	III	23HSCCMS34	Medieval Indian Society (Polity, Economy &Culture) (1206 CE-1707 CE)	**CO1:** Understand Delhi Sultanate's historical trajectory, including socio-political dynamics and administrative reforms by different dynasties.
				CO2: Analyze governance, economic, and societal impacts of key rulers like Khilji, Tugluq, and Tughlaq on the Delhi Sultanate.
				CO3: Evaluate the role of Bhakti and Sufi movements in shaping medieval India's composite culture during the Delhi Sultanate era.
				CO4: Critically examine Mughal Empire's evolution from Babur to Akbar, focusing on administrative, economic, and artistic aspects.
				CO5: Assess factors contributing to Mughal Empire's decline, including Aurangzeb's policies, rise of Marathas and Sikhs, and socio-economic changes
7	III	23HSCCMI34	History of Modern India (1707 CE-1857 CE)	CO1: Summarize the advent of the Europeans and the Anglo-French rivalry in the Carnatic
				CO2: Analyze conflict between the British & Marathas & the legislative measures taken by the British in India
				CO3: Assess reforms of specific officers of the Company
				CO4: Analyze the various revenue, education, and social reforms.
				CO5: Estimate Indian response to the British and peasant and tribal movements in the 18th C. India
8	III	23HSCCMW34	History of Modern World (Upto 1945 AD)	**CO1**: Demonstrate advanced factual knowledge of important medieval events
				CO2: Analyze the causes and effects of various revolutions and rise of important Personalities
				CO4: Estimate and summarize the work of the League and rise of Turkey, fascist ideologies and the World War-II
				CO5: Analyze the work of the UNO and the Cold war
9	IV	20HSCCSC44	Social Change in Modern India	**CO1**: Understand the Indian Education system during the colonial period

				CO2: Summarize the growth of Press and rise of vernacular literature & Christian missionary activities in India
				CO3: Analyze the Indian Renaissance and the role of various social reformers
				CO4: Estimate Social reform movement in Andhra through various movements, organizations & reformers
				CO5: Amplify the Muslim Reform movements & Self Respects movements and the relevant leaders
10	IV	23HSCCCA44	Social & Cultural History of Andhra Pradesh (upto 1956 CE)	**CO1:** Understand the development of pre-historic culture in Andhradesa
				CO2: Analyze the socio-religious and economic conditions under various major and minor dynasties ruling Andhradesa from the 11th to 16th centuries AD
				CO3: Evaluate the impact of European arrival, the 1857 Revolt, and subsequent British rule on Andhra Pradesh
				CO4: Examine the genesis and progression of the Andhra Movement
				CO5: Analyze the historical process leading to the formation of Andhra Pradesh State in 1956
11	IV	23HSCCNM44	Indian National Movement (1857-1947)	CO1: Analyze the reforms of British viceroys, i.e., Lord Lytton, Rippon, and Curzon.
				CO2: Summarize National Movement under different phases
				CO3: Explain the significance of specific British Colonial laws & Acts.
				CO4: Visualize and interpret the Gandhian phase
				CO5: Analyze the process of obtaining independence to India and integration of States.
12	V	23HSCCTH54	Tourism and Hospitality Services (Minor)	CO1: Understand the definition, nature, and scope of tourism, including multidisciplinary aspects and economic significance.
				CO2: Examine the hospitality industry's key characteristics and practical applications to explore career opportunities and industry dynamics effect
				CO3: Summarize operational roles in hospitality and tourism while foste practical skills for real-world applications.

				CO4: Apply knowledge of restaurant operations to organize and deliver culinary functions effectively.
				CO5: Explore essential concepts and skills in the hospitality industry, focusing on service quality, operational challenges, and guest satisfaction.
13	V	23HSCCJT54	Journalism and Editing Techniques	CO1: Apply the basic concepts of journalism, reporting, and editing to id differentiate their roles in media operations.news.
				CO2: Explain the various sources of news, including their reliability and significance in journalism.
				CO3: Understand the importance of photography in storytelling, highlig role in enhancing the visual appeal and impact of n
				CO4: Identify various headline-writing techniques, such as the use of pu alliteration, and concise phrasing, to attract readers
				CO5: Apply appropriate writing techniques to craft reports tailored to specific media platforms.
14	V	23HSEC11TO54	Tourism Guidance & Operating skills	CO1: Understand the concept of a tour guide, including their role in enhancing the tourist experience through information and guidance
				CO2: Explain the key personality traits that contribute to a successful to guide,including passion, empathy, enthusiasm, punctuality, and humour
				CO3: Apply inclusive service strategies to accommodate guests with spe different abilities, and age-related requirements, ensuring a comf respectful experience for all guests.
				CO4: Acquire essential skills and knowledge required to plan and condu effectively, emphasizing coordination, communication, and practica management of different aspects of the tour experience.
				CO5: Apply knowledge of these tour operators to compare and contrast their strategies, services, and market presence, and explore opportunities for improvement in similar agencies.
15	V	23HSEC12FS54	Films and Script Writing Skills	**CO1**: Demonstrate an understanding of the growth trajectory of Indian c its transition from regional to global appeal.
				CO2: Discuss the contributions of pioneers to the evolution of Telugu ci
				CO3: Summarize the major developments in the Telugu film industry fr 1962, focusing on technological, artistic, and cultural advancements.
				CO4: Explain the essential characteristics of a scriptwriter, including cre storytelling skills, and audience awareness.
				CO5: Apply critical observation techniques to analyze the narrative structures and historical accuracy in historical films such as

				Mahamantri Timmarasu, Bobbili Yuddham, and Alluri Sitaramaraju.
16	V	23HSEC21PA54	Modern Principles and Techniques of Archaeology	CO1: Understand the definition, nature, and scope of archaeology, and ex significance in studying past human societies and their material remains.
				CO2: Apply excavation and exploration techniques to systematically un document archaeological materials, ensuring precise data retrieval.
				CO3: Analyze different chronological frameworks and their relevance ir understanding the historical context of archaeological findings.
				CO4: Understand the definition, nature, and scope of epigraphy as a disc focusing on the study of inscriptions and their role in historical research.
				CO5: Apply numismatic data to archaeological research, using coins as evidence to supplement material culture and enrich the understanding of ancient economies, trade networks, and political systems
17	V	23HSEC22MM54	Museum Managem	**CO1**: Explain the origin, meaning, and definition of museums, highlight purposes and significance in society.
				CO2: Classify museums based on their themes, functions, and modes of presentation, such as open-air, inclusive, community-centered, galleries, museums.
				CO3: Analyze the methods used in the collection and preservation of old documents and books,including preventive conservation strategies.
				CO4: Describe the various types of exhibitions, such as temporary, permanent, virtual.
				CO5: Develop strategies for improving museum management and opera based on the study of best practices from diverse professional museums. interactive displays.

Mapping of COs with PSOs & POs

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	23ARCCSS14	Fundamentals of Social Sciences	CO1	PSO1, PSO2	PO1, PO2
				CO2	PSO1, PSO2	PO1
				CO3	PSO1, PSO2, PSO3,	PO1, PO5, PO6, PO8
				CO4	PSO1, PSO2	PO1, PO4
				CO5	PSO1, PSO3, PSO4	PO1, PO3, PO5, PO8
2	I	23ARCCIS14	Perspectives on Indian Society	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5,PO6,PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5,PO6,PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5,PO6,PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5,PO6,PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5,PO6,PO7, PO8
3	II	23HSCCSH24	Science and Human Past	CO1	PSO1	PO1, PO2
				CO2	PSO1	PO1,PO2,PO5
				CO3	PSO1,PSO2	PO1,PO3
				CO4	PSO1,PSO2,PSO3	PO1,PO2,PO3
				CO5	PSO1,PSO2,PSO3	PO1,PO2,PO4,PO6
4	II	23HSCCES24	Age of Enlightenment & State Formation	CO1	PSO1,PSO2,PSO3,PSO4	PO1,PO2,PO4,PO4,PO6, PO8
				CO2	PSO1,PSO2,PSO4	PO1,PO2,PO3
				CO3	PSo1,PSO3	PO1,PO4,PO5,PO7
				CO4	PSO1,PSO2,PSO3,PSO4	PO1,PO4,PO6,PO7
				CO5	PSO1,PSO2,PSO4	PO1,PO2,PO3
5	III	23HSCCEH34	Early Medieval History of India (300CE-1206CE)	CO1	PSO1,PSO2	PO1,PO2
				CO2	PSO4,PSO1	PO1,PO6
				CO3	PSO1,PSO2,PSO3	PO2,PO6
				CO4	PSO1,PSO4	PO1,PO8

				CO5	PSO2,PSO4	PO6,PO2
6	III	23HSCCMS34	Medieval Indian Society: (Polity, Economy & Culture) (1206CE-1707CE) - Minor	CO1	PSO1,PSO2	PO1,PO2
				CO2	PSO1,PSO2	PO1,PO2
				CO3	PSO1,PSO4	PO6,PO8
				CO4	PSO1,PSO2	PO1,PO2
				CO5	PSO1,PSO3	PO1,PO3,PO8
7	III	23HSCCMI34	History of Modern India (1707CE-1857CE)	CO1	PSO1,PSO2	PO1,PO6
				CO2	PSO1,PSO2	PO1, PO2
				CO3	PSO1, PSO4	PO1, PO3
				CO4	PSO2, PSO4	PO2, PO8
				CO5	PSO1,PSO3	PO1, PO3
8	III	23HSCCCA44	History of Modern World (1857-1945 AD)	CO1	PSO1	PO1,PO4
				CO2	PSO2	PO1,PO8
				CO3	PSO1,PSO2	PO2,PO8
				CO4	PSO1, PSO3	PO1,PO8
				CO5	PSO1,PSO4	PO6,PO8
9	IV	23HSCCSC44	Social Change in Modern India	CO1	PSO1	PO1,PO4
				CO2	PSO1,PSO2	PO1,PO8
				CO3	PSO2, PSO1	PO2,PO8
				CO4	PSO1,PSO3	PO1,PO8
				CO5	PSO2,PSO4	PO6, PO8
10	IV	23HSCCCA44	Social & Cultural History of Andhra Pradesh (upto 1956 CE)	CO1	PSO1	PO1, PO4
				CO2	PSO1, PSO2	PO1, PO2
				CO3	PSO2, PSO3	PO2, PO8
				CO4	PSO1, PSO3	PO1, PO8
				CO5	PSO2, PSO4	PO2, PO8
11	IV	23HSCCNM44	Indian National Movement (1857-1947)	CO1	PSO1, PSO2	PO1,PO2
				CO2	PSO1,PSO2	PO1,PO2

				CO3	PSO1,PSO2	PO1, PO2
				CO4	PSO1,PSO4	PO1, PO2
				CO5	PSO2, PSO3	PO3, PO2
12	V	23HSCCTH54	Tourism and Hospitality Services (Minor)	CO1	PSO1	PO1
				CO2	PSO2	PO2
				CO3	PSO4	PO3
				CO4	PSO3	PO5
				CO5	PSO4	PO6
13	V	23HSCCJT54	Journalism & Editing Techniques	CO1	PSO1	PO1
				CO2	PSO2	PO2
				CO3	PSO3	PO4
				CO4	PSO4	PO3
				CO5	PSO3	PO2
14	V	23HSEC11TO54	Tourism Guidance & Operating Skills	CO1	PSO1	PO1
				CO2	PSO4	PO7
				CO3	PSO4	PO6
				CO4	PSO4	PO3
				CO5	PSO2	PO2
15		23HSEC12FS54	Films and Script Writing Skills	CO1	PSO1, PSO2	PO1, PO2
				CO2	PSO1, PSO4	PO1, PO3
				CO3	PSO2, PSO4	PO1, PO3
				CO4	PSO4	PO2, PO4
				CO5	PSO2, PSO3	PO2, PO3
16	V	23HSEC21PA54	Modern Principles & Techniques of Archaeology	CO1	PSO1	PO1
				CO2	PSO2	PO2
				CO3	PSO2	PO2
				CO4	PSO1	PO1
				CO5	PSO3	PO2

17	V	23HSEC22MM54	Museum Managemer	CO1	PSO1, PSO4	PO1
				CO2	PSO2, PSO4	PO1
				CO3	PSO2, PSO3	PO2
				CO4	PSO1, PSO4	PO1
				CO5	PSO3, PSO4	PO2, PO5

Mapping of Courses with PSOs

Course Title	PSO1 Domain Knowledge	PSO2 Analytical Expertise	PSO3 Problem solving	PSO4 Skill Development
Fundamentals of Social Sciences	✔	✔	✔	✔
Science and Human Past	✔	✔	✔	✔
Age of enlightenment and State formation	✔	✔	✔	✔
Early Medieval History of India(300 CE -1206)	✔	✔	✔	✔
Medieval Indian Society (Polity, Economy &Culture) (1206 CE-1707 CE	✔	✔	✔	✔
History of Modern India(1707 to 1857)	✔	✔	✔	✔
History of Modern World (Upto 1945 AD)	✔	✔	✔	✔
Social Change in Modern India	✔	✔	✔	✔
Social & cultural history of Andhra Pradesh (upto 1956)	✔	✔	✔	✔
Indian National Movement (1857-1947)	✔	✔	✔	✔
Tourism and Hospitality Services (Minor)	✔	✔	✔	✔
Journalism & Editing techniques	✔	✔	✔	✔
Tourism Guidance & Operating skills	✔	✔		✔
Films and Script Writing Skills	✔	✔		✔
Modern Principles and Techniques of Archaeology	✔	✔	✔	
Museum Management	✔	✔	✔	✔

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative, Critical thinking and Problem-solving abilities	PO3 Teamwork and Communication skills	PO4 Motivated, Self-directed and Life-long Learning	PO5 Professionalism and Leadership Readiness	PO6 Intercultural and Ethical Competency	PO7 Self-awareness and Emotional Intelligence	PO8 Social Responsibility and Effective Citizenship
Fundamentals of Social Sciences	✔	✔	✔	✔	✔	✔		✔
Perspectives of Indian Society	✔	✔	✔		✔	✔	✔	✔
Science and Human Past	✔	✔	✔	✔	✔	✔		✔
Age of enlightenment and State formation	✔	✔	✔	✔	✔	✔	✔	✔
Early Medieval History of India(300 CE -1206)	✔	✔				✔		✔
Medieval Indian Society (Polity, Economy &Culture) (1206 CE-1707 CE	✔	✔	✔			✔		✔
History of Modern India(1707 to 1857)	✔	✔	✔			✔		✔
History of Modern World (Upto 1945 AD)	✔	✔		✔		✔		✔
Social Change in Modern India	✔	✔		✔		✔		✔
Social & cultural history of Andhra Pradesh (upto 1956)	✔	✔		✔				✔

Indian National Movement (1857-1947)	✔	✔	✔					
Tourism and Hospitality Services (Minor)	✔	✔	✔		✔	✔		
Journalism & Editing techniques	✔	✔	✔	✔				
Tourism Guidance & Operating skills	✔	✔	✔			✔	✔	
Films and Script Writing Skills	✔	✔	✔	✔				
Modern Principles and Techniques of Archaeology	✔	✔						
Museum Management	✔	✔			✔			

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

NAAC Accredited & ISO 9001: 2015 Certified

PROGRAMME REGISTER

2023-2026

UG DEPARTMENT OF ECONOMICS

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PROGRAMME OUTCOMES (POs)

2023-2026

At the end of the programme students will have

PO1: Essential Knowledge:

Have Comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multi-disciplinary or multi-professional contexts.

PO2: Creative and critical thinking and problem solving abilities:

Be effective problem solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and communication skills:

Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated self Directed and life -long learning:

Exhibit life-long skills; broad based multiple career oriented general skills; self and field based learning skills; digital skills; social responsibility and compassionate commitment; preparedness for living, learning and working in any environment

PO5: Professionalism and leadership readiness:

Engage in professional behavior and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and ethical competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and emotional intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social responsibility and Effective Citizenship:

Exhibit social Responsibility and compassionate Commitment: Be sensitive to and demonstrate agency in matters of environment, gender and other social issues to promote an equitable society.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2023-2026

At the end of the Programme the student will be able to

PSO1: Demonstrate fundamental knowledge of domain areas.

PSO2: Acquire competence to apply and communicate principles, techniques and skills to analyze and interpret texts and data and draw conclusions.

PSO3: Demonstrate problem-solving skills in real life situations by drawing from imbibed theories and principles

PSO4: Develop communicative competence, creative and critical thinking, practical, technical and employ ability skills, social sensibility and responsibility.

Course Outcomes (COs)

2023-2026

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	I	23ARCCSS14	Fundamentals of Social Sciences	CO1: Explain the definition and scope of Social Scien branches.
				CO1: Explain the definition and scope of Social Scien branches.
				CO3: Define Psychology and assess its nature, scope relevance to the society.
				CO4: Comprehend the nature of Polity and Economy.
				CO5: Acquire knowledge on application of computer technology
2	I	23ARCCIS14	Perspectives on Indian Society	CO1:Learn about the significance of human behavior and social dynamics.
				CO2:Remembers the Indian Heritage and freedom struggle
				CO3:Comprehend the philosophical foundations of Indian Constitution
				CO4:Knowledge on Indian Economy
				CO5:Role of Computers and its impact on human behavior
3	I	23MDCPP12	Principals of Psychology	CO1: Explain definition origin and biological behaviour in psychology
				CO2: Analyses fundamentals of motivation
				CO3: Explain classical and instrumental conditions
4	II	23ECCCMI24	Micro economics	CO1:Explain what is an economy, economics and differentiate between micro and macro economics
				CO2: Analyses the demand of a product and estimate elasticity
				CO3: Estimate production function and understand its application
				CO4: Analyze functioning of different markets and their differentiations
				CO5: Examine the determination of rent, wage, interest and profit

5	II	23MICCME24	Mathmatical Methods for Economics	**CO1:** Explain the basics of sets, functions and their graphical representation
				CO2: Learn the rules of differentiation and apply the same to economic problems
				CO3: Learn and use maxima and minima to Optimization problems in economics
				CO4: Apply rules of integration to estimate the size of consumers' and producers' surplus
				CO5: Solve the economic problems through the application of the Matrix Theory
6	III	23ECCCMA34	Macroeconomics	**CO1:** Differentiate various concepts and components of national income and methods of measurement.
				CO2: Analyze the theories of consumption and employment
				CO3: Examine the functions of commercial banks and central bank
				CO4: Analyse inflation and business cycles to day to day situations
				CO5: Examine financial markets and insurance
7	III	23ECCCEP34	Economic Thought & Political Economy	**CO1:** Explain the Economic thoughts of Pte-classical, Classical and Socialist. .
				CO2: Explain Neo-classical, Keynes and Post-Keynesian economic thoughts.
				CO3: Analyse the essence of institutional and behaviorist economic thoughts
				CO4: Evaluate the contribution of Indian economists to the evolution of economic thought.
				CO5: Analyze the political economy in relation to development.
8	III	23ECCCDE34	Development Economics	**CO1:**Explain concepts of economic growth and development, measure them, identify their factors.
				CO2: Analyse the developmental issues of poverty, unemployment, inequality and sustainable development and suggest measures
				CO3: Comprehend the various theories of growth and development

				CO4: Examine and suggest various developmental strategies suitable to developing countries
				CO5: Explain the role of institutions, planning in economic development
9	III	23ECCCPE34	Public Economics	**CO1**:Explain and illustrate the basic concepts and principle of public finance
				CO2:Discuss various sources of public revenue, different theories of taxation, tax systems and incidence of taxation
				CO3: Analyse various principles, theories, practices of public expenditure with reference to public expenditure practices in India
				CO4:Explain the concept of debt burden and its effect, budget concepts and deficits with reference to Indian economy.
				CO5: Examine the importance of fiscal policy, fiscal federalism and discuss the role of finance commission with reference to India.
10	IV	23ECCCIA44	India& AP Economy	**CO1:** Explain the basic characteristics, structural changes, planning and human development in Indian economy
				CO2: Analyse the changes in incomes, demography and thedevelopmental issues such as poverty, inequality, unemployment and migration and suggest measures to address them
				CO3: Examine the components of agricultural and industrial sectors and their performance
				CO4: Examine the issues in public finance in terms of taxes, revenues, deficits and finance commission
				CO5: Analyse the issues in Andhra Pradesh economy related to agriculture, industry and welfare programs
11	IV	23ECCCSE44	Statistical Methods for Economics	**CO1**:Understand the nature of statistics and able to collect data using questionnaire
				CO2: Draws critical diagrams and graphs for presentation of data
				CO3:Calculates and Analyses Averages and Dispersion using given data and information
				CO4:Explains the uses of correlation and regression analysis, time series and index numbers in economic analysis
				CO5:Calculate index numbers
12	IV	23ECCCIE44	International Economics	**CO1**:Explain the importance and concepts of international trade

				CO2: Make a critical analysis of the theories of international trade
				CO3:Explain changes in the methods of determining exchange rates
				CO4: Analyse the effects of Trade Barriers and protectionism in International Trade
				CO5: Explain multilateralism, regionalism and India's international trade
13	V	23ECCCBF54	Banking and Financial Services	**CO 1:** Explain the concept and essentials of banking and financial services.
				CO 2: Identify and analyze employment opportunities in banks and other financial institutions.
				CO 3: Apply concepts to banking and financial opportunities and develop related ideas.
				CO 4: Demonstrate practical skills to pursue employment in banks and other financial institutions as business correspondents, common service centers, or marketing agents.
				CO 5: Gain an overview of various finance service companies.
14	V	23ECCCIS54	Insurance Service	CO1 Explains Insurance Concept and Principles.
				CO2 Analyse Life Insurance and Products
				CO3 Examine the General and Health Insurances and Products
				CO4 Analyse Practicing as an Insurance Agent
				CO5 Examine Understanding the Customer and Case Studies
15	V	23ECEC11UE54	Urban Entraprenuere ship&MSME	**CO1:** Explain the basic theories and essentials of entrepreneurship
				CO2: Identify and analyze the entrepreneurship opportunities available in local urban area.
				CO3: Apply the theories of entrepreneurship to the conditions of local urban area and formulate appropriate business ideas.
				CO4: Demonstrate practical skills that will enable them to start urban Entrepreneurship.
				CO5: Government Schemes for promotion of Urban Entrepreneurship and MSMEs.
16	V	23ECEC12RD54	Retail &Digital Marketing	**CO1:** Explain the concepts and principles about the retail and digital marketing.
				CO2: Identify and analyse the opportunities related to

				retail and digital marketing available in the local area
				CO3: Apply the concept to formulate the new strategies related to retail and digital marketing.
				CO4: Demonstrate the practical skills required to get employment in retail and digital marketing or to start own digital marketing.
				CO5: Analyze Marketing Models of Retail and Digital Market Companies/Shops.
17	V	23STEC211S54	Inferential Statistics & Software Packages	**CO1:** Explain Theorems of Probability.
				CO2: Demonstrate the knowledge related to the techniques of inferential statistics.
				CO3: Application of Testing of Hypothesis.
				CO4: Calculate correlation, regression coefficients and interpret the results.
				CO5: Use Excel sheets and SPSS package to analyse the data and derive the results.
18	V	23ECEC22PD54	Project Designing & Report Writing	**CO1:** Demonstrate the knowledge relating to research in social sciences in general and economics in particular.
				CO2: Analytical Evaluation Research.
				CO3: Undertake a field survey to collect relevant data and information relating to project work.
				CO4: Formulate a good research design to undertake mini research projects with a view to studying the socio-economic problems of the society.
				CO5: Develop capacity to write a simple project report.

Mapping of COs with PSOs

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	23ARCCSS14	Fundamentals of Social Sciences	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
2	I	23ARCCIS14	Perspectives on Indian Society	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5
3	I	23MDCPP12	Principals of Psychology	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO4,PO5,PO6,PO7,PO8
4	II	23ECCCMI24	Micro economics	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5
5	II	23MICCME24	Mathmatical Methods for	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5,PO6,PO7 P O8

			Economics	CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5,PO6,PO7 P O8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5,PO6,PO7 P O8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5,PO6,PO7 P O8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5,PO6,PO7 P O8
6	III	23ECCCMA34	Macroeconomics	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO4,PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO4,PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO4,PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO4,PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO4,PO5
7	III	23ECCCEP34	Economic Thought & Political Economy	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
8	III	23ECCCDE34	Development Economics	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO

						7,PO8
9	III	23ECCCPE34	Public Economics	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
10	IV	23ECCCIA44	India& AP Economy	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
11	IV	23ECCCSE44	Statistical Methods for Economics	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
12	IV	23ECCCIE44	International Economics	CO 1	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8

				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
13	V	23ECCCBF54	Banking and Financial Services	CO 1	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO6
14	V	23ECCCIS54	Insurance Service	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO6
15	V	23ECEC11UE54	Urban Entraprenuere ship&MSME	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5,PO6,PO7,P08
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5,PO6,PO7,P08
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5,PO6,PO7,P08
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5,PO6,PO7,P08
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO5,PO6,PO7,P08
16	V	23ECEC12RD54	Retail &Digital Marketing	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7,PO8

				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO 5,PO6,PO7,P08
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO 5,PO6,PO7,P08
17	V	23STEC211S54	Inferential Statistics & Software Packages	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO 5,PO6,PO7,P08
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO 5,PO6,PO7,P08
18	V	23ECEC22PD54	Project Designing & Report Writing	CO1	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO7 ,PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3,PO4,PO5,PO6,PO 7,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO 5,PO6,PO7,P08
				CO5	PSO1, PSO2, PSO3, PSO4	PO1,PO2,PO3,PO4,PO 5,PO6,PO7,P08

Mapping of Courses with PSOs

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
Fundamentals of Social Sciences (SS)	23ARCCSS14	✓		✓	
Perspectives on Indian Society	23ARCCISI4	✓	✓	✓	
Principals of Psychology	23MDCPP12	✓	✓	✓	✓
Micro Economics	23ECCMI24	✓	✓	✓	✓
Mathematical Methods for Economics	23MICCME24	✓	✓	✓	✓
Macroeconomics	23ECCCMA34	✓	✓	✓	✓
Economic Thought & Political Economy	23ECCCEP34	✓	✓	✓	✓
Development Economics	23ECCCDE34	✓	✓	✓	✓
Public Economics	23ECCCPE34	✓	✓	✓	✓
India& AP Economy	23ECCCIA44	✓	✓	✓	✓
Statistical Methods for Economics	23ECCCSE44	✓	✓	✓	✓
International Economics	23ECCCIE44	✓	✓	✓	✓
Banking and Financial Services	23ECCCBF54	✓	✓	✓	✓
Insurance Service	23ECCCIS54	✓	✓	✓	✓
Urban Entraprenuere ship&MSME	23ECEC11UE54	✓	✓	✓	✓
Retail &Digital Marketing	23ECEC12RD54	✓	✓	✓	✓
Inferential Statistics & Software Packages	23STEC211IS54	✓	✓	✓	✓
Project Designing & Report Writing	23ECEC22PD54	✓	✓	✓	✓

Mapping of Courses with POs

Course	PO1 Esse ntial Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO3 Te amwork and communication skills	PO4 Digital capabilities	PO5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO7 Self-awareness and emotional intelligence	PO8 Social Responsibility
SS	✓	✓	✓	✓				
P ON IS	✓	✓	✓	✓	✓			
PS	✓	✓	✓	✓	✓	✓	✓	✓
ME	✓	✓	✓	✓	✓			
MME	✓	✓	✓	✓	✓	✓	✓	✓
ME	✓	✓		✓	✓			
ET&PE	✓	✓	✓	✓	✓	✓	✓	✓
DE	✓	✓	✓	✓	✓	✓	✓	✓
PE	✓	✓	✓	✓	✓	✓	✓	✓
I&AP	✓	✓	✓	✓	✓	✓	✓	✓
SME	✓	✓	✓	✓	✓	✓	✓	✓
IE	✓	✓	✓	✓	✓	✓	✓	✓
B&FS	✓	✓	✓	✓		✓		
IS	✓	✓	✓	✓		✓		
UE	✓	✓	✓	✓	✓	✓	✓	✓
RDM	✓	✓	✓	✓	✓	✓	✓	✓
IS&SP	✓	✓	✓	✓	✓	✓	✓	✓
PD&RW	✓	✓	✓	✓	✓	✓	✓	✓

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

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NAAC Accredited & ISO 91001: 2018 Certified

PROGRAMME REGISTER

2023-2026

DEPARTMENT OF POLITICAL SCIENCE

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PROGRAMME OUTCOMES (POs)
2023-2026

At the end of the programme students will have

PO1: Essential Knowledge:
Have Comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi- professional contexts.

PO2: Creative and critical thinking and problem solving abilities:
Be effective problem solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and communication skills:
Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated self Directed and life -long learning:
Exhibit life-long skills; broad based multiple career oriented general skills; self and field based learning skills; digital skills; social responsibility and compassionate commitment; preparedness for living, learning and working in any environment

PO5: Professionalism and leadership readiness:
Engage in professional behavior and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and ethical competency:
Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and emotional intelligence:
Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social responsibility and Effective Citizenship:
Exhibit social Responsibility and compassionate Commitment: Be sensitive to and demonstrate agency in matters of environment, gender and other social issues to promote an equitable society.

PROGRAMME SPECIFIC OUTCOMES (PSOs)
2023-2026

At the end of the Programme the student will be able to

PSO1: Demonstrate fundamental knowledge of domain areas.

PSO2: Acquire competence to apply and communicate principles, techniques and skills to analyze and interpret texts and data and draw conclusions.

PSO3: Demonstrate problem-solving skills in real life situations by drawing from imbibed theories and principles

PSO4: Develop communicative competence, creative and critical thinking, practical, technical and employ ability skills, social sensibility and responsibility.

Course Outcomes (COs) 2023-2026

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	I	23ARCCSS14	Fundamentals of Social Sciences	**CO1:** Learn about the nature and importance of social science.
				CO2:Understand the Emergence of Culture and History
				CO3:Know the psychological aspects of social behavior
				CO4:Comprehend the nature of Polity and Economy
				CO5:Knowledge on application of computer technology
2	I	23ARCCIS14	Perspectives on Indian Society	**CO1:** Learn about the significance of human behavior and social dynamics.
				CO2: Remembers the Indian Heritage and freedom struggle
				CO3: Comprehend the philosophical foundations of Indian Constitution
				CO4: Knowledge on Indian Economy
				CO5: Role of Computers and its impactt on human behaviorr
3	II	23PSCCFP24	Fundamentals of Political Science	CO1: Learn nature, importance, and relationship with other social sciences.
				CO2: Understand the traditional and modern approaches.
				CO3: Know the origin and evolution of the state.
				CO4: Comprehend the development of social contract theory.
				CO5: Understand the birth of modern state.
4	II	23PSCCCI24	Concepts & Ideologies of Political Science	**CO1:** Learn the significance of concepts.
				CO2: Understand the law and liberty.
				CO3: Know equality and power and its constituents.
				CO4: Experience the rights and its theories.
				CO5: Understanding of political ideologies.
5	III	23PSCCPI34	Political Institutions	**CO1:** Understand the organs of the government.
				CO2: Learn the theory of separation of powers.
				CO3: Comprehend the forms of government.
				CO4: Know the rights and its theories.
				CO5: Acquaint with political ideologies.
6	III	23PSCCIC34	Indian	**CO1:** Know the origin and evolution of the Constitution.

			Constitution	**CO2:** Understand of Constitutional Development of India.
				CO3: Comprehend the feature of Indian Constitution.
				CO4: Identify the rights and duties.
				CO5: Understanding the notion of theory of basic structure.
7	III	23PSCCWP34	Western Political Thought: Ancient & medieval	**CO1:** Understand the fundamental contours classical, western political philosophy,
				CO2: Understand the concepts of Plato and Aristotle
				CO3: Understand the basic features of medieval political thought and shift from medieval to modem era.
				CO4: Understand the influence of religion and its impact on the State.
				CO5: Critically analyse the evolution of western political thought.
8	III	23PSCCIF34	Indian Federal System	**CO1:** Know the importance of Centre – State Relations.
				CO2: Learn the Indian federal process.
				CO3: Assess the electoral process in India.
				CO4: Estimate the Panchayat Raj System.
				CO5: Understand 73rd & 74th Constitutional Amendment Acts.
9	IV	23PSCCIG44	Indian Government	**CO1:** Know the President and Parliament of India.
				CO2: Understand the Prime Minister & Council of Ministers.
				CO3: Assess the Governor and his role.
				CO4: Reflect the role of Chief Minister and Council of Ministers.
				CO5: Judge the role of Judiciary.
10	IV	23PSCCDI44	Dynamics Of Indian Political System	**CO1:** Know the social dynamics of India.
				CO2: Understand the political dynamics.
				CO3: Measure the regulatory institutions in India.
				CO4: Acquaint with the governing mechanisms.
				CO5: Learn the role of Civil Services.
11	IV	23PSCCIP44	Indian Political Thought	**CO1:** Enriches about variety of ancient Indian political thoughts.
				CO2: Understands the contributions of Kautilya.
				CO3: Creates awareness on political ideologies of 19th century social reformers.
				CO4: Familiarizes the political philosophy of religious reformers.

				CO5: Imparts knowledge on nationalist political thinkers.
12	V	23PSCCEG54	E-Governance	**CO1:** Acquaint student with the introduction to good governance and how it can be achieved by information and communication technology.
				CO2: Understand the growing needs of E-Governance, improving transparency in the system of governance
				CO3: Have understanding of various government schemes and E-Governance projects and initiatives.
				CO4: Provide practical knowledge about the effective delivery of citizen services through online mode.
				CO5: Realize the issues and challenges of E-Governance.
13	V	23PSCCLA54	Local Administration	**CO1:** Understand the existing context of Local Government Institutions in India.
				CO2: Have knowledge on the need of empowerment and autonomy of LGIs.
				CO3: Provide an overview on financial resources and constitutional provisions.
				CO4: Analyse the issues, problems and conflicts in Local Administration.
				CO5: Develop communication skills to interact with the elected members and officials.
14	V	23PSEC11PR54	Political Reporting	**CO1:** Understand the need, scope and concepts in Political Reporting.
				CO2: Identify various sources for Political Reporting.
				CO3: Provide an overview of interpreting the political phenomena from the gross roots level to the Parliament.
				CO4: Develop insights and enhance skills in a professional manner in the age of mass media.
				CO5: Learn skills related to reporting, enlarge job opportunities, and make it as a career.
15	V	23PSEC12LL54	Legal literacy - rights awareness	**CO1:** Acquaint student with the structure and manner of functioning of the legal system in India.
				CO2: Understand of the laws related to rights applicable in India.
				CO3: Provide an overview of access to courts and enforcement of rights.
				CO4: Develop an understanding of the formal and Alternate Dispute Redressal (ADR) mechanism that exist in India.
				CO5: Analyses Legal Services Authority Acts and Right to Free Legal Aid-Alternate Dispute Resolution

16	V	23PSEC21EP54	Electoral Politics & Voting Behaviour	**CO1:** Acquaint student with the structure and manner of functioning of Election Commission of India.
				CO2: Understand the political issues in Electoral Politics.
				CO3: Provide an overview on voter turnout, voting behavior in India.
				CO4: Aware of the role of new media and technology in election campaign.
				CO5: Develop an understanding of the required skills for data collection, research in election management.
17	V	23PSEC22LP54	Legislative Procedures & Practices	**CO1:** Make familiar with legislative procedures and practices.
				CO2: Equip the students with the adequate skills of participation in deliberative processes and democratic decision making.
				CO3: Understand complex policy issues, draft new legislation, analyze ongoing bills, make speeches and floor statements.
				CO4: Provide skills to be part of a legislative support team and expose them to real life legislative work.
				CO5: Enhance understanding of procedures, practices, different committees and motions in the House.

Mapping of COs with PSOs & POs

S.No.	Sem	Course Code	Course Title	Cos	PSOs	POs
1	I	23ARCCSS14	Fundamentals of Social Sciences	CO1	PSO1, PSO2	PO1, PO2,
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO8
2	I	23ARCCIS14	Perspectives on Indian Society	CO1	PSO1, PSO2, PSO3	PO1, PO2
				CO2	PSO1, PSO2, PSO3	PO1, PO2
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7,PO8
3	II	23PSCCFP24	Fundamentals of Political Science	CO1	PSO1, PSO2, PSO3	PO1, PO2,
				CO2	PSO1, PSO2, PSO3	PO1, PO2,
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4,PO7
				CO5	PSO1, PSO2, PSO3,PSO4	PO1, PO2, PO3, PO4,PO8
4	II	23PSCCCI24	Concepts & Ideologies of Political Science	CO1	PSO1, PSO2, PSO3	PO1, PO2,PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO8
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO4, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4
5	III	23PSCCPI34	Political Institutions	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO6,PO7,PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO6,PO7,PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO6,PO7,PO8

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7,PO8
6	III	23PSCCIC34	Indian Constitution	CO1	PSO1, PSO2, PSO3	PO1, PO2,PO5,PO7,PO8
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO7,PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO5,PO7,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO5,PO7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7,PO8
7	III	23PSCCWP34	Western Political Thought: Ancient & medieval	CO1	PSO1, PSO2	PO1, PO2,PO5,PO8
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO5,PO7,PO8
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO5,PO7,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO5,PO7,PO8
8	III	23PSCCIF34	Indian Federal System	CO1	PSO1, PSO2	PO1, PO2,PO8,
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO5,PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO5,PO7,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO5,PO7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO5,PO7,PO8
9	IV	23PSCCIG44	Indian Government	CO1	PSO1, PSO2	PO1, PO2,PO7,PO8
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO7,PO8
				CO3	PSO1, PSO2, PSO3	PO1, PO2,PO3, PO5, PO7,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO7,PO8
10	IV	23PSCCDI44	Dynamics of Indian Political System	CO1	PSO1, PSO2	PO1, PO2
				CO2	PSO1, PSO2	PO1, PO2, PO3,PO5,PO7

				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO5,PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO5,PO7
11	IV	23PSCCIP44	Indian Political Thought	CO1	PSO1, PSO2	PO1, PO2,PO5,PO6,PO8
				CO2	PSO1, PSO2	PO1, PO2, PO3, PO4,PO5,PO7,PO8
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4,PO5,PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO5,PO6,PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO5,PO8
12	V	23PSCCEG54	E-Governance	CO1	PSO1, PSO2, PSO3	PO1, PO2,PO7,PO8
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4.PO8
13	V	23PSCCLA54	Local Administration	CO1	PSO1, PSO2	PO1, PO2,PO7,PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7,PO8
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4,PO7,PO8
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7
14	V	23PSEC11PR54	Political Reporting	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO5,PO6,PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO5,PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4 ,PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7,PO8
				CO5	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4,PO7,PO8
15	V	23PSEC12LL54	Legal Literacy-	CO1:	PSO1, PSO2, PSO3	PO1, PO2,PO7,PO8

			Rights Awareness	CO2:	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO8
				CO3:	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO8
				CO4:	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7,PO8
				CO5:	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4.PO8
16	V	23PSEC21EP54	Electoral Politics & Voting Behavior	CO1	PSO1, PSO2	PO1, PO2,PO7,PO8
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO7,PO8
				CO3	PSO1, PSO2, PSO3	PO1, PO2,PO3, PO5, PO7,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO7,PO8
17	V	23PSEC22LP54	Legislative Procedures & Practices	CO1	PSO1, PSO2	PO1, PO2,
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4,PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7,PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO8

Mapping of Courses with PSOs

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
Fundamentals of Social Sciences	23ARCCSS14	✔	✔	✔	✔
Perspectives on Indian Society	23ARCCIS14	✔	✔	✔	✔
Fundamentals of Political Science	23PSCCFP24	✔	✔	✔	✔
Concepts & Ideologies of Political Science	23PSCCCI24	✔	✔	✔	✔
Political Institutions	23PSCCPI34	✔	✔	✔	✔
Indian Constitution	23PSCCIC34	✔	✔	✔	✔
Western Political Thought: Ancient & medieval	23PSCCWP34	✔	✔	✔	✔
Indian Federal System	23PSCCIF34	✔	✔	✔	✔
Indian Government	23PSCCIG44	✔	✔	✔	✔
Dynamics of Indian Political System	23PSCCDI44	✔	✔	✔	✔
Indian Political Thought	23PSCCIP44	✔	✔	✔	✔
E-Governance	23PSCCEG54	✔	✔	✔	✔
Local Administration	23PSCCLA54	✔	✔	✔	✔
Political Reporting	23PSEC11PR54	✔	✔	✔	✔
Legal Literacy-Rights Awareness	23PSEC12LL54	✔	✔	✔	✔
Electoral Politics & Voting Behavior	23PSEC21EP54	✔	✔	✔	✔
Legislative Procedures & Practices	23PSEC22LP54	✔	✔	✔	✔

Mapping of Courses with POs

S. No	Course	PO1 Essential Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO3 Teamwork and communication skills	PO4 Digital capabilities	PO5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO7 Self-awareness and emotional intelligence	PO8 Social Responsibility
1	FSS	✔	✔	✔	✔			✔	✔
2	PAF	✔	✔	✔	✔			✔	✔
3	FPS	✔	✔	✔	✔			✔	✔
4	CIP	✔	✔	✔	✔	✔			✔
5	PI	✔	✔	✔	✔		✔	✔	✔
6	IC	✔	✔	✔	✔	✔		✔	✔
7	WPT	✔	✔	✔	✔	✔		✔	✔
8	IFS	✔	✔	✔	✔	✔		✔	✔
9	IG	✔	✔	✔	✔	✔		✔	✔
10	DIPS	✔	✔	✔	✔	✔		✔	
11	IPT	✔	✔	✔	✔	✔	✔	✔	✔
12	E-G	✔	✔	✔	✔			✔	✔
13	LA	✔	✔	✔	✔			✔	✔
14	PR	✔	✔	✔	✔	✔	✔	✔	✔
15	LLRA	✔	✔	✔	✔			✔	✔
16	EPVB	✔	✔	✔	✔	✔		✔	✔
17	LPP	✔	✔	✔	✔			✔	✔

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

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PROGRAMME REGISTER: 2023-26

DEPARTMENT OF HISTORY

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PROGRAMME OUTCOMES (POs)

2023-26

Students of all Undergraduate Programmes at the time of graduation will be able to possess

PO1: Essential Knowledge:

Have comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi-professional contexts.

PO2: Creative, Critical Thinking and Problem-Solving Abilities:

Be effective problem-solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and Communication Skills:

Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated, Self-directed, and Life-long Learning:

Exhibit life-long skills; broad-based multiple career oriented general skills; self and field-based learning skills; digital skills; preparedness for living, learning and working in any environment.

PO5: Professionalism and Leadership Readiness:

Engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and Ethical Competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and Emotional Intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social Responsibility and Effective Citizenship:

Exhibit social responsibility and compassionate commitment; Be sensitive to and demonstrate institution in matters of environment, gender and other social issues to promote an equitable society and sustainable development.

PROGRAMME SPECIFIC OUTCOMES

(PSOs) 2023-26

At the end of the programme students will be able to possess/exhibit:

PSO1: Quantitative Analysis:

Interpret principles, classifications, concepts, theories and mechanisms learnt.

PSO2: Practical and Analytical Skills:

Analyse hypotheses, procedures, properties, experimental facts and draw conclusions.

PSO3: Logical and Critical Thinking:

Apply knowledge and techniques in sample analysis, problem-solving, results, and production.

PSO4: Teamwork and Communication:

Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes

(COs) 2023-26

S. No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	I	23ARCCSS14	Fundamentals of Social Sciences	CO1: Explain the definition and scope of Social Science and its branches.
				CO2: Explain the definition and scope of Social Science and its branches.
				CO3: Define Psychology and assess its nature, scope and releva the society.
				CO4: Comprehend the nature of Polity and Economy.
				CO5: Acquire knowledge on application of computer technology
2	I	23ARCCIS14	Perspectives on Indian Society	CO1:Learn about the significance of human behavior and social dynamics.
				CO2:Remembers the Indian Heritage and freedom struggle
				CO3:Comprehend the philosophical foundations of Indian Constitution
				CO4:Knowledge on Indian Economy
				CO5:Role of Computers and its impact on human behavior
3	II	23TTCCPP24	Principles & Practices of Tourism	**CO1:** understand the basic concepts of Tourism
				CO2: Summarize the forms of tourism and impacts
				CO3: Examine the dynamics of Tourism business
				CO4: Elucidate the Tourism theory & system
				CO5: Estimate the relevance of various Tourism Organizations
4	II	23TTCCTG24	Tourism Geography	**CO1:** Understand the interdependence between Geography and Tourism
				CO2: Be acquainted with geographical resources
				CO3: Assess the influence of geographical resources on major tourism destinations across the world
				CO4: Develop expertise in planning and designing tour itineraries of various countries across time zone.

				CO5: Acquire knowledge on the important tourism destinations and their key features, special interests and activities and travel formalities.
5	III	**23TTCCTM34**	**Tourism Marketing**	**CO1:** Understand the Evolution of Marketing and its relevance to the Tourism industry.
				CO2: Analyze the Core Principles of Marketing and apply them to Tourism Marketing.
				CO3: Explore the Concepts of Services Marketing and its implications for Tourism.
				CO4: Forecast Market Demand and conduct Environmental Analysis for Tourism Marketing
				CO5: Enhance Marketing Skills for Tourism Business and Crisis Management
6	III	23TTCCTP34	Tourism Policy & Planning	**CO1:** Procure cognizance of the Tourism policies of India
				CO2: Summarize National & State Tourism Policies
				CO3: Explain Tourism Planning & process
				CO4: Analyze the role of Public and Private Sector in tourism planning
				CO5: Estimate Tourism Five Year Plans
7	III	23TTCCTI34	Tourism Products of India	**CO1**: Students will form in-depth understanding of the rich and vibrant Cultural Background of India.
				CO2: Study about important diverse religious monuments of India.
				CO3: Understand the importance of both in situ and ex situ preservation of biodiversity and its importance as tourism products in India.
				CO4: Understand the types and importance of adventure tourism.
				CO5: Analyze various Tourist Circuits in India.
8	III	23TTCCDP34	Destination Planning & Development	**CO1:** To understand the significance of urban civic bodies in town planning and the characteristics of tourism planning for alternative tourism forms like rural, eco, and farm tourism.
				CO2: To apply destination mapping techniques to analyze destination resources, stakeholders, and infrastructure.
				CO3: To identify and describe different types of tourism destinations and analyze their characteristics, including natural, cultural, and built attractions.

				CO4: To evaluate destination competitiveness, analyze distribution channels, and develop effective marketing communication strategies for destination promotion.
				CO5: To acquire knowledge of destination marketing strategies, including the Six 'A's Framework for Tourism Destinations
9	IV	23TTCCMT44	Management of tourist transport	**CO1:** Summarize the evolution, importance and development of transport
				CO2: Explain the Road & Railway Transport Networks and car rental services in specified countries
				CO3: Analyze the Airline industry and its relevance to tourism development
				CO4: Learn Basic Airfares and ticketing and the relevant business transactions
				CO5: Estimate the relevance of water transport & Case studies of identified transport firms/institutions
10	IV	23TTCCHM44	Hospitality Management	CO1: To understand the distinctive characteristics of the hospitality industry
				CO2: To Explore the cultural concept of "Atithi Devo Bhavah" and its significance in the hospitality sector
				CO3: To Identify and differentiate between various types of hotels and lodging facilities
				CO4: To Analyze the ethical and regulatory aspects within the hotel industry
				CO5: To Examine the roles and responsibilities of front office staff and Evaluate the hierarchy, duties, and responsibilities of housekeeping and food & beverage staff.
11	IV	23TTCCTE44	Tour Guiding & Escorting	CO1: Students will form in-depth understanding of types, duties and responsibilities of Guides and Escorts.
				CO2: Study about major role of a Guide.
				CO3: Enhancement of leadership and soft skills.
				CO4: Understand the types and importance of adventure tourism.
				CO5: Analyze various situations and how to act upon.
12	V	23TTCCTO54	Travel Agency and Tour Operations	CO1: Analyze the Historical Development of the Travel Trade Industry
				CO2: Explain the Business Operations of Travel Agencies and Tour Operators
				CO3: Design and Develop Effective Tour Itineraries and Packages
				CO4: Apply Knowledge of Travel Trade Organizations and Recognition

				CO5: Demonstrate Understanding of the Changing Scenario of the Travel Trade Industry
13	V	23TTCCEM54	EVENT MANAGEMENT	CO1: Identify trends, scope, and roles and functions of event managers
				CO2: Develop skills in planning, scheduling, and coordinating events
				CO3: Apply knowledge of event logistics, including security, transport, parking, accommodation, and special needs requirements.
				CO4: Develop skills in preparing operation manuals and record-keeping systems
				CO5: Apply ethical behavioral practices in the MICE industry
14	V	23TTCCIP54	Itinerary Preparation & Tour Packaging	**CO1:** Design detailed itineraries tailored to specific resources, destinations, and tourist requirements, ensuring proper sequencing and time management.
				CO2: Explain the process of formulating and designing tour packages, including the distinctions between FITs, group tours, and SITs
				CO3: Examine the various types of costs associated with tour planning, including fixed, variable, direct, and indirect cost
				CO4: Apply and analyze package tour operations
				CO5: Analyze and evaluate travel documentation processes
15	V	23TTCCTB54	Tourism Business Environment	CO1: Grasp foundational concepts and are equipped to apply and analyze economic principles in real-world scenarios.
				CO2: Acquire foundational knowledge and analytical skills to understand and evaluate macroeconomic concepts and their real-world applications.
				CO3: Examine Economic Policy Frameworks
				CO4: Apply and critically evaluate the impact of tourism across various sectors
				CO5: Apply and critically evaluate investment initiatives, policies, and economic strategies in the tourism sector

Mapping of COs with PSOs & POs

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	23ARCCSS14	Fundamentals of Social Sciences	CO1	PSO1, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5,PO6,PO7, PO8
2	I	23ARCCIS14	Perspectives on Indian Society	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5,PO6,PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5,PO6,PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5,PO6,PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5,PO6,PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5,PO6,PO7, PO8
3	II	23TTCCPP24	Principles & Practices of Tourism	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
4	II	23TTCCTG24	Tourism Geography	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO6, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO6,PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,,PO6, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO6, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO6, PO8

5	III	23TTCCTM34	Tourism Marketing	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
6	III	23TTCCTP34	Tourism Policy & Planning	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
7	III	23TTCCTI34	Tourism Products of India	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
8	III	23TTCCDP34	Destination Planning & Development	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
9	IV	23TTCCMT44	Management of tourist transport	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO7

				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO7
10	IV	23TTCCHM44	Hospitality Management	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO7,
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO3, PO4,PO6,PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6
11	IV	23TTCCTE44	Tour Guiding & Escorting	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6
12	V	23TTCCTO54	Travel Agency and Tour Operations	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7, PO8
13	V	23TTCCEM54	EVENT MANAGEMENT	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7, PO8

				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO7, PO8
14	V	23TTCCIP54	Itinerary Preparation & Tour Packaging	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
15	V	23TTCCTB54	Tourism Business Environment	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO6,PO7, PO8

Mapping of Courses with PSOs

Course Title	PSO1 Quantitative Analysis	PSO2 Practical and Analytical Skills	PSO3 Logical, Critical Thinking	PSO4 Teamwork and Communication
Fundamentals of Social Sciences (SS)	✔	✔	✔	✔
Perspectives on Indian Society(IS)	✔	✔	✔	✔
Principles & Practices of Tourism (PT)	✔	✔	✔	✔
Tourism Geography (TG)	✔	✔	✔	✔
Tourism Marketing (TM)		✔	✔	✔
Tourism Policy & Planning (TP)	✔	✔	✔	✔
Tourism Products of India (TI)	✔	✔	✔	✔
Destination Planning & Development (DP)	✔	✔	✔	✔
Management of tourist transport (MT)	✔	✔	✔	✔
Hospitality Management (HM)	✔	✔	✔	✔
Tour Guiding & Escorting (TE)	✔	✔	✔	✔
Travel Agency and Tour Operations (TO)	✔	✔	✔	✔
EVENT MANAGEMENT (EM)	✔	✔	✔	✔
Itinerary Preparation & Tour Packaging(IP)	✔	✔	✔	✔
Tourism Business Environment (TB)	✔	✔	✔	✔

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative, Critical thinking and Problem-solving abilities	PO3 Teamwork and Communication skills	PO4 Motivated, Self-directed and Life-long Learning	PO5 Professionalism and Leadership Readiness	PO6 Intercultural and Ethical Competency	PO7 Self-awareness and Emotional Intelligence	PO8 Social Responsibility and Effective Citizenship
SS	✔	✔	✔	✔		✔	✔	✔
IS	✔	✔	✔		✔	✔	✔	✔
PT	✔	✔	✔	✔		✔	✔	✔
TG	✔	✔	✔			✔		✔
TM	✔	✔	✔		✔	✔	✔	✔
TP	✔	✔	✔		✔	✔	✔	✔
TI	✔	✔	✔		✔	✔	✔	✔
DP	✔	✔	✔				✔	✔
MT	✔	✔	✔		✔	✔	✔	✔
HM	✔	✔	✔	✔		✔		
TE	✔	✔	✔	✔	✔	✔		
TO	✔	✔	✔	✔		✔	✔	✔
EM	✔	✔	✔	✔			✔	✔
IP	✔	✔	✔	✔		✔	✔	✔
TB	✔	✔	✔	✔		✔	✔	✔

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

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PROGRAMME REGISTER: 2023-26

DEPARTMENT OF JOURNALISM

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PROGRAMME OUTCOMES (POs)

2023-26

Students of all Undergraduate Programmes at the time of graduation will be able to possess

PO1: Essential Knowledge:

Have comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi professional contexts.

PO2: Creative, Critical Thinking and Problem-Solving Abilities:

Be effective problem-solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and Communication Skills:

Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated, Self-directed, and Life-long Learning:

Exhibit life-long skills; broad-based multiple career oriented general skills; self and field-based learning skills; digital skills; preparedness for living, learning and working in any environment.

PO5: Professionalism and Leadership Readiness:

Engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and Ethical Competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and Emotional Intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social Responsibility and Effective Citizenship:

Exhibit social responsibility and compassionate commitment; Be sensitive to and demonstrate institution in matters of environment, gender and other social issues to promote an equitable society and sustainable development.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2023-26

At the end of the programme students will be able to possess/exhibit:

PSO1: Domain Knowledge:

Demonstrate fundamental knowledge of domain areas.

PSO2: Analytical Expertise:

Acquire competence to apply and communicate principles, techniques and skills to analyse and interpret texts and data and draw conclusions.

PSO3: Problem Solving:

Demonstrate problem-solving skills in real life situations by drawing from imbibed theories and principles.

PSO4: Skill Development:

Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)

2023-26

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	I	23ARCCSS14	Fundamentals of Social Sciences	**CO1:** Discuss the nature and importance of social science.
				CO2: Understand the emergence of culture and history.
				CO3: Assess the psychological aspects of social behaviour.
				CO4: Discuss the nature of Polity and Economy.
				CO5: Demonstrate application of computer technology.
2	I	23ARCCIS14	Perspectives on Indian Society	**CO1:** Understand the significance of human behaviour and social dynamics.
				CO2: Discuss the Indian heritage and freedom struggle.
				CO3: Interpret the philosophical foundations of Indian Constitution.
				CO4: Assess the knowledge on Indian Economy.
3	II	23JLCCHM24	History of Mass Media	**CO1:** Understand the roots of Journalism in different countries.
				CO2: Understand the history of Journalism in India and famous newspapers started by freedom fighters and social reformers.
				CO3: Examine the role of the press in the country.
				CO4: Reflect the role of press during pre-and-post independent India.
				CO5: Understand the basic terminologies of newspapers and present trends of journalism.
4	II	23JLCCBJ24	Broadcast Journalism	**CO1:** Understand the code of conduct for broadcasting in India.
				CO2: Analyse the programmes in broadcast media.

				CO3: Demonstrate writing skills.
				CO4: Understand the shooting and programme production techniques.
				CO5: Examine the current and emerging trends in Broadcast Journalism.
5	III	23JLCCAD34	Advertising	**CO1:** Understand the evolution and origin of advertisement.
				CO2: Evaluate media for advertisement based on the product/ service.
				CO3: Analyse the trends in advertising and governing bodies.
				CO4: Create an effective advertisement to attract consumers.
				CO5: Measuring the effectiveness of advertisements through various testing methods.
6	III	23JLCCHR34	Human Rights & Media	**CO1:** Identify various kinds of human rights and concepts.
				CO2: Develop knowledge on the role of media in human rights and universal declaration.
				CO3: Understand about eradication of racial discrimination.
				CO4: Analyse functions of HR commissions.
				CO5: Understand the role of the media in promoting human rights.
7	III	23JLCCRE34	Reporting & Editing for Print Media	**CO1:** Develop knowledge on concepts and components of news and news sources.
				CO2: Formulate information about reporting and different types of reporting.
				CO3: Understand the differences between news articles and feature items.

				CO4: Discuss how to review books, TV programmes, films and arts.
				CO5: Examine the process and skills of language use for reporting.
8	III	23JLCCSJ34	Sports Journalism	**CO1:** Develop knowledge about sports to report for the media.
				CO2: Understand the sports terminology which is used in sports journalism.
				CO3: Recognise the rules and regulations of major games.
				CO4: Develop writing skills for sports news.
				CO5: Evaluate the sports tournaments and report with professionalism.
9	III	23JLCCCT44	Communication Theory	**CO1:** Understand the nature and process of communication.
				CO2: Remember the process and skills of interpersonal communication.
				CO3: Identify different models of communication and study media functions.
				CO4: Develop knowledge on media dependency, agenda-setting and media effects.
				CO5: Evaluate the effects of media with models.

10	IV	23JLCCTJ44	Travel Journalism	**CO1:** Demonstrate a comprehensive understanding of the principles, concepts, and history of travel journalism.
				CO2: Develop various techniques and styles to produce engaging and informative travel narratives, articles and content.
				CO3: Develop their storytelling skills to different formats of travel journalism including feature articles, travel guides, blogs and social media posts.
				CO4: Analyse and critically evaluate travel-related information, media representations, and the impact

				of travel journalism on audience perceptions.
				CO5: Develop a personal style in travel journalism to engage the audience.
11	IV	23JLCCIJ44	Investigative Journalism	**CO1:** Understand the role of investigative reporting in modern journalism.
				CO2: Execute investigative research in an ethical manner.
				CO3: Create and write excellent investigative stories for the media.
				CO4: Develop advanced journalistic investigative skills.
				CO5: Understand and analyse the key areas of investigative journalism even within limited resources.
12	V	23JLCCPR54	Public Relations	**CO1:** Understand the role of PR in current society and its origins.
				CO2: Analyse the methods of communication used in public relations.
				CO3: Understand the work structure of PR organisations.
				CO4: Apply PR in authorities and its relation with the public.
				CO5: Evaluate the trends in PR and its professional organisations.
13	V	23JLCCNM54	New Media & Society	**CO1:** Understand different stages of social media developments.
				CO2: Assess the expansion of the internet and social media.
				CO3: Understand the role of social media in modern day politics.
				CO4: Evaluate supremacy of new media over traditional media.

				CO5: Create awareness on new media and new challenges.
14	V	23JLCCMI54	Media Issues	**CO1:** Identify the effectiveness and contribution of the eminent journalists.
				CO2: Understand the role of the freedom fighters' contribution to Indian journalism.
				CO3: Analyse the priorities and values of the early day newspapers.
				CO4: List the prominent Telugu editors in Telugu journalism.
				CO5: Analyse the reading of the newspaper.
15	V	23JLCCHF54	History of Indian Films	**CO1:** Understand the New Wave Cinema which brought changes in the Indian films.
				CO2: Identify regional cinema and its importance in portraying the culture.
				CO3: Evaluate the role of movie stars in different fields of society.

				CO4: Understand the paradigm shift in Indian cinema to art.
				CO5: Assess Indian cinema as a business.

Mapping of COs with PSOs & POs

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	23ARCCSS14	Fundamentals of Social Sciences	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
2	I	23ARCCIS14	Perspectives on Indian Society	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
3	I	23JLCCHM24	History of Mass Media	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
4	II	23JLCCBJ24	Broadcast Journalism	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
5	III	23JLCCAD34	Advertising	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

6	III	23JLCCHR34	Human Rights & Media	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
7	III	23JLCCRE34	Reporting & Editing for Print Media	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
8	III	23JLCCSJ34	Sports Journalism	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
9	III	23JLCCCT44	Communication Theory	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
10	IV	23JLCCTJ44	Travel Journalism	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
11	IV	23JLCCCW44	Creative Writing	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
12	IV	23JLCCPR54	Public	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
			Relations	CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
13	V	23JLCCNM54	New Media & Society	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
14	V	23JLCCMI54	Media Issues	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
15	V	23JLCCHF54	History of Indian Films	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7

				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7

Mapping of Courses with PSOs

Course Title	PSO1 Domain Knowledge	PSO2 Analytical Expertise	PSO3 Problem Solving	PSO4 Skill Development
Fundamentals of Social Sciences (SS)	✔	✔	✔	✔
Perspectives on Indian Society (IS)	✔	✔	✔	✔
History of Mass Media (HM)	✔	✔	✔	✔
Broadcast Journalism (BJ)	✔	✔	✔	✔
Advertising (AD)	✔	✔	✔	✔
Human Rights & Media (HR)	✔	✔	✔	✔
Reporting & Editing for Print Media (RE)	✔	✔	✔	✔
Sports Journalism (SJ)	✔	✔	✔	✔
Communication Theory (CT)	✔	✔	✔	✔
Travel Journalism (TJ)	✔	✔	✔	✔
Creative Writing (CW)	✔	✔	✔	✔
Public Relations (PR)	✔	✔	✔	✔
New Media & Society (NM)	✔	✔	✔	✔
Media Issues (MI)	✔	✔	✔	✔
History of Indian Films (HF)	✔	✔	✔	✔

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative, Critical thinking and Problem solving abilities	PO3 Teamwork and Communication skills	PO4 Motivated, Self-directed and Life-long Learning	PO5 Professionalism and Leadership Readiness	PO6 Intercultural and Ethical Competency	PO7 Self awareness and Emotional Intelligence	PO8 Social Responsibility and Effective Citizenship
SS	✔	✔	✔	✔				
IS	✔	✔	✔	✔				
HM	✔	✔	✔	✔				
BJ	✔	✔	✔	✔				
AD	✔	✔	✔	✔				
HR	✔	✔	✔	✔				
RE	✔	✔	✔	✔				
SJ	✔	✔	✔	✔				
CT	✔	✔	✔	✔				
TJ	✔	✔	✔	✔				
CW	✔	✔	✔	✔				
PR	✔	✔	✔	✔				
NM	✔	✔	✔	✔	✔		✔	
MI	✔	✔	✔	✔	✔		✔	
HF	✔	✔	✔	✔	✔		✔	

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

NAAC Accredited & ISO 21001: 2018 Certified

PROGRAMME REGISTER: 2023-26

DEPARTMENT OF MATHEMATICS

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PROGRAMME OUTCOMES (POs)

2023-26

Students of all Undergraduate Programmes at the time of graduation will be able to possess

PO1: Essential Knowledge:

Have comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi-professional contexts.

PO2: Creative, Critical Thinking and Problem-Solving Abilities:

Be effective problem-solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and Communication Skills:

Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated, Self-directed, and Life-long Learning:

Exhibit life-long skills; broad-based multiple career oriented general skills; self and field-based learning skills; digital skills; preparedness for living, learning and working in any environment.

PO5: Professionalism and Leadership Readiness:

Engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and Ethical Competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and Emotional Intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social Responsibility and Effective Citizenship:

Exhibit social responsibility and compassionate commitment; Be sensitive to and demonstrate institution in matters of environment, gender and other social issues to promote an equitable society and sustainable development.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2023-26

At the end of the programme students will be able to possess/exhibit:

PSO1: Quantitative Analysis:

Interpret principles, classifications, concepts, theories and mechanisms learnt.

PSO2: Practical and Analytical Skills:

Analyse hypotheses, procedures, properties, experimental facts and draw conclusions.

PSO3: Logical and Critical Thinking:

Apply knowledge and techniques in sample analysis, problem-solving, results, and production.

PSO4: Teamwork and Communication:

Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)

2023-26

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	I	23SCCCEA14	Essentials and Applications of Mathematical, Physical & Chemical Sciences	**CO1:**Apply mathematical principles to solve various problems across complex numbers, trigonometry, vectors, and statistical analysis involving data sets.
				CO2: Summarize key physics principles, including measurements, motion, thermodynamics, wave behaviour, electromagnetism, atomic structure, and theories of the universe.
				CO3: Outline the fundamental concepts of chemistry and their relevance in daily life.
				CO4: Elaborate the interconnectedness of math, physics and chemistry and explain how they predict phenomena in diverse contexts.
				CO5: Discuss about computer evolution, including the internet, network types and understand ethical issues in network security, cryptography, privacy and data protection.
2	I	23SCCCAS14	Advances in Mathematical Physical & Chemical Sciences	**CO1:** Identify the applications of mathematics in physics and chemistry to solve real-world problems.
				CO2: Explain renewable energy generation, storage, energy-efficient materials and recent advancements in nanotechnology, biophysics, medical physics, and materials science.
				CO3: Outline computer-aided drug design, Nano sensors, chemical biology, the impact of chemical pollutants on ecosystems and human health, and methods for dye removal using catalysis.
				CO4: Elaborate the interconnectedness of math, physics and chemistry and apply these principles to explain phenomena in diverse contexts.
				CO5: Summarize the advanced computer science topics, such as number systems, signals, error detection and correction, multiplexing, transmission media, and networking devices.
3	I	23SECAS12	Analytical Skills	**CO1**: Explain arithmetic and business computations and develop the associated skills.

				CO2: Exhibit acquired skills and competencies in the related areas.
				CO3: Solve problems related to quantitative aptitude, data interpretation, logical and verbal reasoning.
4	II	23MTCCDE24	Differential Equations	**CO1:** Classify and solve analytically differential equations based on their order and degree.
				CO2: Apply appropriate method to solve differential equations of the first order and the first degree.
				CO3: Solve the first order and higher degree differential equations and identify a family of orthogonal trajectories for a family of curves.
				CO4: Apply suitable method to solve higher-order differential equations with constant coefficients.
				CO5: Apply suitable method to solve higher-order differential equations with variable coefficients.
5	II	23MTCCAG24	Analytical Solid Geometry	**CO1:** Distinguish the geometry of planes, lines, spheres and cones and describe their properties.
				CO2: Display concepts in planes and solve problems on planes.
				CO3: Describe concepts in lines and solve problems on lines.
				CO4: Demonstrate concepts in spheres and solve problems on spheres.
				CO5: Explain concepts in cones and solve problems on cones.
6	III	23MTCCGT34	Group Theory	**CO1:** Describe structure of a group, substructures and their basic properties.
				CO2: Analyse a group by the notion of a coset and apply Lagrange's theorem for finite groups.
				CO3: Explain properties and significance of normal subgroups.
				CO4: Analyse properties of group isomorphism to describe isomorphic groups and group homomorphism.
				CO5: Discuss permutation and cyclic groups and illustrate their characteristics.
7	III	23MTCCNM34	Numerical Methods	**CO1:** Employ calculus of finite differences and numerical methods to solve problems.

				CO2: Apply suitable interpolation technique for interpolation with equal and unequal intervals.
				CO3: Apply appropriate central difference formula for interpolation with equal intervals.
				CO4: Solve algebraic and transcendental equations using numerical methods.
				CO5: Apply method of least-squares to fit a curve through the given data.
8	III	23MTCCLT34	Laplace Transforms	**CO1:** Describe linear property of Laplace transform, recognizing functions of exponential order and class A.
				CO2: Apply shifting, initial and final value theorems, change of scale property, and compute Laplace transforms of derivatives.
				CO3: Evaluate Laplace transforms of integrals, Bessel and error functions, sine and cosine functions.
				CO4: Apply linear and change of scale properties, shifting theorems and compute inverse Laplace transforms.
				CO5: Evaluate inverse Laplace transforms of derivatives and integrals and utilize convolution and Heaviside's expansion theorems.
9	III	23MTCCSF34	Special Functions	**CO1:** Apply Beta and Gamma functions and evaluate certain definite integrals and explain properties of Chebyshev polynomials.
				CO2: Describe power series solutions of ordinary differential equations.
				CO3: Discuss Hermite polynomials and their properties.
				CO4: Explain Legendre polynomials and their properties.
				CO5: Express Bessel functions and their properties.
10	III	23MDCBM32	Basic Mathematics	**CO1:** Display types and algebra of sets, types of relations and surds, and basic properties of logarithms.
				CO2: Describe coordinate system, locus and different forms of straight line.
				CO3: Explain types and algebra of matrices and find inverse of a matrix.

11	IV	23MTCCRT44	Ring Theory	**CO1:** Describe structure of a ring, types of rings, and their basic properties.
				CO2: Explain properties of subrings, ideals and their significance.
				CO3: Express the characteristics of principal ideal rings and quotient rings.
				CO4: Analyse properties of ring isomorphism to describe isomorphic rings and classify prime and maximal ideals.
				CO5: Discuss polynomials defined over a field and describe their characteristics.
12	IV	23MTCCRA44	Introduction to Real Analysis	**CO1:** Illustrate significance of real number system and describe the nature of a sequence by employing relevant results.
				CO2: Describe the nature of an infinite series by applying a suitable test for convergence.
				CO3: Identify continuity and type of discontinuity of a real valued and real variable function using learned principles.
				CO4: Discuss the derivability of a real valued and real variable function and use mean value theorems effectively.
				CO5: Discuss the integrability of a function, properties of integrable functions, and apply learned theorems.
13	IV	23MTCCIT44	Integral Transforms	**CO1:** Solve ordinary differential equations with constant and variable coefficients using Laplace transforms.
				CO2: Solve simultaneous differential and partial differential equations using Laplace transforms.
				CO3: Apply Laplace transforms to solve various integral equations and integral differential equations.
				CO4: Apply the concepts and linear, shifting, change of scale properties of Fourier transforms.
				CO5: Understand the relationship between Fourier and Laplace transforms, and solve problems related to finite Fourier transforms and their inversions.
14	V	23MTCCLA44	Linear Algebra	**CO1:** Outline the structure and properties of vector spaces and subspaces.
				CO2: Identify a basis for a finite dimensional vector space, subspace and quotient space.

				CO3: Analyze a linear transformation on a finite dimensional vector space and determine the dimension of range space and null space.
				CO4: Determine the eigenvalues and eigenvectors for a square matrix and apply Cayley-Hamilton theorem to solve problems.
				CO5: Apply concepts such as orthogonality, orthonormal basis and Gram-Schmidt orthogonalisation process.
15	V	23MTCCVC54	Vector Calculus	**CO1:**Evaluate double integrals and apply them to calculate surface areas and other physical quantities.
				CO2: Evaluate triple integrals and apply them to determine volumes and other physical quantities.
				CO3: Determine Gradient of a scalar function, Divergence and Curl of a vector function and apply their properties.
				CO4: Evaluate line, circulation, surface and volume integrals of scalar and vector functions.
				CO5: Explain the significance of Gauss, Green and Stoke theorems and apply them to evaluate complex integrals.
16	V	23MTEC11FC 54	Functions of Complex Variables	**CO1:** Determine bilinear transformation under given condition and solve problems in complex analysis and geometry by applying bilinear transformation.
				CO2: Explain key topological concepts such as open and closed sets, neighbourhoods, continuity, compactness, and connectivity in the complex plane.
				CO3: Analyze and evaluate properties of analytic functions, including their differentiability and implications in the complex domain.
				CO4: Solve problems involving the inverse of analytic functions and assess the convergence of infinite series in complex analysis.
				CO5: Discuss the power series representations and the analytic character of elementary complex functions.
17	V	23MTEC12N M54	Advanced Numerical Methods	**CO1:** Find derivative of a tabulated function using suitable numerical method and compute the error.
				CO2: Evaluate integral of a tabulated function using suitable numerical method and compute the error.
				CO3: Apply direct numerical methods to solve simultaneous linear system of equations.

				CO4: Utilize iterative numerical methods to solve simultaneous linear system of equations.
				CO5: Solve 1st order and 1st degree initial value problems applying appropriate numerical method and compute errors.
18	V	23MTEC21NT 54	Number Theory	**CO1:** Discuss properties of integers, elements of number theory, fundamental theorem of arithmetic and solve problems using the Euclidean algorithm.
				CO2: Analyze and compute arithmetical functions and apply Dirichlet multiplication and Mobious inversion formula.
				CO3: Apply techniques such as Euler summation and Dirichlet product to evaluate averages and asymptotic behaviour of arithmetical functions.
				CO4: Solve congruences and apply Euler, Fermat, Lagrange and the Chinese remainder theorems in problem-solving.
				CO5: Evaluate Legendre symbols, quadratic residues and apply the quadratic reciprocity law and Gauss sums in problem-solving.
19	V	23MTEC22MS 54	Mathematical Statistics	**CO1:** Explain the fundamental principles of probability and their use in constructing probability distributions.
				CO2: Summarize random variables and various discrete and continuous probability distributions, including their properties and applications.
				CO3: Recall the expectation and distribution of two random variables and apply multivariate distributions to solve problems involving multiple random variables.
				CO4: Analyze and interpret the properties of binomial, poison, geometric, multinomial and hypergeometric distributions.
				CO5: Utilize the normal distribution for approximations, statistical inference, and solving practical problems in statistics.

Mapping of COs with PSOs & POs

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	23SCCCEA14	Essentials and Applications of Mathematical, Physical & Chemical Sciences	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
2	I	23SCCCAS14	Advances in Mathematical Physical & Chemical Sciences	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
3	I	23SECAS12	Analytical Skills	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
4	II	23MTCCDE24	Differential Equations	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
5	II	23MTCCAG24	Analytical Solid Geometry	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
6	III	23MTCCGT34	Group Theory	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
7	III	23MTCCNM34	Numerical Methods	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
8	III	23MTCCLT34	Laplace Transforms	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
9	III	23MTCCSF34	Special Functions	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
10	III	23MDCBM32	Basic Mathematics	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
11	IV	23MTCCRT44	Ring Theory	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
12	IV	23MTCCRA44	Introduction to Real Analysis	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
13	IV	23MTCCIT44	Integral Transforms	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
14	V	23MTCCLA44	Linear Algebra	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
15	V	23MTCCVC54	Vector Calculus	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
16	V	23MTEC11FC54	Functions of Complex Variables	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7

				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
17	V	23MTEC12NM54	Advanced Numerical Methods	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
18	V	23MTEC21NT54	Number Theory	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
19	V	23MTEC22MS54	Mathematical Statistics	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7

Mapping of Courses with PSOs

Course Title	PSO1 Quantitative Analysis	PSO2 Practical and Analytical Skills	PSO3 Logical, Critical Thinking	PSO4 Teamwork and Communication
Essentials and Applications of Mathematical, Physical & Chemical Sciences (EA)	✔	✔	✔	✔
Advances in Mathematical Physical & Chemical Sciences (AS)	✔	✔	✔	✔
Analytical Skills (AS)	✔	✔	✔	✔
Differential Equations (DE)	✔	✔	✔	✔
Analytical Solid Geometry (AG)	✔	✔	✔	✔
Group Theory (GT)	✔	✔	✔	✔
Numerical Methods (NM)	✔	✔	✔	✔
Laplace Transforms (LT)	✔	✔	✔	✔
Special Functions (SF)	✔	✔	✔	✔
Basic Mathematics (BM)	✔	✔	✔	✔
Ring Theory (RT)	✔	✔	✔	✔
Introduction to Real Analysis (RA)	✔	✔	✔	✔
Integral Transforms (IT)	✔	✔	✔	✔
Linear Algebra (lA)	✔	✔	✔	✔
Vector Calculus (VC)	✔	✔	✔	✔
Functions of Complex Variables (FC)	✔	✔	✔	✔
Advanced Numerical Methods (NM)	✔	✔	✔	✔
Number Theory (NT)	✔	✔	✔	✔
Mathematical Statistics (MS)	✔	✔	✔	✔

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative, Critical thinking and Problem-solving abilities	PO3 Teamwork and Communication skills	PO4 Motivated, Self-directed and Life-long Learning	PO5 Professionalism and Leadership Readiness	PO6 Intercultural and Ethical Competency	PO7 Self-awareness and Emotional Intelligence	PO8 Social Responsibility and Effective Citizenship
EA	✔	✔	✔	✔				
AS	✔	✔	✔	✔				
AS	✔	✔	✔	✔				
DE	✔	✔	✔	✔				
AG	✔	✔	✔	✔				
GT	✔	✔	✔	✔				
NM	✔	✔	✔	✔				
LT	✔	✔	✔	✔				
SF	✔	✔	✔	✔				
BM	✔	✔	✔	✔				
RT	✔	✔	✔	✔				
RA	✔	✔	✔	✔				
IT	✔	✔	✔	✔				
LA	✔	✔	✔	✔	✔		✔	
VC	✔	✔	✔	✔	✔		✔	
FC	✔	✔	✔	✔	✔		✔	
NM	✔	✔	✔	✔	✔		✔	
NT	✔	✔	✔	✔	✔		✔	
MS	✔	✔	✔	✔	✔		✔	

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

NAAC Accredited & ISO 21001: 2018 Certified

PROGRAMME REGISTER: 2023-26

DEPARTMENT OF PHYSICS

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PROGRAMME OUTCOMES (POs)

2023-26

Students of all Undergraduate Programmes at the time of graduation will be able to possess

PO1: Essential Knowledge:

Have comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi-professional contexts.

PO2: Creative, Critical Thinking and Problem-Solving Abilities:

Be effective problem-solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and Communication Skills:

Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated, Self-directed, and Life-long Learning:

Exhibit life-long skills; broad-based multiple career oriented general skills; self and field-based learning skills; digital skills; preparedness for living, learning and working in any environment.

PO5: Professionalism and Leadership Readiness:

Engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and Ethical Competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and Emotional Intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social Responsibility and Effective Citizenship:

Exhibit social responsibility and compassionate commitment; Be sensitive to and demonstrate institution in matters of environment, gender and other social issues to promote an equitable society and sustainable development.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2023-26

At the end of the programme students will be able to possess/exhibit:

PSO1: Quantitative Analysis:

Interpret principles, classifications, concepts, theories and mechanisms learnt.

PSO2: Practical and Analytical Skills:

Analyze hypotheses, procedures, properties, experimental facts and draw conclusions.

PSO3: Logical and Critical Thinking:

Apply knowledge and techniques in sample analysis, problem-solving, results, and production.

PSO4: Teamwork and Communication:

Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)

2023-26

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	I	23SCCCEA14	Essentials and Applications of Mathematical, Physical & Chemical Sciences	**CO1:** Apply mathematical principles to solve various problems across complex numbers, trigonometry, vectors, and statistical analysis involving data sets.
				CO2: Summarize key physics principles, including measurements, motion, thermodynamics, wave behaviour, electromagnetism, atomic structure, and theories of the universe.
				CO3: Outline the fundamental concepts of chemistry and their relevance in daily life.
				CO4: Elaborate the interconnectedness of math, physics and chemistry and explain how they predict phenomena in diverse contexts.
				CO5: Discuss about computer evolution, including the internet, network types and understand ethical issues in network security, cryptography, privacy and data protection.
2	I	23SCCCAS14	Advances in Mathematical Physical & Chemical Sciences	**CO1:** Identify the applications of mathematics in physics and chemistry to solve real-world problems.
				CO2: Explain renewable energy generation, storage, energy-efficient materials and recent advancements in nanotechnology, biophysics, medical physics, and materials science.
				CO3: Outline computer-aided drug design, Nano sensors, chemical biology, the impact of chemical pollutants on ecosystems and human health, and methods for dye removal using catalysis.
				CO4: Elaborate the interconnectedness of math, physics and chemistry and apply these principles to explain phenomena in diverse contexts.
				CO5: Summarize the advanced computer science topics, such as number systems, signals, error detection and correction, multiplexing, transmission media, and networking devices.
3	I	23MDCPP12	Principles of Physical Sciences	**CO1**: To know the core principles and concepts in physical sciences.

				CO2: To analyze scientific information and data related to physical sciences.
				CO3: To apply physical science principles to solve real - world problems.
4	II	23PHCCMM23	Mechanics & Properties of Matter - Minor	**CO1:** Determine the gradient of a scalar field, divergence, and curl of a vector field using the concepts of scalar and vector fields.
				CO2: : Solve equations of motion for variable mass systems using the laws of motion.
				CO3: Derive equations of motion for rotating rigid bodies, and analyze the precessional motion.
				CO4: Discuss the characteristics, conservative nature of central forces and equations of motion of bodies
				CO5: Outline various concepts of theory of relativity and solve problems.
5	II	23PHP1MM21	Mechanics & Properties of Matter- Practical – Minor	**CO1:** List out, identify and handle laboratory instruments related to Mechanics & Properties of Matter.
				CO2: Describe the experimental techniques to measure properties of matter and analyze mechanical systems
				CO3: Demonstrate experimental skills to accurately record, analyze experimental data and determine the respective physical parameters.
6	II	23PHCCWO23	Waves & Oscillations	**CO1:** Describe the basic characteristics of waves
				CO2: Relate wave parameters in terms of mathematical relationships.
				CO3: Compare particle motion and wave motion in different types of waves.
				CO4: Distinguish between Longitudinal and Transverse waves.
				CO5: Analyze the square waves, saw tooth waves, etc. using Fourier theorem
7	II	23PHP2WO21	Waves & Oscillations - Practical	**CO1:** List out, identify and handle laboratory instruments related to Waves & Oscillations.
				CO2: Describe the experimental techniques and equipment to investigate and analyze topics related to Waves & Oscillations.

				CO3: Demonstrate experimental skills to accurately record, analyze. experimental data and determine the respective physical parameters.
8	III	23PHCCOP33	Optics - Minor	**CO1:** Discuss different aberrations and methods of minimizing them in lenses.
				CO2: Explain the principles and theory of interference and its applications.
				CO3: Distinguish between the concepts of Fraunhofer and Fresnel diffraction.
				CO4: Summarize the concepts of polarization, specific rotation and applications.
				CO5: Outline the characteristics, working principles of LASERS and Holography and their applications.
9	III	23PHP3OP31	Optics – Practical - Minor	**CO1:** List out, identify and handle various instruments related to Optics.
				CO2: Describe the operational procedures of various experiments in Optics.
				CO3: Demonstrate experimental skills and determine the respective physical parameters.
10	III	23PHCCHT33	Heat & Thermodynamics	**CO1**: Describe the postulates of kinetic theory of gases and transport phenomena.
				CO2: Outline the fundamental ideas, laws of thermodynamics, reversible and irreversible processes, entropy of the universe and their applications.
				CO3: Describe thermodynamic potentials and derive Maxwell's equations and their applications.
				CO4: Summarize the fundamentals of low temperature physics and their applications
				CO5: Discuss the postulates of Quantum theory of radiation and their applications.
11	III	23PHP4HT31	Heat & Thermodynamics - Practical	**CO1:** List out, identify and handle various instruments related to Heat &Thermodynamics.
				CO2: Describe the operational procedures of various experiments in Heat &Thermodynamics.
				CO3: Demonstrate experimental skills and determine the respective physical parameters.

12	III	23PHCCED33	Electronic Devices & Circuits	**CO1:** Know the behavior of P-N junction diodes in forward and reverse bias conditions and the impact of junction capacitance on diode characteristics.
				CO2: Analyze the operation and characteristics of different BJT configurations (CB, CE and CC) and biasing.
				CO3: Comprehend the operation and characteristics of FETs, and UJTs.
				CO4: Describe the operation and applications of various photoelectric devices.
				CO5: Investigate the theoretical concepts and operation of rectifiers (half-wave, full-wave, and bridge), different filters and three-terminal voltage regulators.
13	III	23PHP5ED31	Electronic Devices & Circuits - Practical	**CO1:** List out, identify and handle various instruments related to Electronic Devices & Circuits.
				CO2: Describe the operational procedures of various experiments in Electronic Devices & Circuits.
				CO3: Demonstrate experimental skills and determine the respective physical parameters.
14	III	23PHCCAD33	Analog & Digital Electronics	**CO1:** Learn the principles and working of operational amplifiers.
				CO2: Apply knowledge of operational amplifiers in various applications.
				CO3: Attain proficiency in number systems, binary codes, and complements.
				CO4: Analyse logic processes and implement logical operations using combinational logic circuits.
				CO5: Summarize the concepts of sequential circuits and analyze sequential systems in terms of state machines.
15	III	23PHP6AD31	Analog & Digital Electronics - Practical	**CO1:** List out, identify and handle various instruments related to Analog & Digital Electronics.
				CO2: Describe the operational procedures of various experiments in Analog & Digital Electronics
				CO3: Demonstrate experimental skills and determine the respective physical parameters.
16	III	23MDCBE32	Basic Electronics	**CO1:** Describe various electrical parameters like voltage, current, resistance, electrical power and safety measures when dealing with electricity.

				CO2: Classify solid materials based on electrical conductivity and their applications.
				CO3: Discuss the basics of communication systems and their advanced applications in everyday life.
17	IV	23PHCCEM43	Electricity & Magnetism - Minor	**CO1:** Apply Gauss's law to get relations connecting dielectric parameters.
				CO2: Solve problems using loop analysis, Nodal analysis, Thevenin's theorem, Norton's theorem, and the Superposition theorem.
				CO3: Discuss the applications of Biot Savart Law and distinguish self and mutual inductance Phenomena.
				CO4: Compute Maxwell's electromagnetic wave equations governing electromagnetic waves using basic laws of electricity and magnetism.
				CO5: Describe phenomenon of resonance and compare series and parallel resonant circuits.
18	IV	23PHP7EM41	Electricity & Magnetism - Practical - Minor	**CO1:** List out, identify and handle various instruments related to Electricity & Magnetism.
				CO2: Describe the operational procedures of various experiments in Electricity & Magnetism.
				CO3: Demonstrate experimental skills and determine the respective physical parameters.
19	IV	23PHCCMP43	Modern Physics - Minor	**CO1:** Apply the knowledge of vector atom model to understand the principles of atomic structure and spectroscopy.
				CO2: Apply the knowledge of vector atom model to understand the principles of molecular structure and spectroscopy.
				CO3: Outline the concepts of de Broglie matter waves and Heisenberg's uncertainty Principle.
				CO4: Familiarize with the principles of quantum mechanics and the formulation of Schrodinger wave equation and its applications.
				CO5: Discuss the basics of the phenomenon of Superconductivity and its applications.
20	IV	23PHP8MP41	Modern Physics - Practical -	**CO1:** List out, identify and handle various instruments related to Modern Physics.

			Minor	**CO2:** Describe the operational procedures of various experiments in Modern Physics.
				CO3: Demonstrate experimental skills and determine the respective physical parameters.
21	IV	23PHCCNP43	Introduction to Nuclear & Particle Physics	**CO1:** Discuss high energy particles and their applications.
				CO2: Explain concepts on nucleon-nucleon interaction, such as its short-range, spin dependence, isospin, and tensors.
				CO3: Draw the potential shapes from nucleon interactions
				CO4: Summarize the concepts of single particle model, its strengths, and weaknesses.
				CO5: Describe magic numbers based on single particle model.
22	IV	23PHP9NP41	Introduction to Nuclear & Particle Physics - Practical	**CO1:** List out, identify and handle various instruments related to Introduction to Nuclear & Particle Physics.
				CO2: Describe the operational procedures of various experiments in Introduction to Nuclear & Particle Physics.
				CO3: Demonstrate experimental skills and determine the respective physical parameters.
23	IV	23MDCIN42	Introduction to Nanotechnology	**CO1:** Describe the fundamentals of nanotechnology.
				CO2: Summarize the fabrication and characterization techniques in nanotechnology.
				CO3: Evaluate the ethical and societal implications of nanotechnology.
24	V	23PHCCAE53	Applications of Electricity & Electronics - Minor	**CO1:** Analyze the working principles, classifications, and applications of passive elements.
				CO2: Apply DC network theorems to solve and optimize electrical circuits.
				CO3: Explain the operation and applications of AC/DC generators, transformers, and single-phase motors.
				CO4: Demonstrate amplitude and frequency modulation and analyze AM and FM transmitters and receivers.
				CO5: Design and troubleshoot DC motors, power supplies, and simple FM radio circuits.
25	V	23PHP10AE51	Applications of Electricity &	**CO1:** List out, identify and handle laboratory instruments related to applications of Electricity & Magnetism

			Electronics – Practical - Minor	**CO2:** Describe the experimental techniques to measure parameters of Electricity & Magnetism.
				CO3: Demonstrate experimental skills to accurately record, analyze experimental data and determine the respective physical parameters.
26	V	23PHCCEI53	Electronic Instrumentation – Minor	**CO1:** Understand the working of analog and digital instruments for accurate measurements.
				CO2: Demonstrate the skill of using oscilloscopes for measuring voltage, frequency, and time.
				CO3: Outline the working of transducers and bridges for measurements.
				CO4: Apply ADC/DAC and display technologies for signal conversion
				CO5: Analyze amplifiers, oscillators, and biomedical instruments.
27	V	23PHP11EI51	Electronic Instrumentation - Practical - Minor	**CO1:** List out, identify and handle laboratory instruments related to Electronic Instrumentation.
				CO2: Describe the experimental techniques to measure parameters of Electronic Instrumentation.
				CO3: Demonstrate experimental skills to accurately record, analyze experimental data and determine the respective physical parameters.
28	V	23PHEC11OI53	Optical Instruments & Optometry	**CO1:** Identify different types of cameras and camera lenses according to different purposes.
				CO2: Determine focal length of the different types of lenses
				CO3: Outline the natural and artificial sources of light and their application in Photography.
				CO4: Demonstrate skills on camera usage especially Digital Cameras.
				CO5: Outline the concept of different shooting techniques, techniques of Image development and editing.
29	V	23PHP1211OI51	Optical Instruments & Optometry - Practical	**CO1:** List out, identify and handle various optical instruments.
				CO2: Describe the operational procedures of various experiments in Optical Instruments & Optometry.

				CO3: Demonstrate experimental skills and determine the respective physical parameters.
30	V	23PHEC12OP53	Optical Imaging & Photography	**CO1:** Identify different types of cameras and camera lenses according to different purposes.
				CO2: Determine focal length of the different types of lenses.
				CO3: Outline the natural and artificial sources of light and their application in Photography.
				CO4: Demonstrate skills on camera usage especially Digital Cameras
				CO5: Outline the concept of different shooting techniques, techniques of Image development and editing.
31	V	23PHP1312OP51	Optical Imaging & Photography - Practical	**CO1:** List out, identify and handle various instruments related to optical imaging and Photography.
				CO2: Describe the operational procedures of various experiments in Optical Imaging & Photography.
				CO3: Demonstrate experimental skills and determine the respective physical parameters.
32	V	23PHEC21LT53	Low Temperature Physics & Refrigeration	**CO1:** Summarize the procedures of various methods and techniques used to produce low temperatures in the Laboratory.
				CO2: Explain the principles of refrigeration, air conditioning and cold storage.
				CO3: Describe the working of refrigeration, air conditioning and cold storage.
				CO4: Outline the classification, properties of refrigerants and their effects on the environment.
				CO5: Comprehend the applications of Low Temperature Physics.
33	V	23PHP1421LT51	Low Temperature Physics & Refrigeration-Practical	**CO1:** List out, identify and handle various instruments related to Low Temperature Physics.
				CO2: Describe the operational procedures of various experiments in Low Temperature Physics & Applications.
				CO3: Demonstrate experimental skills and determine the respective physical parameters.

34	V	23PHEC22SE53	Solar Energy & Applications	**CO1:** Summarize the basic concepts of solar radiation principles, collecting techniques and its storage.
				CO2: Explain the principles and working of solar thermal collectors and applications.
				CO3: Describe the fundamental concepts and working of solar cells and applications.
				CO4: Outline the types of solar cells, characteristics, fabrication steps and modules.
				CO5: Comprehend the knowledge on solar photovoltaic systems and applications.
35	V	23PHP1522SE51	Solar Energy & Applications - Practical	**CO1:** List out, identify and handle various instruments related to Solar energy.
				CO2: Describe the operational procedures of various experiments in Solar Energy & Applications.
				CO3: Demonstrate experimental skills and determine the respective physical parameters

Mapping of COs with PSOs & POs

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	23SCCCEA14	Essentials and Applications of Mathematical, Physical & Chemical Sciences	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
2	I	23SCCCAS14	Advances in Mathematical Physical & Chemical Sciences	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
3	I	23MDCPP12	Principles of Physical Sciences	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
4	II	23PHCCMM23	Mechanics & Properties of Matter - Minor	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
5	II	23PHP1MM21	Mechanics & Properties of Matter- Practical – Minor	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
6	II	23PHCCWO23	Waves & Oscillations	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

7	II	23PHP2WO21	Waves & Oscillations - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
8	III	23PHCCOP33	Optics - Minor	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
9	III	23PHP3OP31	Optics – Practical - Minor	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
10	III	23PHCCHT33	Heat & Thermodynamics	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
11	III	23PHP4HT31	Heat & Thermodynamics - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
12	III	23PHCCED33	Electronic Devices & Circuits	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
13	III	23PHP5ED31	Electronic Devices & Circuits - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
14	III	23PHCCAD33	Analog & Digital Electronics	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
15	III	23PHP6AD31	Analog & Digital Electronics - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
16	III	23MDCBE32	Basic Electronics	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
17	IV	23PHCCEM43	Electricity & Magnetism - Minor	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
18	IV	23PHP7EM41	Electricity & Magnetism - Practical - Minor	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
19	IV	23PHCCMP43	Modern Physics - Minor	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
20	IV	23PHP8MP41	Modern Physics - Practical - Minor	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
21	IV	23PHCCNP43	Introduction to Nuclear & Particle Physics	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
22	IV	23PHP9NP41	Introduction to Nuclear & Particle Physics - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
23	IV	23MDCIN42	Introduction to Nanotechnology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
24	V	23PHCCAE53	Applications of Electricity &	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

			Electronics - Minor	CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
25	V	23PHP10AE51	Applications of Electricity & Electronics – Practical - Minor	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
26	V	23PHCCEI53	Electronic Instrumentation – Minor	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
27	V	23PHP11EI51	Electronic Instrumentation - Practical - Minor	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
28	V	23PHEC11OI53	Optical Instruments & Optometry	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
29	V	23PHP1211OI51	Optical Instruments & Optometry - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
30	V	23PHEC12OP53	Optical Imaging & Photography	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
31	V	23PHP1312OP51	Optical Imaging & Photography - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
32	V	23PHEC21LT53	Low Temperature Physics & Refrigeration	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
33	V	23PHP1421LT51	Low Temperature Physics & Refrigeration-	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

			Practical	CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
34	V	23PHEC22SE53	Solar Energy & Applications	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
35	V	23PHP1522SE51	Solar Energy & Applications - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

Mapping of Courses with PSOs

Course Title	PSO1 Quantitative Analysis	PSO2 Practical and Analytical Skills	PSO3 Logical, Critical Thinking	PSO4 Teamwork and Communication
Essentials and Applications of Mathematical, Physical & Chemical Sciences (EA)	✔	✔	✔	✔
Advances in Mathematical Physical & Chemical Sciences (AS)	✔	✔	✔	✔
Principles of Physical Sciences (PP)	✔	✔	✔	✔
Mechanics & Properties of Matter – Minor (MM)	✔	✔	✔	✔
Mechanics & Properties of Matter- Practical – Minor (MM-P1)	✔	✔	✔	✔
Waves & Oscillations (WO)	✔	✔	✔	✔
Waves & Oscillations – Practical (WO-P2)	✔	✔	✔	✔
Optics – Minor (OP)	✔	✔	✔	✔
Optics – Practical – Minor (OP-3)	✔	✔	✔	✔
Heat & Thermodynamics (HT)	✔	✔	✔	✔
Heat & Thermodynamics – Practical (HT-P4)	✔	✔	✔	✔
Electronic Devices & Circuits (ED)	✔	✔	✔	✔
Electronic Devices & Circuits – Practical (ED-P5)	✔	✔	✔	✔
Analog & Digital Electronics (AD)	✔	✔	✔	✔
Analog & Digital Electronics – Practical (AD-P6)	✔	✔	✔	✔
Basic Electronics (BE)	✔	✔	✔	✔
Electricity & Magnetism – Minor (EM)	✔	✔	✔	✔
Electricity & Magnetism - Practical – Minor (EM-P7)	✔	✔	✔	✔
Modern Physics – Minor (MP)	✔	✔	✔	✔
Modern Physics - Practical –Minor (MP-P8)	✔	✔	✔	✔

Introduction to Nuclear & Particle Physics (NP)	✔	✔	✔	✔
Introduction to Nuclear & Particle Physics -Practical (NP-P9)	✔	✔	✔	✔
Introduction to Nanotechnology (IN)	✔	✔	✔	✔
Applications of Electricity & Electronics – Minor (AE)	✔	✔	✔	✔
Applications of Electricity & Electronics – Practical – Minor (AE-P10)	✔	✔	✔	✔
Electronic Instrumentation – Minor (EI)	✔	✔	✔	✔
Electronic Instrumentation - Practical – Minor (EI-P11)	✔	✔	✔	✔
Optical Instruments & Optometry (OI)	✔	✔	✔	✔
Optical Instruments & Optometry – Practical (OI-P12)	✔	✔	✔	✔
Optical Imaging & Photography (OP)	✔	✔	✔	✔
Optical Imaging & Photography – Practical (OP-P13)	✔	✔	✔	✔
Low Temperature Physics & Refrigeration (LT)	✔	✔	✔	✔
Low Temperature Physics & Refrigeration-Practical (LT-P14)	✔	✔	✔	✔
Solar Energy & Applications (SE)	✔	✔	✔	✔
Solar Energy & Applications – Practical (SE-P15)	✔	✔	✔	✔

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative, Critical thinking and Problem-solving abilities	PO3 Teamwork and Communication skills	PO4 Motivated, Self-directed and Life-long Learning	PO5 Professionalism and Leadership Readiness	PO6 Intercultural and Ethical Competency	PO7 Self-awareness and Emotional Intelligence	PO8 Social Responsibility and Effective Citizenship
EA	✔	✔	✔	✔				
AS	✔	✔	✔	✔				
PP	✔	✔	✔	✔				
MM	✔	✔	✔	✔				
MM-P1	✔	✔	✔	✔				
WO	✔	✔	✔	✔				
WO-P2	✔	✔	✔	✔				
OP	✔	✔	✔	✔				
OP-P3	✔	✔	✔	✔				
HT	✔	✔	✔	✔				
HT-P4	✔	✔	✔	✔				
ED	✔	✔	✔	✔				
ED-P5	✔	✔	✔	✔				
AD	✔	✔	✔	✔				
AD-P6	✔	✔	✔	✔				
BE	✔	✔	✔	✔				
EM	✔	✔	✔	✔				
EM-P7	✔	✔	✔	✔				
MP	✔	✔	✔	✔				
MP-P8	✔	✔	✔	✔				
NP	✔	✔	✔	✔				
NP-P9	✔	✔	✔	✔				

IN	✔	✔	✔	✔				
AE	✔	✔	✔	✔				
AE-P10	✔	✔	✔	✔				
EI	✔	✔	✔	✔				
EI-P11	✔	✔	✔	✔				
OI	✔	✔	✔	✔				
OI-P12	✔	✔	✔	✔				
OP	✔	✔	✔	✔				
OP-P13	✔	✔	✔	✔				
LT	✔	✔	✔	✔				
LT-P14	✔	✔	✔	✔				
SE	✔	✔	✔	✔				
SE-P15	✔	✔	✔	✔				

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

NAAC Accredited & ISO 21001: 2018 Certified

PROGRAMME REGISTER: 2023-26

DEPARTMENT OF CHEMISTRY

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PROGRAMME OUTCOMES
(POs) 2023-26

Students of all Undergraduate Programmes at the time of graduation will be able to possess

PO1: Essential Knowledge:

Have comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi-professional contexts.

PO2: Creative, Critical Thinking and Problem-Solving Abilities:

Be effective problem-solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and Communication Skills:

Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated, Self-directed, and Life-long Learning:

Exhibit life-long skills; broad-based multiple career oriented general skills; self and field-based learning skills; digital skills; preparedness for living, learning and working in any environment.

PO5: Professionalism and Leadership Readiness:

Engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and Ethical Competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and Emotional Intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social Responsibility and Effective Citizenship:

Exhibit social responsibility and compassionate commitment; Be sensitive to and demonstrate institution in matters of environment, gender and other social issues to promote an equitable society and sustainable development.

PROGRAMME SPECIFIC OUTCOMES

(PSOs) 2023-26

At the end of the programme students will be able to possess/exhibit:

PSO1: Quantitative Analysis:

Interpret principles, classifications, concepts, theories and mechanisms learnt.

PSO2: Practical and Analytical Skills:

Analyse hypotheses, procedures, properties, experimental facts and draw conclusions.

PSO3: Logical and Critical Thinking:

Apply knowledge and techniques in sample analysis, problem-solving, results, and production.

PSO4: Teamwork and Communication:

Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes

(COs) 2023-26

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	I	23SCCCEA14	Essentials and Applications of Mathematical, Physical & Chemical Sciences	**CO1:** Apply mathematical principles to solve various problems across complex numbers, trigonometry, vectors, and statistical analysis involving data sets.
				CO2: Summarize key physics principles, including measurements, motion, thermodynamics, wave behaviour, electromagnetism, atomic structure, and theories of the universe.
				CO3: Outline the fundamental concepts of chemistry and their relevance in daily life.
				CO4: Elaborate the interconnectedness of math, physics and chemistry and explain how they predict phenomena in diverse contexts.
				CO5: Discuss about computer evolution, including the internet, network types and understand ethical issues in network security, cryptography, privacy and data protection.
2	I	23SCCCAS14	Advances in Mathematical Physical & Chemical Sciences	**CO1:** Identify the applications of mathematics in physics and chemistry to solve real-world problems.
				CO2: Explain renewable energy generation, storage, energy-efficient materials and recent advancements in nanotechnology, biophysics, medical physics, and materials science.
				CO3: Outline computer-aided drug design, Nano sensors, chemical biology, the impact of chemical pollutants on ecosystems and human health, and methods for dye removal using catalysis.
				CO4: Elaborate the interconnectedness of math, physics and chemistry and apply these principles to explain phenomena in diverse contexts.
				CO5: Summarize the advanced computer science topics, such as number systems, signals, error detection and correction, multiplexing, transmission media, and networking devices.
3	I	23MDCCS12	Principles of Chemical Sciences	**CO1**: Outline the classification, principles, theories and nuclear reactions of atoms and molecules

				CO2: Classify and study the bonding, periodic properties of elements.
				CO3: Explain the types and properties of salts, importance of chemistry in daily life.
4	II	23CHCCGI23	General & Inorganic Chemistry	**CO1:** Outline the structure of atom, electronic configuration, classification of elements and periodic properties
				CO2: Explain properties, lattice energy and stability of ionic compounds.
				CO3: Summarize the concepts, theories of bonding and molecular structures
				CO4: Understand theories of acids and bases and types of chemical reactions
				CO5: Solve concept-based problems
5	II	23CHP1AS21	Qualitative Analysis of Simple Salt - Practical	**CO1:** Analyze simple salt by adapting systematic procedure
				CO2: Apply the concepts of common ion effect, solubility product to qualitative analysis
				CO3: Use glassware, equipment, chemicals and follow experimental procedures in the laboratory.
6	II	23CHCCIC23	Inorganic Chemistry I	**CO1:** Outline classification, preparations and molecular structures of listed compounds of p-block elements
				CO2: Elaborate the characteristic properties of d and f – block elements.
				CO3: Explain the fundamental concepts of radioactivity, nuclear reactions and applications
				CO4: Solve concept-based problems
7	II	23CHP2IC21	Inorganic Chemistry I - Practical	**CO1**: Prepare the listed inorganic compounds applying standard procedures.
				CO2: Determine melting point of the given compound.
				CO3: Use glassware, equipment, chemicals and follow experimental procedures in the laboratory.
8	III	23CHCCFO33	Fundamentals in Organic Chemistry	**CO1:** Explain the organic reagents, intermediates, electron displacement concepts and their applications.

				CO2: Outline the preparations, physical and chemical properties of alkanes, cycloalkanes, alkenes, alkynes
				CO3: Summarize the mechanisms of certain chemical reactions
				CO4: Discuss the concept of aromaticity, orientation of substitution with relevant examples.
				CO5: Solve concept-based problems
9	III	23CHP3OA31	Organic Qualitative Analysis - Practical	**CO1:** Adapt systematic procedure and perform organic compound analysis to identify the organic functional group and name of the compound.
				CO2: Determine the boiling/melting point of the given organic compound.
				CO3: Use glassware, equipment, chemicals and follow experimental procedures in the laboratory.
10	III	23CHCCOC33	Organic Chemistry (Halogens & Oxygen Organic Compounds)	**CO1:** Outline the preparations and properties of alkyl, aryl halides, alcohols and phenols.
				CO2: Summarize the preparative methods and characteristic reactions of carbonyl compounds, carboxylic acids and active methylene compounds.
				CO3: Discuss the molecular structure, physical and chemical properties of carbohydrates.
				CO4: Write the listed mechanisms and named reactions
				CO5: Solve concept-based problem
11	III	23CHP4OP31	Organic Preparations - Practical	**CO1:** Perform organic synthesis for the compounds mentioned in the syllabus.
				CO2: Execute common laboratory techniques including reflux, distillation, recrystallization, vacuum filtration.
				CO3: Use glassware, equipment, chemicals and follow experimental procedures in the laboratory.
12	III	23CHCCPC33	Physical Chemistry I (Solutions & Electrochemistry)	**CO1:** Elucidate the concepts and laws pertaining to behaviour of liquid solutions.
				CO2: Outline the colligative properties and determination methods of molar mass.
				CO3: Explain various photo processes and the laws of photochemistry.
				CO4: Summarize the electrochemical concepts and their applications in electro analytical techniques.
				CO5: Solve concept-based problems

13	III	23CHP5PC31	Physical Chemistry I - Practical	**CO1:** Determine CST of Phenol-water system and examine the effect of electrolyte on CST.
				CO2: Perform potentiometric and conductometric titrations for quantitative estimations.
				CO3: Use glassware, equipment, chemicals and follow experimental procedures in the laboratory.
14	III	23CHCCIP33	Inorganic & Physical Chemistry	**CO1:** Summarize the theories of bonding and isomerism of complex compounds.
				CO2: Elaborate the inorganic reaction mechanism and stability of metal concepts.
				CO3: Outline the classification of organometallic compounds and discuss the metal carbonyls.
				CO4: Explain the concepts and laws of thermodynamics and deduce thermodynamic relations.
				CO5: Solve concept-based problems
15	III	23CHP6IA31	Qualitative Inorganic Analysis - Practical	**CO1:** Analyze Mixture salt by adapting systematic procedure
				CO2: Apply the concepts of common ion effect, solubility product to qualitative analysis
				CO3: Use glassware, equipment, chemicals and follow experimental procedures in the laboratory.
16	IV	23CHCCPC43	Physical Chemistry II (States of Matter, Phase Rule & Surface Chemistry)	**CO1:** Summarize the theories of bonding and isomerism of complex compounds.
				CO2: Elaborate the inorganic reaction mechanism and stability of metal concepts.
				CO3: Outline the classification of organometallic compounds and discuss the metal carbonyls.
				CO4: Apply phase rule to mentioned systems
				CO5: Solve concept-based problems.
17	IV	23CHP7PC41	Physical Chemistry II - Practical	**CO1:** Determine surface tension and viscosity of given liquids.
				CO2: Verify Freundlich adsorption isotherm.
				CO3: Use glassware, equipment, chemicals and follow experimental procedures in the laboratory.
18	IV	23CHCCGP43	General & Physical Chemistry	**CO1:** Draw molecular representations and explain the concepts of optical isomerism.
				CO2: Outline the role of metals in biological systems.
				CO3: Describe the concepts of ionic equilibrium, common

				ion effect and solubility product with applications.
				CO4: Deduce expression for rate constants, summarize theories of reaction rates and enzyme catalysis.
				CO5: Solve concept-based problems
19	IV	23CHP8VA41	Volumetric Analysis - Practical	**CO1:** Outline the theoretical and experimental aspects of volumetric analysis.
				CO2: Perform volumetric analysis for quantitative estimations.
				CO3: Use glassware, equipment, chemicals and follow experimental procedures in the laboratory.
20	IV	23CHCCOS43	Nitrogen Containing Organic Compounds & Spectroscopy	**CO1:** Elucidate the reaction mechanisms in Amines
				CO2: Outline the classification, preparations and properties of amino acids, nitro compounds
				CO3: Discuss the molecular structure, physical and chemical properties of heterocyclic compounds.
				CO4: Use UV-Visible, IR spectral data to Interpret the molecular structures of simple molecules.
				CO5: Solve concept-based problems.
21	IV	23CHP9OS41	Organic Preparations & IR Spectral Analysis - Practical	**CO1:** Prepare listed organic compounds
				CO2: Analyze IR spectra of given functional group compounds to interpret the molecular structure.
				CO3: Use glassware, equipment, chemicals and follow experimental procedures in the laboratory.

Mapping of COs with PSOs & POs

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	23SCCCEA14	Essentials and Applications of Mathematical, Physical & Chemical Sciences	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
2	I	23SCCCAS14	Advances in Mathematical Physical & Chemical Sciences	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
3	I	23MDCCS12	Principles of Chemical Sciences	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO8
4	II	23CHCCGI23	General & Inorganic Chemistry	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
5	II	23CHP1AS21	Qualitative Analysis of Simple Salt - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
6	II	23CHCCIC23	Inorganic Chemistry I	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
7	II	23CHP2IC21	Inorganic Chemistry I - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
8	III	23CHCCFO33	Fundamentals in Organic Chemistry	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
9	III	23CHP3OA31	Organic Qualitative Analysis - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
10	III	23CHCCOC33	Organic Chemistry (Halogens & Oxygen Organic Compounds)	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
11	III	23CHP4OP31	Organic Preparations - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
12	III	23CHCCPC33	Physical Chemistry I	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO4

			(Solutions & Electrochemistry)	CO2	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
13	III	23CHP5PC31	Physical Chemistry I - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
14	III	23CHCCIP33	Inorganic & Physical Chemistry	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
15	III	23CHP6IA31	Qualitative Inorganic Analysis - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
16	IV	23CHCCPC43	Physical Chemistry II (States of Matter, Phase Rule & Surface Chemistry)	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
17	IV	23CHP7PC41	Physical Chemistry II - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
18	IV	23CHCCGP43	General & Physical Chemistry	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO4

				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
19	IV	23CHP8VA41	Volumetric Analysis - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
20	IV	23CHCCOS43	Nitrogen Containing Organic Compounds & Spectroscopy	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
21	IV	23CHP9OS41	Organic Preparations & IR Spectral Analysis - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

Mapping of Courses with PSOs

Course Title	PSO1 Quantitative Analysis	PSO2 Practical and Analytical Skills	PSO3 Logical, Critical Thinking	PSO4 Teamwork and Communication
Essentials and Applications of Mathematical, Physical & Chemical Sciences (EA)	✔	✔	✔	✔
Advances in Mathematical Physical & Chemical Sciences (AS)	✔	✔	✔	✔
Principles of Chemical Sciences (CS)	✔	✔	✔	✔
General & Inorganic Chemistry (GI)	✔	✔	✔	✔
Qualitative Analysis of Simple Salt – Practical (AS)	✔	✔	✔	✔
Inorganic Chemistry I (IC)	✔	✔	✔	✔
Inorganic Chemistry I – Practical (IC)	✔	✔	✔	✔
Fundamentals in Organic Chemistry (FO)	✔	✔	✔	✔
Organic Qualitative Analysis – Practical (OA)	✔	✔	✔	✔
Organic Chemistry (Halogens & Oxygen Organic Compounds) (OC)	✔	✔	✔	✔
Organic Preparations – Practical (OP)	✔	✔	✔	✔
Physical Chemistry I (Solutions & Electrochemistry) (PC)	✔	✔	✔	✔
Physical Chemistry I – Practical (PC)	✔	✔	✔	✔
Inorganic & Physical Chemistry (IP)	✔	✔	✔	✔
Qualitative Inorganic Analysis – Practical (IA)	✔	✔	✔	✔
Physical Chemistry II (States of Matter, Phase Rule & Surface Chemistry) (PC)	✔	✔	✔	✔
Physical Chemistry II – Practical (PC)	✔	✔	✔	✔
General & Physical Chemistry (GP)	✔	✔	✔	✔
Volumetric Analysis – Practical (VA)	✔	✔	✔	✔
Nitrogen Containing Organic Compounds & Spectroscopy (OS)	✔	✔	✔	✔

Organic Preparations & IR Spectral Analysis – Practical (OS)	✔	✔	✔	✔

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative, Critical thinking and Problem-solving abilities	PO3 Teamwork and Communication skills	PO4 Motivated, Self-directed and Life-long Learning	PO5 Professionalism and Leadership Readiness	PO6 Intercultural and Ethical Competency	PO7 Self-awareness and Emotional Intelligence	PO8 Social Responsibility and Effective Citizenship
EA	✔	✔	✔	✔			✔	✔
AS	✔	✔	✔	✔			✔	✔
CS	✔	✔	✔	✔				✔
GI	✔	✔	✔	✔				
AS	✔	✔	✔	✔	✔			
IC	✔	✔	✔	✔				
IC	✔	✔	✔	✔	✔			
FO	✔	✔	✔	✔				
OA	✔	✔	✔	✔	✔			
OC	✔	✔	✔	✔				
OP	✔	✔	✔	✔	✔			
PC	✔	✔	✔	✔				
PC	✔	✔	✔	✔	✔			
IP	✔	✔	✔	✔				
IA	✔	✔	✔	✔	✔			
PC	✔	✔	✔	✔				
PC	✔	✔	✔	✔	✔			
GP	✔	✔	✔	✔				
VA	✔	✔	✔	✔	✔			
OS	✔	✔	✔	✔				
OS	✔	✔	✔	✔	✔			

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

NAAC Accredited & ISO 21001: 2018 Certified

PROGRAMME REGISTER: 2023-26

DEPARTMENT OF COMPUTER SCIENCE

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PROGRAMME OUTCOMES

(POs)

2023-26

Students of all Undergraduate Programmes at the time of graduation will be able to possess

PO1: Essential Knowledge:

Have comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi-professional contexts.

PO2: Creative, Critical Thinking and Problem-Solving Abilities:

Be effective problem-solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and Communication Skills:

Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated, Self-directed, and Life-long Learning:

Exhibit life-long skills; broad-based multiple career oriented general skills; self and field-based learning skills; digital skills; preparedness for living, learning and working in any environment.

PO5: Professionalism and Leadership Readiness:

Engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and Ethical Competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and Emotional Intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social Responsibility and Effective Citizenship:

Exhibit social responsibility and compassionate commitment; Be sensitive to and demonstrate institution in matters of environment, gender and other social issues to promote an equitable society and sustainable development.

PROGRAMME SPECIFIC OUTCOME

(PSOs)

2023-26

At the end of the programme students will be able to possess/exhibit:

PSO1: Quantitative Analysis:

Interpret principles, classifications, concepts, theories and mechanisms learnt.

PSO2: Practical and Analytical Skills:

Analyse hypotheses, procedures, properties, experimental facts and draw conclusions.

PSO3: Logical and Critical Thinking:

Apply knowledge and techniques in sample analysis, problem-solving, results, and production.

PSO4: Teamwork and Communication:

Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)

B.Sc Programme

2023-26

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	I	23SCCCEA14	Essentials and Applications of Mathematical, Physical & Chemical Sciences	**CO1:**Apply mathematical principles to solve various problems across complex numbers, trigonometry, vectors, and statistical analysis involving data sets.
				CO2: Summarize key physics principles, including measurements, motion, thermodynamics, wave behaviour, electromagnetism, atomic structure, and theories of the universe.
				CO3: Outline the fundamental concepts of chemistry and their relevance in daily life.
				CO4: Elaborate the interconnectedness of math, physics and chemistry and explain how they predict phenomena in diverse contexts.
				CO5: Discuss about computer evolution, including the internet, network types and understand ethical issues in network security, cryptography, privacy and data protection.
2	I	23SCCCAS14	Advances in Mathematical Physical & Chemical Sciences	**CO1:** Identify the applications of mathematics in physics and chemistry to solve real-world problems.
				CO2: Explain renewable energy generation, storage, energy-efficient materials and recent advancements in nanotechnology, biophysics, medical physics, and materials science.
				CO3: Outline computer-aided drug design, Nano sensors, chemical biology, the impact of chemical pollutants on ecosystems and human health, and methods for dye removal using catalysis.
				CO4: Elaborate the interconnectedness of math, physics and chemistry and apply these principles to explain phenomena in diverse contexts.
				CO5: Summarize the advanced computer science topics, such as number systems, signals, error detection and correction, multiplexing, transmission media, and networking devices.

3	II	23CSCCPC23	Problem Solving Using C	**CO1:** Understand the working of a digital computer and fundamental constructs of programming.
				CO2: Analyze and develop a solution to a given problem with suitable control structures.
				CO3: Apply the derived data types in program solutions.
				CO4: Use the 'C' language constructs in the right way.
				CO5: Apply the Dynamic Memory Management for effective memory utilization.
4	II	23CSP1PC21	Problem Solving Using C - Practical	**CO1:** Apply the derived data types in program solutions in C.
				CO2: Use the 'C' language syntaxes in the right way.
				CO3: Analyze and develop a solution to a given problem with suitable control structures in C.
5	II	23CSCCDL23	Digital Logic Design	**CO1:** Understand how to convert numbers from one radix to another radix and perform arithmetic operations.
				CO2: Simplify Boolean functions using Boolean algebra and k-maps Design adders and subtractors circuits.
				CO3: Analyze, design, and implement both basic arithmetic circuits and integrated ripple adder/subtractor circuits.
				CO4: Design combinational logic circuits such as decoders, encoders, multiplexers and demultiplexers.
				CO5: create truth tables and excitation tables for various flip-flops including RS, JK, T, and D flip-flops.
6	II	23CSP2DL21	Digital Logic Design - Practical	**CO1:** Demonstrate proficiency in designing, constructing, and testing digital logic circuits using simulation software.
				CO2: Apply theoretical knowledge of digital logic design concepts, to practical circuit implementations.
				CO3: Investigate the behavior and functionality of flip-flops within sequential circuits to analyze their operation and performance.
7	III	23CSCCPJ33	Object Oriented Programming Using Java	**CO1:** Use the syntax and semantics of java programming language and basic concepts of OOP.
				CO2: Develop reusable programs using the concepts of inheritance, polymorphism.
				CO3: Apply the concepts of packages, interface and Exception handling.

				CO4: Develop multithreaded applications with synchronization .
				CO5: Design Graphical User Interface using swing controls and event handling.
8	III	23CSP3PJ31	Object Oriented Programming Using Java - Practical	**CO1:** Apply Java basics, including loops, inheritance, and exception handling.
				CO2: Create multi-threaded applications using Thread and Runnable.
				CO3: Design interactive Java GUI applications with Swing components.
9	III	23CSCCDS33	Data Structures Using C	**CO1:** Understand various Data Structures for data storage and processing.
				CO2: Realize Linked List Data Structure for various operations.
				CO3: Analyze step by step and develop algorithms to solve real-world problems by implementing stacks and queues data structures.
				CO4: Understand and implement various searching & sorting techniques.
				CO5: Understand the Non-Linear Data Structures such as Binary Trees and Graphs.
10	III	23CSP4DS31	Data Structures Using C - Practical	**CO1:** Design and analyze the time and space efficiency of the data structure.
				CO2: Identify the appropriate data structure for a given problem.
				CO3: Gain practical knowledge in the application of data structures.
11	III	23CSCCCO33	Computer Organization	**CO1:** Identify different types of instructions.
				CO2: Differentiate between micro-programmed and hard-wired control units.
				CO3: Analyze the performance of the hierarchical organization of memory.
				CO4: Summarize different data transfer techniques.
				CO5: Demonstrate arithmetic operations on fixed - and floating-point numbers and illustrate concepts of parallel processing.
12	III	23CSP5CO31	Computer Organization - Practical	**CO1:** Explore Boolean algebra and its application in digital logic circuits, including logic gates, truth tables, and Boolean expressions.

				CO2: Utilize number system knowledge for designing and analyzing digital logic.
				CO3: Explore memory management techniques such as caching, virtual memory, and memory mapping, optimizing performance.
13	III	23CSCCOS33	Operating Systems	**CO1:** Demonstrate knowledge and comprehension of operating system functions.
				CO2: Analyze different process scheduling algorithms and apply them to manage processes and threads effectively.
				CO3: Create strategies to prevent, detect, and recover from deadlocks, and design solutions for inter-process communication and synchronization problems.
				CO4: Compare and contrast different memory allocation strategies and evaluate their effectiveness.
				CO5: Evaluate disk scheduling algorithms while implementing OS security measures.
14	III	23CSP6OS31	Operating Systems - Practical	**CO1:** Build shell program for process and file system management with system calls.
				CO2: Develop proficiency in writing shell scripts to automate system tasks, manage files and directories.
				CO3: Implement FIFO, LRU, and OPTIMAL page replacement algorithms in programs.
15	IV	23CSCCDM43	Database Management System	**CO1:** Differentiate between database systems and file based systems.
				CO2: Design a database using ER model.
				CO3: Apply relational model in database design.
				CO4: Use SQL commands for creating and manipulating data stored in databases.
				CO5: Create PL/SQL programs to work with databases.
16	IV	23CSP7DM41	Database Management System – Practical	**CO1:** Understand the basics of SQL and create database tables and to establish relationships between tables.
				CO2: Design and create relational database systems.
				CO3: Formulate queries using SQL DML/DDL/DCL commands.

17	IV	23CSCCSE43	Object Oriented Software Engineering	**CO1:** Understand and apply the fundamental principles of Object-Oriented Programming (OOP) concepts and Unified Modeling Language (UML) basics, in the development of software solutions.
				CO2: Analyze and specify software requirements, develop use cases and scenarios, apply object- oriented analysis and design (OOAD) principles.
				CO3: Familiar with the concept of test-driven development (TDD) and its practical implementation.
				CO4: Analyze and Evaluate Software Maintenance and Evolution Strategies.
				CO5: Apply Advanced Object-Oriented Software Engineering Concepts.
18	IV	23CSP8SE41	Object Oriented Software Engineering – Practical	**CO1:** Understand and develop various structure and behavior UML diagrams.
				CO2: Discuss and Analyse how to develop software requirements specifications for a given problem.
				CO3: Gain practical knowledge in system modeling.
19	IV	23CSCCCN43	Data Communications & Computer Networks	**CO1:** Understand and apply network applications, hardware, software, and reference models for network communication.
				CO2: Design and analyze data link layer protocols, multiple access protocols, and wireless LAN technologies.
				CO3: Design routing algorithms, congestion control algorithms, and evaluate network layer protocols for internetworking.
				CO4: Analyze transport service, transport protocols, and evaluate UDP and TCP in the internet.
				CO5: Understand and evaluate application layer protocols, including DNS, email, WWW, and network management protocols.
20	IV	23CSP9CN41	Data Communications & Computer Networks - Practical	**CO1:** Understand details and functionality of layered network architecture.
				CO2: Analyze performance of various communication protocols.
				CO3: Practice packet /file transmission between nodes.
21	V	23CSCCWI53	Web Interface Designing	**CO1:** Develop a solid understanding of web architecture, services, and the fundamental building blocks of the web.

			Technologies	**CO2:** Gain knowledge of various design components that enhance the visual appeal and user experience of a website.
				CO3: Acquire skills to create static websites and integrate dynamic behavior to improve functionality.
				CO4: Gain hands-on experience in designing and implementing interactive web pages for better user engagement.
				CO5: Learn how to install WordPress and effectively use various plugins to customize and enhance websites.
22	V	23CSP10WI51	Web Interface Designing Technologies - Practical	**CO1:** Design well-organized and visually appealing web pages using HTML and CSS.
				CO2: Build user-friendly and interactive web elements with forms, buttons, and multimedia integration.
				CO3: Install, configure, and manage website content effectively using WordPress tools and features.
23	V	23CSCCWA53	Web Applications Development Using PHP & MYSQL	**CO1:** Write and execute simple programs using PHP.
				CO2: Utilize regular expressions, manage exceptions, and validate data effectively in PHP.
				CO3: Apply built-in functions and develop user-defined functions for efficient programming.
				CO4: Write PHP scripts to manage and process data from HTML forms.
				CO5: Connect PHP with MySQL databases to create dynamic, database-driven web applications.
24	V	23CSP11WA51	Web Applications Development using PHP & MYSQL- Practical	**CO1:** Write PHP programs to handle user input, process forms, and generate dynamic content.
				CO2: Connect PHP with MySQL to perform CRUD operations and build data-driven web applications.
				CO3: Apply cookies, sessions, and other PHP features to create interactive and user-friendly websites.
25	V	23CSEC11IT53	Internet of Things	**CO1:** Understand key concepts, terminologies, and real-world applications of the Internet of Things (IoT).
				CO2: Gain hands-on experience in building IoT devices using various development boards.
				CO3: Understand and apply different wireless protocols used in IoT systems.
				CO4: Utilize sensors and actuators to design and implement IoT solutions using Arduino.

				CO5: Develop and connect IoT devices with cloud services for data storage, processing, and remote management.
26	V	23CSP1211IT51	Internet of Things - Practical	**CO1:** Understand and implement projects using the Arduino UNO board, sensors, actuators, and shields.
				CO2: Create and simulate real-world IoT applications, such as traffic control systems and smart device automation, using Arduino and various sensors.
				CO3: Connect Arduino-based devices to cloud services and mobile applications like Blynk and ThingSpeak for remote monitoring and control.
27	V	23CSEC12DS53	Foundations of Data Science	**CO1:** Recognize the need for data science and explore various data collection strategies.
				CO2: Understand the basics of NoSQL databases and apply descriptive statistics for data analysis.
				CO3: Use Numpy methods to efficiently process and manipulate data in arrays.
				CO4: Leverage Pandas to compute and summarize descriptive statistics for data analysis.
				CO5: Apply advanced data manipulation and visualization techniques using Pandas to derive meaningful insights.
28	V	23CSP1312DS51	Foundations of Data Science - Practical	**CO1:** Evaluate Python IDEs for data science tasks.
				CO2: Work with Numpy arrays and Pandas DataFrames for data manipulation and analysis.
				CO3: Process, clean, and visualize data, including handling missing values and outliers.
29	V	23CSEC21IA53	IoT Applications Development & Programming	**CO1:** Understand the basic concepts and architecture of the Internet of Things (IoT).
				CO2: Learn about various sensors and the associated communication protocols used in IoT systems.
				CO3: Gain proficiency in using single-board computers for the development and implementation of IoT devices.
				CO4: Build IoT devices and applications using Node-RED, eliminating the need for complex coding.
				CO5: Design and implement a range of real-time IoT applications for practical use.
30	V	23CSP1421IA51	IoT Applications Development & Programming - Practical	**CO1:** Build and deploy IoT solutions using Raspberry Pi, Node-RED, and cloud services.
				CO2: Manage MySQL databases and visualize data with server-side applications and graphs.

				CO3: Create real-time IoT applications and integrate devices like Arduino with cloud platforms.
31	V	23CSEC22AP53	Application Development Using Python	**CO1:** Understand Python syntax, semantics, and effectively use flow control and functions.
				CO2: Demonstrate proficiency in handling strings and file system operations in Python.
				CO3: Create, run, and manipulate Python programs using core data structures like lists and dictionaries, and apply regular expressions.
				CO4: Comprehend and implement web programming and GUI concepts in Python.
				CO5: Utilize Python programming concepts in IoT applications, web services, and database management.
32	V	23CSP1522AP51	Application Development Using Python - Practical	**CO1:** Implement basic Python tasks like calculations, exception handling, and file operations.
				CO2: Develop interactive Tkinter GUI applications and use multithreading.
				CO3: Build Python programs for storing, searching, and modifying database records.

Course Outcomes (COs)

B.Com Programme

2023-26

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	II	23CSCCOA23	Office Automation Tools	**CO1:** Understand the concept of Word Processor and use its features.
				CO2: Apply advanced features of Ms-Word to make day to day usage easier.
				CO3: Work comfortably with Ms-Excel Environment.
				CO4: Create worksheets and user advanced features of Excel.
				CO5: Build presentations and insert multimedia in them.
2	II	23CSP1OA21	Office Automation Tools - Practical	**CO1:** Demonstrate proficiency in using various office automation tools.
				CO2: Analyse data, create visualizations, and generate reports using spreadsheet software.
				CO3: Create and deliver professional presentations using presentation software
3	III	23CSCCEW33	E Commerce & Web Designing	**CO1:** Explain the foundation and importance of e-commerce.
				CO2: Explain how product detail models are programmed to be dynamic.
				CO3: Analyze the process of e payment and security management.
				CO4: Apply web designing concepts to create webpages.
				CO5: Display featured products correctly on a web page, using the bootstrap system.
4	III	23CSP2EW31	E Commerce & Web Designing - Practical	**CO1:** Understand the basics of web design.
				CO2: Excel in HTML and CSS.
				CO3: Create interactive web elements.

5	IV	23CSCCDB43	DBMS with Oracle	**CO1:** Explain the fundamental concepts of database systems, distinguishing them from file-based systems.
				CO2: Realise the relational model and its components, including domains, attributes, tuples, and relations.
				CO3: Describe the Entity-Relationship (ER) model and create ER diagrams to represent entities, relationships, and constraints.
				CO4: Acquire advanced proficiency in SQL, including nested queries, different types of joins, and the implementation of SQL functions (Date, Numeric, String, Conversion functions).
				CO5: Develop proficiency in PL/SQL, including an understanding of its introduction, structure, control structures, and the creation of procedures, functions, packages, and triggers.
6	IV	23CSP3DB41	DBMS with Oracle - Practical	**CO1:** Retrieve information from the provided database tables using SQL queries.
				CO2: Apply SQL JOIN operations to connect tables and obtain data spanning multiple entities.
				CO3: Develop skills in updating data using SQL procedures, handling exceptions, and maintaining additional tables.
7	V	23CSECBA53	Business Analytics	**CO1:** Develop a solid foundation in business analytics and gain insights into business intelligence processes.
				CO2: Utilize statistical methods and data mining techniques to analyze data and derive actionable business intelligence.
				CO3: Explore and apply predictive modeling through case studies to solve real-world business challenges.
				CO4: Acquire proficiency in using OLAP tools for data analysis and decision-making.
				CO5: Implement diverse analytical techniques to address complex business problems effectively.
8	V	23CSP4BA51	Business Analytics - Practical	**CO1:** Identify, categorize, and analyze variables using MS Excel and R for effective data management.
				CO2: Apply statistical techniques like mean, median, and standard deviation using MS Excel to analyze data.
				CO3: Gain hands-on experience in creating, manipulating, and visualizing data in R and Excel for business analysis.
9	V	23CSECCS53	Cyber Security	**CO1:** Analyze and assess the cybersecurity requirements of an organization to ensure comprehensive protection of its digital assets.

				CO2: Identify software vulnerabilities and evaluate security solutions to mitigate risks and prevent exploitation effectively.
				CO3: Monitor and evaluate the performance of cybersecurity systems, troubleshoot issues, and optimize system functionality.
				CO4: Design and implement cybersecurity measures using advanced tools for information assurance, cyber forensics, and system protection.
				CO5: Gain expertise in addressing network and distributed system attacks, implementing defenses, and conducting forensic investigations.
10	V	23CSP5CS51	Cyber Security - Practical	**CO1:** Proficiently use command-line tools and network analysis software for IT infrastructure security.
				CO2: Gain hands-on experience in network traffic analysis, SQL injection, and configuring security solutions like OSSEC.
				CO3: Apply cybersecurity frameworks to manage logs and implement security policies within organizations.
11	V	23CSECMA53	Mobile Applications Development	**CO1:** Understand the core concepts, architecture, and features of the Android operating system.
				CO2: Set up and configure the Android development environment and essential tools for application development.
				CO3: Design and implement engaging user interfaces using layouts, controls, and advanced UI components.
				CO4: Utilize Android's UI components to build interactive and user-friendly applications.
				CO5: Develop, test, and publish Android applications, including those integrated with databases for enhanced functionality.
12	V	23CSP6MA51	Mobile Applications Development - Practical	**CO1:** Develop Android apps with various layouts and interactive UI components for user-friendly interfaces.
				CO2: Integrate advanced Android features like content providers, services, and sensors to build rich applications.
				CO3: Implement CRUD operations and JSON parsing to build dynamic, data-driven Android applications.
13	V	23CSECBC53	Block Chain Technology	**CO1:** Classify and analyze various types of software architectures and their applications in modern systems.
				CO2: Understand the principles and techniques of different types of cryptography for secure communication.

				CO3: Enhance understanding of the foundational technologies and mechanisms behind blockchain systems.
				CO4: Explore blockchain storage methods and evaluate their advantages for secure and efficient data management.
				CO5: Gain insights into the practical applications of blockchain technology across diverse industries.
14	V	23CSP7BC51	Block Chain Technology - Practical	**CO1:** Gain expertise in creating crypto tokens, Ethereum smart contracts, and Bitcoin wallets for secure blockchain transactions.
				CO2: Implement blockchain solutions with Hyperledger for designing and managing business networks.
				CO3: Build, deploy, and manage scalable private multichain blockchain networks for enterprise applications.

Mapping of COs with PSOs & POs
B.Sc Programme

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	23SCCCEA14	Essentials and Applications of Mathematical, Physical & Chemical Sciences	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
2	I	23SCCCAS14	Advances in Mathematical Physical & Chemical Sciences	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
3	II	23CSCCPC23	Problem Solving Using C	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
4	II	23CSP1PC21	Problem Solving Using C - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
5	II	23CSCCDL23	Digital Logic	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

			Design	CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
6	II	23CSP2DL21	Digital Logic Design - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
7	III	23CSCCPJ33	Object Oriented Programming Using Java	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
8	III	23CSP3PJ31	Object Oriented Programming Using Java - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
9	III	23CSCCDS33	Data Structures Using C	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
10	III	23CSP4DS31	Data Structures Using C - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
11	III	23CSCCCO33	Computer Organization	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
12	III	23CSP5CO31	Computer Organization - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
13	III	23CSCCOS33	Operating Systems	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
14	III	23CSP6OS31	Operating Systems - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
15	IV	23CSCCDM43	Database Management System	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

16	IV	23CSP7DM41	Database Management System – Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
17	IV	23CSCCSE43	Object Oriented Software Engineering	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
18	IV	23CSP8SE41	Object Oriented Software Engineering – Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
19	IV	23CSCCCN43	Data Communications & Computer Networks	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
20	IV	23CSP9CN41	Data Communications & Computer Networks	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
21	V	23CSCCWI53	Web Interface Designing Technologies	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
22	V	23CSP10WI51	Web Interface Designing Technologies - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
23	V	23CSCCWA53	Web Applications Development Using PHP & MYSQL	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
24	V	23CSP11WA51	Web Applications Development Using PHP & MYSQL- Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
25	V	23CSEC11IT53	Internet of Things	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
26	V	23CSP1211IT51	Internet of Things - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
27	V	23CSEC12DS53	Foundations of Data Science	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
28	V	23CSP1312DS51	Foundations of Data Science - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
29	V	23CSEC21IA53	IoT Applications Development & Programming	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
30	V	23CSP1421IA51	IoT Applications Development & Programming - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
31	V	23CSEC22AP53	Application Development Using Python	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
32	V	23CSP1522AP51	Application Development Using Python - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

Mapping of COs with PSOs & POs
B.Com Programme

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	II	23CSCCOA23	Office Automation Tools	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
2	II	23CSP1OA21	Office Automation Tools - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
3	III	23CSCCEW33	E Commerce & Web Designing	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
4	III	23CSP2EW31	E Commerce & Web Designing - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
5	IV	23CSCCDB43	DBMS with Oracle	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
6	IV	23CSP3DB41	DBMS with Oracle - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
7	V	23CSECBA53	Business Analytics	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
8	V	23CSP4BA51	Business Analytics - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
9	V	23CSECCS53	Cyber Security	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
10	V	23CSP5CS51	Cyber Security - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
11	V	23CSECMA53	Mobile	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

			Applications Development	CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
12	V	23CSP6MA51	Mobile Applications Development - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
13	V	23CSECBC53	Block Chain Technology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
14	V	23CSP7BC51	Block Chain Technology - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8

Mapping of Courses with PSOs
B. Sc Programme

Course Title	PSO1 Quantitative Analysis	PSO2 Practical and Analytical Skills	PSO3 Logical, Critical Thinking	PSO4 Teamwork and Communication
Essentials and Applications of Mathematical, Physical & Chemical Sciences (EA)	✔	✔	✔	✔
Advances in Mathematical Physical & Chemical Sciences (AS)	✔	✔	✔	✔
Problem Solving Using C (PC)	✔	✔	✔	✔
Problem Solving Using C - Practical (PC - P1)	✔	✔	✔	✔
Digital Logic Design (DL)	✔	✔	✔	✔
Digital Logic Design - Practical (DL - P2)	✔	✔	✔	✔
Object Oriented Programming Using Java (PJ)	✔	✔	✔	✔
Object Oriented Programming Using Java - Practical (PJ - P3)	✔	✔	✔	✔
Data Structures Using C (DS)	✔	✔	✔	✔
Data Structures Using C - Practical (DS - P4)	✔	✔	✔	✔
Computer Organization (CO)	✔	✔	✔	✔
Computer Organization - Practical (CO - P5)	✔	✔	✔	✔
Operating Systems (OS)	✔	✔	✔	✔
Operating Systems - Practical (OS - P6)	✔	✔	✔	✔
Database Management System (DM)	✔	✔	✔	✔
Database Management System – Practical (DM - P7)	✔	✔	✔	✔
Object Oriented Software Engineering (SE)	✔	✔	✔	✔
Object Oriented Software Engineering – Practical (SE - P8)	✔	✔	✔	✔
Data Communications & Computer Networks (CN)	✔	✔	✔	✔
Data Communications & Computer Networks - Practical (CN - P9)	✔	✔	✔	✔

Web Interface Designing Technologies (WI)	✔	✔	✔	✔
Web Interface Designing Technologies - Practical (WI - P10)	✔	✔	✔	✔
Web Applications Development Using PHP & MYSQL (WA)	✔	✔	✔	✔
Web Applications Development using PHP & MYSQL- Practical (WA -P11)	✔	✔	✔	✔
Internet of Things (IT)	✔	✔	✔	✔
Internet of Things - Practical (IT - P12)	✔	✔	✔	✔
Foundations of Data Science (DS)	✔	✔	✔	✔
Foundations of Data Science - Practical (DS - P13)	✔	✔	✔	✔
IoT Applications Development & Programming (IA)	✔	✔	✔	✔
IoT Applications Development & Programming - Practical (IA - P14)	✔	✔	✔	✔
Application Development Using Python(AP)	✔	✔	✔	✔
Application Development Using Python - Practical (AP - P15)	✔	✔	✔	✔

Mapping of Courses with PSOs
B. Com Programme

Course Title	PSO1 Quantitative Analysis	PSO2 Practical and Analytical Skills	PSO3 Logical, Critical Thinking	PSO4 Teamwork and Communication
Office Automation Tools (OA)	✔	✔	✔	✔
Office Automation Tools - Practical (OA - P1)	✔	✔	✔	✔
E Commerce & Web Designing (EW)	✔	✔	✔	✔
E Commerce & Web Designing - Practical (EW - P2)	✔	✔	✔	✔
DBMS with Oracle (DB)	✔	✔	✔	✔
DBMS with Oracle - Practical (DB - P3)	✔	✔	✔	✔
Business Analytics (BA)	✔	✔	✔	✔
Business Analytics - Practical (BA - P4)	✔	✔	✔	✔
Cyber Security (CS)	✔	✔	✔	✔
Cyber Security - Practical (CS - P5)	✔	✔	✔	✔
Mobile Applications Development (MA)	✔	✔	✔	✔
Mobile Applications Development - Practical (MA - P6)	✔	✔	✔	✔
Block Chain Technology (BC)	✔	✔	✔	✔
Block Chain Technology - Practical (BC - P7)	✔	✔	✔	✔

Mapping of Courses with POs
B. Sc Programme

Course	PO1 Essential Knowledge	PO2 Creative, Critical thinking and Problem-solving abilities	PO3 Teamwork and Communication skills	PO4 Motivated, Self-directed and Life-long Learning	PO5 Professionalism and Leadership Readiness	PO6 Intercultural and Ethical Competency	PO7 Self-awareness and Emotional Intelligence	PO8 Social Responsibility and Effective Citizenship
EA	✔	✔	✔	✔	✔	✔	✔	✔
AS	✔	✔	✔	✔	✔	✔	✔	✔
PC	✔	✔	✔	✔	✔	✔	✔	✔
PC - P1	✔	✔	✔	✔	✔	✔	✔	✔
DL	✔	✔	✔	✔	✔	✔	✔	✔
DL - P2	✔	✔	✔	✔	✔	✔	✔	✔
PJ	✔	✔	✔	✔	✔	✔	✔	✔
PJ - P3	✔	✔	✔	✔	✔	✔	✔	✔
DS	✔	✔	✔	✔	✔	✔	✔	✔
DS - P4	✔	✔	✔	✔	✔	✔	✔	✔
CO	✔	✔	✔	✔	✔	✔	✔	✔
CO - P5	✔	✔	✔	✔	✔	✔	✔	✔
OS	✔	✔	✔	✔	✔	✔	✔	✔
OS - P6	✔	✔	✔	✔	✔	✔	✔	✔
DM	✔	✔	✔	✔	✔	✔	✔	✔
DM - P7	✔	✔	✔	✔	✔	✔	✔	✔
SE	✔	✔	✔	✔	✔	✔	✔	✔
SE - P8	✔	✔	✔	✔	✔	✔	✔	✔
CN	✔	✔	✔	✔	✔	✔	✔	✔
CN - P9	✔	✔	✔	✔	✔	✔	✔	✔
WI	✔	✔	✔	✔	✔	✔	✔	✔

WI - P10	✔	✔	✔	✔	✔	✔	✔	✔
WA	✔	✔	✔	✔	✔	✔	✔	✔
WA - P11	✔	✔	✔	✔	✔	✔	✔	✔
IT	✔	✔	✔	✔	✔	✔	✔	✔
IT - P12	✔	✔	✔	✔	✔	✔	✔	✔
DS	✔	✔	✔	✔	✔	✔	✔	✔
DS - P13	✔	✔	✔	✔	✔	✔	✔	✔
IA	✔	✔	✔	✔	✔	✔	✔	✔
IA - P14	✔	✔	✔	✔	✔	✔	✔	✔
AP	✔	✔	✔	✔	✔	✔	✔	✔
AP - P15	✔	✔	✔	✔	✔	✔	✔	✔

Mapping of Courses with POs

B. Com Programme

Course	PO1 Essential Knowledge	PO2 Creative, Critical thinking and Problem-solving abilities	PO3 Teamwork and Communication skills	PO4 Motivated, Self-directed and Life-long Learning	PO5 Professionalism and Leadership Readiness	PO6 Intercultural and Ethical Competency	PO7 Self-awareness and Emotional Intelligence	PO8 Social Responsibility and Effective Citizenship
OA	✔	✔	✔	✔	✔	✔	✔	✔
OA - P1	✔	✔	✔	✔	✔	✔	✔	✔
EW	✔	✔	✔	✔	✔	✔	✔	✔
EW - P2	✔	✔	✔	✔	✔	✔	✔	✔
DB	✔	✔	✔	✔	✔	✔	✔	✔
DB - P3	✔	✔	✔	✔	✔	✔	✔	✔
BA	✔	✔	✔	✔	✔	✔	✔	✔
BA - P4	✔	✔	✔	✔	✔	✔	✔	✔
CS	✔	✔	✔	✔	✔	✔	✔	✔
CS - P5	✔	✔	✔	✔	✔	✔	✔	✔
MA	✔	✔	✔	✔	✔	✔	✔	✔
MA-P6	✔	✔	✔	✔	✔	✔	✔	✔
BC	✔	✔	✔	✔	✔	✔	✔	✔
BC - P7	✔	✔	✔	✔	✔	✔	✔	✔

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

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PROGRAMME REGISTER

2023-2026

DEPARTMENT OF STATISTICS

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PROGRAMME OUTCOMES (POs)

2023-2026

Students of all Undergraduate Programmes at the time of graduation will be able to possess

PO1: Essential Knowledge

Have comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi-professional contexts.

PO2: Creative, Critical Thinking and Problem-Solving Abilities

Be effective problem-solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and Communication Skills

Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated, Self-directed, and Life-long Learning

Exhibit life-long skills; broad-based multiple career oriented general skills; self and field-based learning skills; digital skills; preparedness for living, learning and working in any environment.

PO5: Professionalism and Leadership Readiness

Engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and Ethical Competency

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and Emotional Intelligence

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social Responsibility and Effective Citizenship

Exhibit social responsibility and compassionate commitment; Be sensitive to and demonstrate institution in matters of environment, gender and other social issues to promote an equitable society and sustainable development.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2023-2026

At the end of the programme the student will be able to possess

PSO1: Quantitative Analysis

Interpret principles, classifications, concepts, theories and mechanisms learnt.

PSO2: Practical and Analytical Skills

Analyse hypotheses, procedures, properties, experimental facts and draw conclusions.

PSO3: Logical and Critical Thinking

Apply knowledge and techniques in sample analysis, problem-solving, results, and production.

PSO4: Teamwork and Communication

Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)
2023-2026

S. No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	I	23SCCCEA14	Essentials and Applications of Mathematical, Physical & Chemical Sciences	**CO1**:Apply mathematical principles to solve various problems across complex numbers, trigonometry, vectors, and statistical analysis involving data sets.
				CO2: Summarize key physics principles, including measurements, motion, thermodynamics, wave behaviour, electromagnetism, atomic structure, and theories of the universe.
				CO3: Outline the fundamental concepts of chemistry and their relevance in daily life.
				CO4: Elaborate the interconnectedness of math, physics and chemistry and explain how they predict phenomena in diverse contexts.
				CO5: Discuss about computer evolution, including the internet, network types and understand ethical issues in network security, cryptography, privacy and data protection.
2	I	23SCCCAS14	Advances in Mathematical, Physical & Chemical Sciences	**CO1:** Identify the applications of mathematics in physics and chemistry to solve real-world problems.
				CO2: Explain renewable energy generation, storage, energy-efficient materials and recent advancements in nanotechnology, biophysics, medical physics, and materials science.
				CO3: Outline computer-aided drug design, Nano sensors, chemical biology, the impact of chemical pollutants on ecosystems and human health, and methods for dye removal using catalysis.
				CO4: Elaborate the interconnectedness of math, physics and chemistry and apply these principles to explain phenomena in diverse contexts.

				CO5: Summarize the advanced computer science topics, such as number systems, signals, error detection and correction, multiplexing, transmission media, and networking devices.
3	II	23STCCDS23	Descriptive Statistical methods	**CO1:** Understand the role of statistics in different fields
				CO2: Present the data in the format most applicable to their own data.
				CO3: Apply the measures of central tendency and dispersion to reduce the data to a single value which is useful for making comparative studies.
				CO4: Explain the basics of probability, types, theorems and be able to apply it in real life situations where there is uncertainty and to measure it.
4	II	23STP1DS21	Descriptive Statistical methods -Practical	**CO1:** Interpret diagrammatic data presentation.
				CO2: Determine the reliability of an average using central tendency measures and compare the variability of two or more series with the help of Dispersion measures.
5	II	23STCCME23	Random Variables & Mathematical Expectations	**CO1:** Understand the role of statistics in dealing with the univariate and Bivariate random variables.
				CO2: Apply the univariate data and bivariate data to different real life situations.
				CO3: Interpret the given data by using mathematical expectations.
				CO4: Understand and interpret the generating functions, law of large numbers and central limit theorem.
6	II	23STP2ME21	Random Variables & Mathematical Expectations - Practical	**CO1:** Solve the problems with univariate and Bivariate random variables.
				CO2: Apply mathematical expectations to the given data.
				CO3: Understand and interpret the generating functions.
7	II	23STCCSM24	Statistical Methods for Business Analytics	**CO1:** Describe the fundamentals of Statistics and its application in the field of Business.
				CO2: Explain and evaluate measures of central tendency and

				Dispersion.
				CO3: Discuss the basic concepts of Correlation and Regression and their applications.
				CO4: Understand the concepts of Index Numbers and time series and apply them to the business data.
8	III	23STCCDD33	Theoretical Discrete Distributions	**CO1:** Differentiate different types of discrete distributions.
				CO2: Explain different properties of discrete distributions
				CO3: Derive the characteristics of different discrete distributions.
				CO4: Identify different real life problems and apply discrete distributions to draw valid inferences.
9	III	23STP3DD31	Theoretical Discrete Distributions-Practical	**CO1:** Apply Binomial, Poisson distributions to the real life data to draw inferences.
				CO2: Apply Negative Binomial, Geometric and Hypergeometric distributions to the real life situations to draw valid conclusions.
10	III	23STCCCD33	Theoretical Continuous Distributions	**CO1:** Differentiate different types of continuous distributions.
				CO2: Derive the characteristics of different continuous distributions.
				CO3: Identify different real life problems and apply continuous distributions to draw valid inferences.
				CO4: Interpret t, F and $\chi 2$ distributions and derive their properties.
11	III	23STP4CD31	Theoretical Continuous Distributions - Practical	**CO1:** Apply Uniform, Exponential and Gamma distributions to the real life data to draw inferences.
				CO2: Apply Normal distribution to real life situations to draw valid conclusions.
12	III	23STCCSM33	Statistical Methods	**CO1:** Interpret bivariate data and estimate future values by using curve fitting.
				CO2: Calculate the relationship between bivariate and multivariate data using Correlation methods.
				CO3: Forecast business data by using regression techniques.

				CO4: Estimate the association of the categorical data by using attributes.
13	III	23STP5SM31	Statistical Methods - Practical	**CO1:** Apply least square method to the given data and to fit different curves
				CO2: Apply correlation and regression methods to the given data to understand the relationship between the variables under study.
				CO3: To find the association of the categorical data by using attributes.
14	III	23STCCIS33	Inferential Statistics	**CO1:** Examine different methods of estimation.
				CO2: Explain the definitions and concepts of hypothesis testing
				CO3: Differentiate the types of sample sizes and apply large and small sample tests to real data.
				CO4: Distinguish between parametric and non-parametric tests and apply them to real life data.
15	III	23STP6IS31	Inferential Statistics - Practical	**CO1:** Apply Large sample tests and small sample tests to different real life situations
				CO2: Apply the non-parametric tests to real life data.
16	III	23STCCRM34	Business Research Methods	**CO1:** Identify nature and scope of business research and define its characteristics.
				CO2: Differentiate between the Exploratory, Descriptive and Experimental research.
				CO3: Construct the questionnaire and apply them in different sampling methods.
				CO4: Analyze the data by using different statistical techniques.
				CO5: Write a proper research report and present it effectively.
17	IV	23STCCST43	Sampling Techniques	**CO1**: Design and implement surveys using sampling techniques.
				CO2: Estimate the characteristics of different sampling techniques.

				CO3: Differentiate between different types of sampling techniques and compare their variances.
				CO4: Understand the real-time inputs for policies and stronger dissemination practices for the public.
18	IV	23STP7ST41	Sampling Techniques-Practical	**CO1:** Estimate the characteristics of different sampling techniques.
				CO2: Compare the efficiencies of different sampling techniques for a given data.
19	IV	23STCCDE43	Design & Analysis of Experiments	**CO1**: Interpret the results of ANOVA through computation.
				CO2: Summarize the principles, phases and scope of designs
				CO3: Apply and analyze basic designs (CRD, RBD and LSD)by taking real time data.
				CO4: Interpret the analysis of full factorial designs and apply them to the real data.
20	IV	23STP8DE41	Design & Analysis of Experiments-Practical	**CO1**: Apply the ANOVA technique to the given data to draw valid conclusions.
				CO2: Apply the Basic designs (CRD, RBD and LSD) to real life situations and interpret the results.
				CO3: Analyze the results of the full Factorial designs.
21	IV	23STCCNA43	Numerical Analysis	**CO1**: Learn the different difference operators and applications.
				CO2: Identify and apply the interpolation techniques with equal and unequal intervals to the real life data.
				CO3: Analyze the real time data by using numerical differentiation tools.
				CO4: Analyze the real data by applying numerical integration methods.
22	IV	23STP9NA41	Numerical Analysis-Practical	**CO1:** Apply the interpolation techniques with equal and unequal intervals to the real life data.
				CO2: Analyze the real time data by using numerical differentiation tools.
				CO3: Analyze the real data by applying numerical integration methods.
23	IV	23STCCQC44	Statistical Quality Control	**CO1:** Differentiate between process control and product control

				CO2: Construct different control charts for variables and attributes
				CO3: Identify different acceptance sampling plans and differentiate them.
				CO4: Understand the Six Sigma concepts and its role in quality management.
24	IV	23MDCBS42	Basic Statistics	**CO1:** Understand the role of statistics in different fields
				CO2: Apply the measures of central tendency and dispersion to reduce the data to a single value which is useful for making comparative studies.
				CO3: Understand and apply the correlation and regression concepts to the real life data.
25	V	23STCCAS53	Applied Statistics	**CO1:** Analyze Time Series Components and Evaluate Trends Using Various Methods.
				CO2: Analyze Seasonal Indices and Interpret Deseasonalized Data to Identify Trends.
				CO3: Estimate and Calculate Various Index Numbers to Analyze Economic Trends.
				CO4: Analyze Vital Statistics, Develop Life Tables, and Evaluate Population Growth Measures.
26	V	23STP10AS51	Applied Statistics - Practical	**CO1:** Analyze trends and seasonal indices using various methods.
				CO2: Calculate index numbers, mortality and fertility rates, reproduction rates, and construct life tables to analyze demographic trends.
27	V	23STCCCR53	Computational Statistics & R Programming	**CO1:** Identify components and applications, explain languages and files, operate software and systems, classify software and analyze CPU's role.
				CO2: Apply Excel tools for data management, calculations, graphing and prediction. Use Data Analysis Pak for statistical tests and interpret P-values.
				CO3: Understand R and RStudio features, apply basic concepts, data structures, and control structures. Work with vectors and handle missing values. Perform filtering, subsetting, and vectorized operations.
				CO4: Create and manipulate matrices and data frames,

				perform exploratory data analysis and handle missing values, apply R visualization techniques, including 3D plots.
28	V	23STP11CR51	Computational Statistics & R Programming - Practical	**CO1:** Install and Configure R and RStudio, create a working directory, and install essential packages.
				CO2: Perform basic operations with vectors and matrices, and manage data structures effectively.
				CO3: Conduct statistical analysis and create visualizations to interpret and present data.
29	V	23STEC11OR53	Operations Research	**CO1:** Understand Operations Research principles and apply mathematical modeling to Linear Programming Problems.
				CO2: Analyze and solve linear programming problems graphically, addressing exceptional cases and understanding convex and non-convex hulls.
				CO3: Define key concepts of General Linear Programming Problems and solveLPP using the Simplex method.
				CO4: Apply artificial variable techniques, solve degeneracy and non-feasible solutions, and use Duality and Dual Simplex for primal problems.
30	V	23STP1211OR51	Operations Research - Practical	**CO1:** Solve Linear Programming Problems graphically, addressing unbounded and infeasible solutions.
				CO2: Apply the Simplex method to find optimal solutions for Linear Programming Problems.
				CO3: Solve LPPs using the Big-M and Two-Phase methods, handle special cases like unbounded and multiple solutions, and apply duality and the Dual Simplex method.
31	V	23STEC12QC53	Statistical Quality Control	**CO1:** Understand how SQC improves quality, recognize the 4 M's, and distinguish between assignable and chance causes of variation.
				CO2: Construct and interpret control charts for variables and attributes, identify out-of-control processes, and determine corrective actions.
				CO3: Design and implement sampling, apply concepts like Producers and Consumer's risk and OC curves, and calculate AOQ and AOQL.

				CO4: Develop the ability to compute acceptance probabilities, determine sampling plans, and graphically find AOQL to enhance quality assurance.
32	V	23STP1312QC51	Statistical Quality Control - Practical	**CO1:** Construct and interpret control charts like Mean and R, Mean and Standard Deviation, p, np, C, and U charts to monitor process stability and quality.
				CO2: Apply statistical tools like the OC curve, risks, AOQ, AOQL, and ATI to enhance process quality with single sampling plans for attributes.
				CO3: Determine and apply single sampling plans using lot quality and average quality approaches to ensure desired quality levels and minimize risks.
33	V	23STEC21OT53	Optimization Techniques	**CO1:** Apply North-West Corner, Lowest Cost Entry, Vogel's Approximation, and MODI methods to solve transportation problems with degeneracy and maximization.
				CO2: Analyze and solve assignment problems.
				CO3: Solve sequencing problems with Johnson's algorithm and apply game theory to two-person zero-sum games using strategies, Maximin/Minimax principles, and graphical methods.
				CO4: Apply network scheduling techniques, including network components, time calculations, and CPM/PERT for effective project management.
34	V	23MTP1421OT51	Optimization Techniques - Practical	**CO1:** Apply and analyze various methods for solving Transportation problems and Assignment problems.
				CO2: Maximize work time and profits in an industry by efficiently allocating jobs to the most suitable individuals.
				CO3: Minimize project elapsed time using CPM and PERT, and solve basic game theory models to enhance decision-making and strategy optimization.
35	V	23STEC22AS53	Applied Statistics II	**CO1:** Fit growth curves, analyze detrending effects, and calculate index numbers with base shifting, splicing, and deflation.
				CO2: Estimate elasticities and interpret economic data using demand analysis techniques.

				CO3: Apply psychological and educational statistics techniques, such as scaling test items, Z-scores, T-scores, and percentile scores, to interpret test data.
				CO4: Evaluate test reliability and validity using various methods and compare them in test scores.
36	V	23MTP1522AS51	Applied Statistics II - Practical	**CO1:** Analyze and apply curve fitting techniques using methods like three selected points and partial sums to derive accurate models.
				CO2: Calculate and evaluate index numbers using base shifting, deflation, and splicing to improve data interpretation and comparison.
				CO3: Assess economic concepts like elasticities, Pareto's curve, and test reliability by analyzing difficulty values, standard deviations, and mean scores for insights.

Mapping of Cos with PSOs & POs

S. No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	23SCCCEA14	Essentials and Applications of Mathematical, Physical & Chemical Sciences	CO1	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO5	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
2	I	23SCCCAS14	Advances in Mathematical, Physical & Chemical Sciences	CO1	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO5	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
3	II	23STCCDS23	Descriptive Statistical methods	CO1	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
4	II	23STP1DS21	Descriptive Statistical methods-Practical	CO1	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
5	II	23STCCME23	Random Variables &	CO1	PSO1,PSO2,	PO1,PO2,PO3,PO4

			Mathematical Expectations		PSO3,PSO4	
				CO2	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
6	II	23STP2ME21	Random Variables & Mathematical Expectations - Practical	CO1	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
7	II	23STCCSM24	Statistical Methods for Business Analytics	CO1	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
8	III	23STCCDD33	Theoretical Discrete Distributions	CO1	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
9	III	23STP3DD31	Theoretical Discrete Distributions- Practical	CO1	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
10	III	23STCCCD33	Theoretical Continuous Distributions	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4

				CO4	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
11	III	23STP4CD31	Theoretical Continuous Distributions- Practical	CO1	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
12	III	23STCCSM33	Statistical Methods	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
13	III	23STP5SM31	Statistical Methods - Practical	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
14	III	23STCCIS33	Inferential Statistics	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
15	III	23STP6IS31	Inferential Statistics - Practical	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
16	III	23STCCRM34	Business Research Methods	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4

				CO5	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
17	IV	23STCCST43	Sampling Techniques	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
18	IV	23STP7ST41	Sampling Techniques - Practical	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
19	IV	23STCCDE43	Design & Analysis of Experiments	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO3,PSO4	PO1,PO2,PO3,PO4
20	IV	23STP8DE41	Design & Analysis of Experiments-Practica l	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
21	IV	23STCCNA43	Numerical Analysis	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
22	IV	23STP9NA41	Numerical Analysis - Practical	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4

				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
23	IV	23STCCQC44	Statistical Quality Control	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
24	IV	23MDCBS2	Basic Statistics	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
25	V	23STCCAS53	Applied Statistics	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
26	V	23STP10AS51	Applied Statistics - Practical	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
27	V	23STCCCR53	Computational Statistics & R Programming	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO4	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
28	V	23STP11CR51	Computational Statistics & R Programming - Practical	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5

				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
29	V	23STEC11OR53	Operations Research	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO4	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
30	V	23STP1211OR51	Operations Research - Practical	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
31	V	23STEC12QC53	Statistical Quality Control	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO4	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
32	V	23STP1312QC51	Statistical Quality Control - Practical	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
33	V	23STEC21OT53	Optimization Techniques	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO4	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
34	V	23MTP1421OT51	Optimization Techniques - Practical	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5

				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4,PO5
35	V	23STEC22AS53	Applied Statistics II	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO4	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
36	V	23MTP1522AS51	Applied Statistics II - Practical	CO1	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO2	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4
				CO3	PSO1,PSO2, PSO 3,PSO4	PO1,PO2,PO3,PO4

Mapping of Courses with PSOs

S. No.	Semester	Course	PSO1	PSO2	PSO3	PSO4
1	I	23SCCCEA14	✔	✔	✔	✔
2	I	23SCCCAS14	✔	✔	✔	✔
3	II	23STCCDS23	✔	✔	✔	✔
4	II	23STP1DS21	✔	✔	✔	✔
5	II	23STCCME23	✔	✔	✔	✔
6	II	23STP2ME21	✔	✔	✔	✔
7	II	23STCCSM24	✔	✔	✔	✔
8	III	23STCCDD33	✔	✔	✔	✔
9	III	23STP3DD31	✔	✔	✔	✔
10	III	23STCCCD33	✔	✔	✔	✔
11	III	23STP4CD31	✔	✔	✔	✔
12	III	23STCCSM33	✔	✔	✔	✔
13	III	23STP5SM31	✔	✔	✔	✔
14	III	23STCCIS33	✔	✔	✔	✔
15	III	23STP6IS31	✔	✔	✔	✔
16	III	23STCCRM34	✔	✔	✔	✔
17	IV	23STCCST43	✔	✔	✔	✔
18	IV	23STP7ST41	✔	✔	✔	✔
19	IV	23STCCDE43	✔	✔	✔	✔
20	IV	23STP8DE41	✔	✔	✔	✔
21	IV	23STCCNA43	✔	✔	✔	✔
22	IV	23STP9NA41	✔	✔	✔	✔
23	IV	23STCCQC44	✔	✔	✔	✔
24	IV	23MDCBS2	✔	✔	✔	✔
25	V	23STCCAS53	✔	✔	✔	✔
26	V	23STP10AS51	✔	✔	✔	✔

27	V	23STCCCR53	✔	✔	✔	✔
28	V	23STP11CR51	✔	✔	✔	✔
29	V	23STEC11OR53	✔	✔	✔	✔
30	V	23STP1211OR51	✔	✔	✔	✔
31	V	23STEC12QC53	✔	✔	✔	✔
32	V	23STP1312QC51	✔	✔	✔	✔
33	V	23STEC21OT53	✔	✔	✔	✔
34	V	23STP1421OT51	✔	✔	✔	✔
35	V	23STEC22AS53	✔	✔	✔	✔
36	V	23STP1522AS51	✔	✔	✔	✔

Mapping of Courses with POs

S. No.	Semester	Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
1	I	23SCCCEA14	✔	✔	✔	✔	-	-	-	-
2	I	23SCCCAS14	✔	✔	✔	✔	-	-	-	-
3	II	23STCCDS23	✔	✔	✔	✔	-	-	-	-
4	II	23STP1DS21	✔	✔	✔	✔	-	-	-	-
5	II	23STCCME23	✔	✔	✔	✔	-	-	-	-
6	II	23STP2ME21	✔	✔	✔	✔	-	-	-	-
7	II	23STCCSM24	✔	✔	✔	✔	-	-	-	-
8	III	23STCCDD33	✔	✔	✔	✔	-	-	-	-
9	III	23STP3DD31	✔	✔	✔	✔	-	-	-	-
10	III	23STCCCD33	✔	✔	✔	✔	-	-	-	-
11	III	23STP4CD31	✔	✔	✔	✔	-	-	-	-
12	III	23STCCSM33	✔	✔	✔	✔	-	-	-	-
13	III	23STP5SM31	✔	✔	✔	✔	-	-	-	-
14	III	23STCCIS33	✔	✔	✔	✔	-	-	-	-
15	III	23STP6IS31	✔	✔	✔	✔	-	-	-	-
16	III	23STCCRM34	✔	✔	✔	✔	-	-	-	-
17	IV	23STCCST43	✔	✔	✔	✔	-	-	-	-
18	IV	23STP7ST41	✔	✔	✔	✔	-	-	-	-
19	IV	23STCCDE43	✔	✔	✔	✔	-	-	-	-
20	IV	23STP8DE41	✔	✔	✔	✔	-	-	-	-
21	IV	23STCCNA43	✔	✔	✔	✔	-	-	-	-
22	IV	23STP9NA41	✔	✔	✔	✔	-	-	-	-
23	IV	23STCCQC44	✔	✔	✔	✔	-	-	-	-
24	IV	23MDCBS2	✔	✔	✔	✔	-	-	-	-
25	V	23STCCAS53	✔	✔	✔	✔	-	-	-	-
26	V	23STP10AS51	✔	✔	✔	✔	-	-	-	-

27	V	23STCCCR53	✔	✔	✔	✔	✔	-	-	-
28	V	23STP11CR51	✔	✔	✔	✔	✔	-	-	-
29	V	23STEC11OR53	✔	✔	✔	✔	✔	-	-	-
30	V	23STP1211OR51	✔	✔	✔	✔	✔	-	-	-
31	V	23STEC12QC53	✔	✔	✔	✔	✔	-	-	-
32	V	23STP1312QC51	✔	✔	✔	✔	✔	-	-	-
33	V	23STEC21OT53	✔	✔	✔	✔	✔	-	-	-
34	V	23STP1421OT51	✔	✔	✔	✔	✔	-	-	-
35	V	23STEC22AS53	✔	✔	✔	✔	-	-	-	-
36	V	23STP1522AS51	✔	✔	✔	✔	-	-	-	-

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA-8

A College with Potential for Excellence

NAAC Accredited & ISO 9001: 2015 Certified

DEPARTMENT OF BOTANY

PROGRAMME REGISTER

2023-2026

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PROGRAMME OUTCOMES (POs)

2023-2026

At the end of the programme students will have:

PO1: Essential Knowledge:

Comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi professional contexts.

PO2: Creative and critical thinking and problem solving abilities:

Be effective problem solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and communication skills:

Be able to convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivation and preparation in life-long learning:

Exhibit life-long skills; broad based multiple career oriented general skills; self and field based learning skills; digital skills; social responsibility and compassionate commitment; preparedness for living, learning and working in any environment

PO5: Professionalism and leadership readiness:

Be able to engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and ethical competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and emotional intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social responsibility:

Be sensitive to and demonstrate agency in matters of environment, gender and other social issues to promote an equitable society.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2023-2026

At the end of the programme students will be able to:

PSO1: Summarize the concepts, principles, classifications, theories and mechanisms.

PSO2: Discuss hypothesis, procedures, results and draw conclusions.

PSO3: Apply tools and techniques in solving problems, sample analysis and production.

PSO4: Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)

2023-2026

S.no.	Semester	Course code	Course Title	Course Outcomes (COs)
1.	I	23SCCCCB14	Introduction to Classical Biology	**CO1:**Learn the principles of classification and preservation of biodiversity.
				CO2: Understand the plant anatomical, physiological and reproductive processes.
				CO3: Knowledge on animal classification, physiology, embryonic development and their economic importance.
				CO4: Outline the cell components, cell processes like cell division, heredity and molecular processes.
				CO5: Comprehend the chemical principles in shaping and driving the macromolecules and life processes.
2.	I	23SCCCAB14	Introduction to Applied Biology	**CO1:**Learn the history, ultrastructure, diversity and importance of microorganisms.
				CO2: Understand the structure and functions of macromolecules.
				CO3: Knowledge on biotechnology principles and its applications in food and medicine.
				CO4: Outline the techniques, tools and their uses in diagnosis and therapy.
				CO5: Demonstrate the bioinformatics and statistical tools in comprehending the complex biological data.
3	II	23BTCCNV23	Non-Vascular Plants	**CO1:** Compile the general characteristics of algae and their significance in nature.

				CO2: Compare and contrast the characteristics of different groups of algae.
				CO3: Summarize the important features of fungi and their economic value
				CO4: Distinguish the characteristics of different groups of fungi
				CO5: Elaborate the features and significance of amphibians of plant kingdom.
4	II	23BTP1NV21	Non-Vascular Plants – Practical	**CO1:** Identify some algal and fungal species based on the structure of thalli and reproductive organs.
				CO2: Decipher the lichens and Bryophytes based on morphological, anatomical and reproductive features.
				CO3: Demonstrate experimental skills to accurately record, analyze experimental data, and determine the respective physical parameters.
5	II	23BTCCOD23	Origin of Life & Diversity of Microbes	**CO1**: Illustrate diversity of viruses, multiplication and economic value.
				CO2: Discuss the general characteristics, classification and economic importance of special groups of bacteria.
				CO3: Explain the structure, nutrition, reproduction and significance of eubacteria.
				CO4: Evaluate the interactions among soil microbes.
				CO5: Compile the value and applications of microbes in agriculture.
6	II	23BTP2OD21	Origin of Life & Diversity of	**CO1**: Demonstrate proficiency in operating and maintaining essential

			Microbes - Practical	microbiology laboratory instruments, ensuring accurate and safe experimental procedures.
				CO2: Analyze viruses such as Gemini and TMV through electron micrographs or models.
				CO3: Master the Gram staining technique for bacteria identification, enhancing skills in microbial morphology observation and classification.
7	III	23BTCCVP33	Vascular Plants	**CO1:** Infer the evolution of vasculature, heterospory and seed habit in Pteridophytes.
				CO2: Illustrate the general characteristics of Gymnosperms along with their uses
				CO3: Discuss about some Taxonomic aids and their applications in plant systematics.
				CO4: Compare and contrast the vegetative and floral characteristics of some angio spermic families
				CO5: Evaluate the economic value of plant species from the families under the study.
8	III	23BTP3VP31	Vascular Plants - Practical	**CO1**: Distinguish the Pteridophytes and Gymnosperms based on their morphological, anatomical and reproductive structures.
				CO2: Make systematic classification of plant species using vegetative and floral characters.
				CO3: Identify angiosperm plant species and make herbarium specimens.
9	III	23BTCCPD33	Plant Pathology & Plant Diseases	**CO1:** Identify major groups of plant pathogens and classify plant diseases.

				CO2: Explain various stages in infection, plant pathogenesis and responsible factors.
				CO3: Elaborate the preventive and control measures for plant diseases.
				CO4: Discuss about some diseases of field crops and their management.
				CO5: Discuss about some diseases of horticultural crops and their management.
10	III	**23BTP4PD31**	Plant Pathology & Plant Diseases - Practical	**CO1:** Handle equipment and instruments in plant pathology laboratory.
				CO2: Isolate plant pathogenic microbes.
				CO3: Identify the plant diseases based on histopathological observations.
11	III	23BTCCPB33	Plant Breeding	**CO1:** Compare and contrast the methods of reproduction and also pollination mechanisms.
				CO2: Design appropriate pollination method for a given crop plant.
				CO3: Recommend the best possible breeding method for a crop species.
				CO4: Propose the steps for production of hybrid varieties of crop plants.
				CO5: Apply molecular techniques to develop a tailored plant variety.
12	III	23BTP5PB31	Plant Breeding - Practical	**CO1:** Distinguish self and cross-pollinated plant species based on floral biology.
				CO2: Perform skills related to self and cross pollination in plants.
				CO3: Make hybridization to produce new varieties.
13	III	23BTCCPT33	Plant Biotechnology	**CO1:** Explain the scientific techniques and tools used in plant tissue culture laboratories.

				CO2: Appraise the applications of plant tissue culture in agriculture and horticulture sectors.
				CO3: Acquire skills related to various aspects in plant tissue culture.
				CO4: Evaluate the role of transgenic plants in solving certain plant related beneficiary issues.
				CO5: Justify the role of plant biotechnology in bioenergy and phytoremediation and Judge the biosafety and bioethics related to plant biotechnology.
14	III	23BTP6PT31	Plant Biotechnology – Practical	**CO1:** Operate all the equipment and instruments in a plant tissue culture laboratory.
				CO2: Establish callus and organ culture.
				CO3: Obtain quality plants using micropropagation techniques.
15	IV	23BTCCAE43	Anatomy & Embryology of Angiosperms	**CO1:**Categorize various tissues and evaluate their role in plants.
				CO2: Explain anomalous secondary growth in some plants and justify the value of timber plants
				CO3: Summarize the events in microsporogenesis and development of male gametophyte.
				CO4: Discuss the events in megasporogenesis and development of female gametophyte.
				CO5: Propose the incidents in embryogenesis of an angiospermic plant species.
16	IV	23BTP7AE41	Anatomy & Embryology of Angiosperms –Practical	**CO1:** Conduct dissections of various plant organs and study the internal structures by staining.

				CO2: Look into the embryological characteristics from sex organs to seeds in angiosperms.
				CO3: Identify the seed borne pathogens and prescribe methods to prevent or control them.
17	IV	23BTCCPP43	Plant Ecology Biodiversity & Phytogeography	**CO1:** Explain the interactions among the biotic and abiotic components in an ecosystem.
				CO2: Summarize the characteristics of a population and a community.
				CO3: Anticipate the environmental problems arising due to climate change
				CO4: Assess the value of biodiversity and choose appropriate conservation strategy.
				CO5: Make a survey on the distribution of various plant groups in a specified geographical area.
18	IV	23BTP8PP41	Plant Ecology Biodiversity & Phytogeography – Practical	**CO1:** Handle instruments used in ecological studies.
				CO2: Perform experiments and collect data on autecology and synecology.
				CO3: Identify various plant groups based on their morphological and anatomical adaptations.
19	IV	23BTCCPU43	Plant Resources & Utilization	**CO1:** Explain the significance of plants in human nutrition.
				CO2: List out different plant products used by human beings.
				CO3: Evaluate the commercial plant products and their utilization
				CO4: Discuss the uses of medicinal and aromatic plants for human health care.
				CO5: Appraise the importance of timber and non-timber products for value added products.

20	IV	23BTP9PU41	Plant Resources & Utilization– Practical	**CO1:** Characterize various plant products based on morphological and microscopic observations.
				CO2: Identify economically valuable plants and their products.
				CO3: Categorize distinct plant products utilized by humans.
21.	V	23BTCCCG53	Cell Biology & genetics	**CO1:** Sketch the ultra-structural aspects of plant cell and its components
				CO2: Hypothesise the role of chromosomes in inheritance
				CO3: Justify the role of genes in inheritance of characters by descent
				CO4: Correlate the functions of the nucleic acid with their structure.
				CO5: Explain the discoveries that led to understanding the fine structure of a gene.
22	V	23BTP10CG51	Cell Biology & Genetics –Practical	**CO1:** Identify the stages of mitotic and meiotic cell divisions.
				CO2: Infer the structure and functions of nucleic acids.
				CO3: Predict the consequences of a particular genetic condition
23.	V	23BTCCPM53	Plant Physiology & Metabolism	**CO1:**Comprehend the importance of water in plant life and mechanisms for transport of water and solutes in plants.
				CO2: Explain the role of minerals in plant nutrition and their deficiency symptoms.Interpret the role of enzymes in plant metabolism.
				CO3: Hypothesise the light reactions and carbon assimilation processes responsible for synthesis of food in plants.

				CO4: Analyze the biochemical reactions in relation to Nitrogen and lipid metabolisms
				CO5: Evaluate the physiological factors that regulate growth, development and flowering in plants.
24	V	23BTP11PM51	Plant Physiology & Metabolism - Practical	**CO1:**. Conduct lab and field experiments pertaining to plant physiology
				CO2: Estimate the quantities and qualitative expressions using experimental results and calculations
				CO3: Interpret the factors responsible for growth and development in plants.
25	V	23BTEC11OF53	Organic Farming	**CO1:** Compare and contrast the advantages and disadvantages of conventional and organic farming. Acquire skills on different composting methods.
				CO2: Acquainted with cultural and crop protection practices related to organic farming.
				CO3: Acquire knowledge on various management practices in organic farming.
				CO4: Discuss about the certification and marketing of organic foods
				CO5: Explain the initiatives of government in promoting organic farming
26	V	23BTP1211OF51	Organic Farming - Practical	**CO1:** Prepare different organic formulations for organic farming.
				CO2: Design a vermicompost unit and prepare the compost.
				CO3: Identify various manures for organic farming.

27.	V	23BTEC12ST53	Seed Technology	**CO1:** Explain the causes for seed dormancy and methods to break dormancy.
				CO2: Understand critical concepts of seed processing and seed storage procedures
				CO3: Acquire skills related to various seed testing methods.
				CO4: Identify seed borne pathogens and prescribe methods to control them.
				CO5: Understand the legislations on seed production and procedure of seed certification.
28	V	23BTP1312ST51	Seed Technology - Practical	**CO1:** Break the seed dormancy using various techniques.
				CO2: Determine seed moisture, seed germination percentage, seed viability and vigour
				CO3: Identify the seed borne pathogens and prescribe methods to prevent or control them
29	**V**	23BTEC21MC53	Mushroom Culture Technology	**CO1:**Understand the structure and life of a mushroom and discriminate between edible and poisonous mushrooms.
				CO2: Identify the basic infrastructure to establish a mushroom culture unit.
				CO3: Demonstrate skills preparation of compost and spawn.
				CO4: Acquire critical knowledge on cultivation of some edible mushrooms.
				CO5: Explain the methods of storage, preparation of value-added products and marketing.
30	**V**	23BTP1421MC51	Mushroom Culture Technology - Practical	**CO1:**Identify and discriminate different mushrooms based on morphology
				CO2: Understand facilities required for mushroom cultivation.

				CO3: Demonstrate skills on preparation of spawn, compost and casing material
31	**V**	23BTEC22PP53	Plant Propagation Techniques	**CO1:**Explain various plant propagation structures and their utilization
				CO2: Understand advantages and disadvantages of vegetative, asexual and sexual plant propagation methods.
				CO3: Assess the benefits of asexual propagation of certain economically valuable plants using apomictics and adventive polyembryony.
				CO4: Demonstrate skills related to vegetative plant propagation techniques such as cuttings, layering,grafting and budding.
				CO5: Apply a specific macro-propagation technique for a given plant species
32	**V**	23BTP1522PP51	Plant Propagation Techniques - Practical	**CO1:**Make use of different plant propagation structures for plant multiplication.
				CO2: Explore the specialized organs or asexual propagules in some plants for their proliferation.
				CO3: Demonstrate skills on micropropagation of plants through vegetative propagation techniques.

Mapping of COs with PSOs and POs

S.No.	Semester	Course Code	Course Title	COs	PSOs	POs
1	I	23SCCCCB14	Introduction to Classical Biology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
2	I	23SCCCAB14	Introduction to Applied Biology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
3	II	23BTCCNV23	Non-Vascular Plants	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8

				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
4	II	23BTP1NV21	Non - Vascular Plants – Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
,5	II	23BTCCOD23	Origin of Life & Diversity of Microbes	CO1	PSO2, PSO3	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO4	PSO1, PSO2, PSO3,PSO4	PO1, PO2, PO3,PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4,PO8
6	II	23BTP2OD21	Origin of Life & Diversity of Microbes – Practical	CO1	PSO2, PSO3,PSO4	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3,PSO4	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3,PSO4	PO1, PO2, PO3,PO4
7	III	23BTCCVP33	Vascular Plants	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4

				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
8	III	**23BTP3VP31**	Vascular Plants -Practical	CO1	PSO1,PSO2, PSO3,PSO4	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3,PSO4	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
9	III	23BTCCPD33	Plant Pathology & Plant Diseases	CO1	PSO1, PSO2, PSO3,	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
10	III	23BTP4PD31	Plant Pathology & Plant Diseases - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
11	III	23BTCCPB33	Plant Breeding	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO5	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
12	III	23BTP5PB31	Plant Breeding-Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
13	III	23BTCCPT33	Plant Biotechnology	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
14	III	23BTP6PT31	Plant Biotechnology - Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
15	IV	23BTCCAE43	Anatomy & Embryology of Angiosperms	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
16	IV	23BTP7AE41	Anatomy & Embryology of Angiosperms - Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3,PSO4	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
17	IV	23BTCCPP43	Plant Ecology Biodiversity & Phytogeography	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO5	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
18	IV	23BTP8PP41	Plant Ecology Biodiversity & Phytogeography - Practical	CO1	PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
19	IV	23BTCCPU43	Plant Resources & Utilization	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
20	IV	23BTP9PU41	Plant Resources & Utilization - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
21	V	23BTCCCG53	Cell Biology & Genetics	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
22	V	23BTP10CG51	Cell Biology & Genetics -Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4,PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

23	V	23BTCCPM53	Plant Physiology & Metabolism	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
24	V	23BTP11PM51	Plant Physiology & Metabolism - Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO5
25.	V	23BTEC11OF53	Organic Farming	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
26	V	23BTP1211OF51	Organic Farming - Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2,	PO1, PO2, PO3,PO4

					PSO3,PSO4	
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
27.	V	23BTEC12ST53	Seed Technology	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3,PSO4	PO1, PO2, PO3,PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
28.	V	23BTP1312ST51	Seed Technology - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
29.	V	23BTEC21MC53	Mushroom Culture Technology	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4, PO8
				CO2	PSO1, PSO2, PSO3,PSO4	PO1, PO2, PO3,PO4, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,PO8

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8
30	V	23BTP1421MC51	Mushroom Culture Technology - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8
31	V	23BTEC22PP53	Plant Propagation Techniques	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8
32	V	23BTP1522PP51	Plant Propagation Techniques - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3,PO4, PO8

Mapping of Courses with PSOs

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
Introduction to Classical Biology	23SCCCCB14	✔	✔	✔	✔
Introduction to Applied Biology	23SCCCAB14	✔	✔	✔	✔
Non - Vascular Plants	23BTCCNV23	✔	✔	✔	✔
Non - Vascular Plants- Practical	23BTP1NV21	✔	✔	✔	✔
Origin of Life & Diversity of Microbes	23BTCCOD23	✔	✔	✔	✔
Origin of Life & Diversity of Microbes - Practical	23BTP2OD21	✔	✔	✔	✔
Vascular Plants	23BTCCVP33	✔	✔	✔	✔
Vascular Plants - Practical	23BTP3VP31	✔	✔	✔	✔
Plant Pathology & Plant Diseases	23BTCCPD33	✔	✔	✔	✔
Plant Pathology & Plant Diseases - Practical	23BTP4PD31	✔	✔	✔	✔
Plant Breeding	23BTCCPB33	✔	✔	✔	✔
Plant Breeding - Practical	23BTP5PB31	✔	✔	✔	✔
Plant Biotechnology	23BTCCPT33	✔	✔	✔	✔
Plant Biotechnology -Practical	23BTP6PT31	✔	✔	✔	✔
Anatomy & Embryology of Angiosperms	23BTCCAE43	✔	✔	✔	✔
Anatomy & Embryology of Angiosperms - Practical	23BTP7AE41	✔	✔	✔	✔
Plant Ecology Biodiversity & Phytogeography	23BTCCPP43	✔	✔	✔	✔
Plant Ecology Biodiversity & Phytogeography - Practical	23BTP8PP41	✔	✔	✔	✔

Plant Resources & Utilization	23BTCCPU43	✔	✔	✔	✔
Plant Resources & Utilization - Practical	23BTP9PU41	✔	✔	✔	✔
Cell Biology & Genetics	23BTCCCG53	✔	✔	✔	✔
Cell Biology & Genetics - Practical	23BTP10CG51	✔	✔	✔	✔
Plant Physiology & Metabolism	23BTCCPM53	✔	✔	✔	✔
Plant Physiology & Metabolism - Practical	23BTP11PM51	✔	✔	✔	✔
Organic Farming	23BTEC11OF53	✔	✔	✔	✔
Organic Farming - Practical	23BTP1211OF51	✔	✔	✔	✔
Seed Technology	23BTEC12ST53	✔	✔	✔	✔
Seed Technology - Practical	23BTP1312ST51	✔	✔	✔	✔
Mushroom Culture Technology	23BTEC21MC53	✔	✔	✔	✔
Mushroom Culture Technology - Practical	23BTP1421MC51	✔	✔	✔	✔
Plant Propagation Techniques	23BTEC22PP53	✔	✔	✔	✔
Plant Propagation Techniques - Practical	23BTP1522PP51	✔	✔	✔	✔

Mapping of Courses with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Introduction to Classical Biology	✔	✔	✔	✔				
Introduction to Applied Biology	✔	✔	✔	✔				
Non - Vascular Plants	✔	✔	✔	✔				✔
Non - Vascular Plants- Practical	✔	✔	✔	✔				
Origin of Life & Diversity of Microbes	✔	✔	✔	✔				✔
Origin of Life & Diversity of Microbes - Practical	✔	✔	✔	✔				
Vascular Plants	✔	✔	✔	✔				
Vascular Plants - Practical	✔	✔	✔	✔				
Plant Pathology & Plant Diseases	✔	✔	✔	✔				
Plant Pathology & Plant Diseases - Practical	✔	✔	✔	✔				
Plant Breeding	✔	✔	✔	✔				
Plant Breeding - Practical	✔	✔	✔	✔				
Plant Biotechnology	✔	✔	✔	✔				
Plant Biotechnology -Practical	✔	✔	✔	✔				
Anatomy & Embryology of Angiosperms	✔	✔	✔	✔				
Anatomy & Embryology of Angiosperms - Practical	✔	✔	✔	✔				

Plant Ecology Biodiversity & Phytogeography	✔	✔	✔	✔				
Plant Ecology Biodiversity & Phytogeography - Practical	✔	✔	✔	✔				
Plant Resources & Utilization	✔	✔	✔	✔				
Plant Resources & Utilization - Practical	✔	✔	✔	✔				
Cell Biology & Genetics	✔	✔	✔	✔	✔			
Cell Biology & Genetics - Practical	✔	✔	✔	✔	✔			
Plant Physiology & Metabolism	✔	✔	✔	✔	✔			
Plant Physiology & Metabolism - Practical	✔	✔	✔	✔	✔			
Organic Farming	✔	✔	✔	✔				
Organic Farming - Practical	✔	✔	✔	✔				
Seed Technology	✔	✔	✔	✔	✔			
Seed Technology - Practical	✔	✔	✔	✔	✔			
Mushroom Culture Technology	✔	✔	✔	✔				✔
Mushroom Culture Technology - Practical	✔	✔	✔	✔				✔
Plant Propagation Techniques	✔	✔	✔	✔				✔
Plant Propagation Techniques - -Practical	✔	✔	✔	✔				✔

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

NAAC Accredited & ISO 21001: 2018 Certified

PROGRAMME REGISTER - 2023- 2026

DEPARTMENT OF ZOOLOGY

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PROGRAMME OUTCOMES (POs)
2023-2026

Students of all Undergraduate Programmes at the time of graduation will be able to possess

PO1: Essential Knowledge:

Have comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi-professional contexts.

PO2: Creative, Critical Thinking and Problem-Solving Abilities:

Be effective problem-solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and Communication Skills:

Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated, Self-directed, and Life-long Learning:

Exhibit life-long skills; broad-based multiple career oriented general skills; self and field-based learning skills; digital skills; preparedness for living, learning and working in any environment.

PO5: Professionalism and Leadership Readiness:

Engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and Ethical Competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and Emotional Intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social Responsibility and Effective Citizenship:

Exhibit social responsibility and compassionate commitment; Be sensitive to and demonstrate institution in matters of environment, gender and other social issues to promote an equitable society and sustainable development.

PROGRAMME SPECIFIC OUTCOMES (PSOs)
2023-2026

At the end of the programme students will be able to possess/exhibit:

PSO1: Quantitative Analysis:

Interpret principles, classifications, concepts, theories and mechanisms learnt.

PSO2: Practical and Analytical Skills:

Analyse experimental designs and facts, procedures, properties, and draw inferences.

PSO3: Logical and Critical Thinking:

Apply knowledge and techniques in sample analysis, problem-solving and production.

PSO4: Teamwork and Communication:

Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

S. No	Sem.	Course Code	Course Title	Course Outcomes (COs)
1	I	23SCCCCB14	Introduction to Classical Biology	**CO1:** Know the principles of classification and preservation of biodiversity
				CO2: Understand the plant anatomical, physiological and reproductive processes.
				CO3: Have sound knowledge on animal classification, physiology, embryonic development and their economic importance.
				CO4: Outline the cell components, cell processes like cell division, heredity and molecular processes.
				CO5: Comprehend the chemical principles in shaping and driving the macromolecules and life processes.
2	I	23SCCCAB14	Introduction to Applied Biology	**CO1:** Speak about the history, ultrastructure, diversity and importance of microorganisms.
				CO2: Understand the structure and functions of macromolecules.
				CO3: Have knowledge on biotechnology principles and its applications in food and medicine.
				CO4: Outline the techniques, tools and their uses in diagnosis and therapy.
				CO5: Demonstrate the bioinformatics and statistical tools in comprehending the complex biological data.
3	I	23MDCBS12	Principles of Biological Sciences	**CO1:** Understand the relationship between structure and function at all levels.
				CO2: Recognise the mechanisms underlying biological evolution, its patterns, and its significance as biology's overarching unifying principle.
				CO3: Understand the contributions of biology to the resolution of medical, ethical, social, and environmental concerns in human affairs.
4	II	23ZLCCAN23	Animal diversity I- Biology of Non-Chordates	**CO1:** Learn the principles of classification and general characters of Protozoa.
				CO2: Understand the classification and general characters of Porifera and Coelenterata with taxonomic keys.
				CO3: Have knowledge on animal classification of Phylum Platyhelminthes & Nemathelminthes using examples and speak about parasitic adaptation.
				CO4: Outline the animal classification of Phylum Echinodermata & Hemichordata.
				CO5: Comprehend the animal species with suitable examples in relation to the phylogeny.
5	II	23ZLP1AN21	Animal diversity – I Non – Chordates - Practical	**CO1:** Handle microscopes both dissection and compound.
				CO2: Differentiate lower invertebrates from higher invertebrates.
				CO3: Dissect and display prawn nervous system, statocyst and appendages.

6	II	23ZLCCCM23	Cell & Molecular Biology	**CO1:** Speak about the basic unit of the living organisms and to differentiate the organisms by their cell structure.
				CO2: Outline the fine structure and function of plasma membrane and different cell organelles of eukaryotic cell.
				CO3: Comprehend the cell cycle and bioenergetics of the cell.
				CO4: Understand the gene expression phenomenon and biological importance of biomolecules.
				CO5: Have Knowledge on the central dogma of molecular biology and flow of genetic information from DNA to proteins.
7	II	23ZLP2CM21	Cell & Molecular Biology - Practical	**CO1:** Differentiate mitosis and meiosis.
				CO2: Test the presence of Biomolecules.
				CO3: Identify biomolecules present in the body and their importance.
8	III	23ZLCCAC33	Animal Diversity II - Biology of Chordates	**CO1:** Describe the general taxonomic rules and classification of chordates.
				CO2: Identify bony fishes from cartilaginous fishes, their systems and migration.
				CO3: Differentiate the poisonous snakes from non-poisonous snakes with their external features.
				CO4: Articulate flight adaptation and migration in birds.
				CO5: Understand the significance of dentition and its evolutionary significance.
9	III	23ZLP3AC31	Animal Diversity II - Biology of Chordates - Practical	**CO1:** Identify the specimens provided and learn how they are developed from primitive to advanced animals.
				CO2: Explain the adaptation of chordate animals (fish to mammals).
				CO3: Perform dissection on Shark Nervous system and mount scales and brain.
10	III	23ZLCCPG33	Principles of Genetics	**CO1:** Understand the history of genetics, gain knowledge on basic terminology of Genetics.
				CO2: Articulate interaction of genes, various types of inheritance patterns existing in animals with reference to non-Mendelian inheritance.
				CO3: Have knowledge on chromosomal inheritance.
				CO4: Explain the various aspects of genetics involved in sex determination.

				CO5: Acquiring in-depth knowledge on human karyotyping, pedigree analysis and chromosomal disorders concepts of proteomics and genomics.
11	III	23ZLP4PG31	Principles of Genetics - Practical	**CO1:** Deduce, infer and interpret the results of genetic problems.
				CO2: To acquaint students on Human karyotype & pedigree analysis basics with problems and arrangement of the same.
12	III	23ZLCCAB33	Animal Biotechnology	**CO1:** Imbibe knowledge of the Vectors, modification system and Restriction enzymes used in biotechnology.
				CO2: Describe gene delivery mechanism, DNA sequencing and PCR technique.
				CO3: Acquire basic and skills on media preparation, knowledge on hybridoma technology, Stem cell and cell culture techniques.
				CO4: Understand the manipulation of reproduction with the application of biotechnology.
				CO5: Explain the applications of Biotechnology in the fields of industry, fish farming and gene therapy.
13	III	23ZLP5AB31	Animal Biotechnology - Practical	**CO1:** Articulate the types of vector used in Biotechnology cloning.
				CO2: Speak about the steps involved in separation of compounds by paper chromatography.
				CO3: Do the sterilization of glass and plastic wares and prepare the culture Media.
14	III	23ZLCCEZ33	Evolution & Zoogeography	**CO1:** Understand the principles and forces of evolution of life on earth, the process of evolution of new species and apply the same to develop new and advanced varieties of animals.
				CO2: : Identify different evidences of evolution
				CO3: Understand the theories of evolution
				CO4: Explain the various theories and tools for evolution.
				CO5: Map the distribution of animals according to zoological realms.
15	III	23ZLP6EZ31	Evolution & Zoogeography - Practical	**CO1:** Differentiate the types of fossils.
				CO2: Identify the missing and connecting links.

				CO3: Discuss on the phylogeny of horses and adaptive radiation with the help of Darwin's Finches.
16	III	23MDCHH32	Health and Hygiene	**CO1:** Outline the importance of health, hygiene and nutrition for a healthy life.
				CO2: Summarize the health care programmes of India
				CO3: Explain community and personal health and Hygiene.
17	IV	23ZLCCEB43	Embryology	**CO1:** Understand the historical perspective and concepts of embryology.
				CO2: Speak on gametogenesis, fertilization and cleavage patterns.
				CO3: Understand the fate of germinal layers and extra embryonic membranes.
				CO4: Explain the process of regeneration in certain animals.
				CO5: Observe the process of organogenesis.
18	IV	23ZLP7EB41	Embryology - Practical	**CO1:** Identify the early developmental stages.
				CO2: Articulate the developmental stages of chick.
				CO3: Differentiate different part of placenta.
19	IV	23ZLCCAL43	Animal Physiology: Life Sustaining Systems	**CO1:** Speak about the physiology of digestion and hormonal control of digestion.
				CO2: Develop a comprehensive picture of respiratory physiology.
				CO3: Differentiate the Renal physiology with reference to water and acid-base balances.
				CO4: Identify the physiology aspects of Nerve and muscle.
				CO5: Narrate the structure, function and physiology of heart.
20	IV	23ZLP8AL41	Animal Physiology: Life Sustaining Systems - Practical	**CO1:** Examine different organs of mammals
				CO2: Do the qualitative tests for biomolecules, sugar and albumin.
				CO3: Estimate the percentage of haemoglobin.
21	IV	23ZLCCIM43	Immunology	**CO1:** Articulate the roles of innate recognition receptors in immune responses.

				CO2: Compare and contrast humoral versus cell-mediated immune responses.
				CO3: Distinguish various cell types involved in immune responses and associated functions.
				CO4: Distinguish and characterize antibody isotypes, development, and functions.
				CO5: Understand the significance the Major Histocompatibility Complex in terms of immune response and transplantation.
22	IV	23ZLP9IM41	Immunology-Practical	**CO1:** Describe about the immune organs.
				CO2: Identify Blood groups using Kit.
				CO3: Perform various tests like ELISA and Widal.
23	V	23ZLCCPM53	Poultry Management I	**CO1:** Evaluate the status of Indian Poultry Industry.
				CO2: Explain the Scientific Poultry keeping.
				CO3: Inspect different breeds of chicken.
				CO4: Learning about desi and indigenous breeds.
				CO5: Knowledge about Central Avian Research Institute.
24	V	23ZLP10PM51	Poultry Management I - Practical	**CO1:** Identify different types of Poultry rearing practices.
				CO2: Evaluate the efficacy of different types. of poultry practices in maximizing yield
				CO3: Understand the importance of different. hybrid breeds in poultry
25	V	23ZLCCPP53	Poultry Management II	**CO1:** Suggest measure for Health care in Poultry
				CO2: Evaluate the economics of poultry production
				CO3: Elaborate the poultry Breeder flock management
				CO4: Hatchery Practices – Management principles of incubation
				CO5: Fertility disorder- etiology, diagnosis and corrective measures
26	V	23ZLP11PP51	Poultry Management II - Practical	**CO1:** Identify different types of Poultry rearing practices
				CO2: Evaluate the efficacy of different types of poultry practices in maximizing yield

				CO3: Understand the importance of different hybrid breeds in poultry
27	V	23ZLEC11AQ53	Sustainable Aquaculture Management	**CO1**: Evaluate the current status of aquaculture at the National level.
				CO2: Classify the different types of ponds used in aquaculture.
				CO3: Demonstration of induced breeding techniques of Carp fishes.
				. **CO4**: Acquire critical knowledge on commercial importance of shrimps.
				CO5: Identification of fin and shell fish diseases.
28	V	23ZLP1211AQ51	Sustainable Aquaculture Management - Practical	**CO1**: Laboratory identification of the characters Indian Major carps.
				CO2: Estimate physico - chemical characteristics of water used for aquaculture.
				CO3. Visiting a Hatchery/Farm/ Aqua diagnostic center to examine the diseases of fin and shell fish.
29	V	23ZLEC12LM53	Live Stock Management - I	**CO1:** Relate the anatomy of udder with letdown of milk.
				CO2: Identify and manipulate the reproductive behavior of cattle.
				CO3: Inspect the economics of dairy farming.
				CO4: r-DNA technology-Cloning.
				CO5: Awareness on cross breeding of cattle and grading up of buffaloes.
30	V	23ZLP1312LM51	Live Stock Management - Practical- I	**CO1:** Examine the points of dairy cow.
				CO2: Understand the behavioral changes of cow during the reproductive period.
				CO3: Differentiate the merits and demerits of cross breeds in cattle.
31	V	23ZLEC22LP53	Live Stock Management - II	**CO1:** Identify and suggest the suitable housing system for the dairy farming
				CO2: Understand management practices for the dairy farms
				CO3: Learn the process of milk pasteurization

				CO4: Understand the manufacturing strategies and different products
				CO5: Learn about Different products
32	V	23ZLP1522LP51	Live Stock Management - II - Practical	**CO1:** Design a model of dairy farm layout
				CO2: Understand procedure of milk pasteurization at milk processing centers
				CO3: Identify various important management practices in dairy farming
				CO4: Explain the pre- requisites for starting a dairy farm
33	V	23ZLEC21PH53	Postharvest Technology of fish & Fisheries	**CO1:** Identify the types of preservation methods employed in aquaculture
				CO2: Choose the suitable Processing methods in aquaculture
				CO3 : Maintain the standard quality control protocols laid down in aqua industry
				CO4: Identify the best Seafood quality assurance system
				CO5: Understand the Quality Assurance, Management and Certification
34	V	23ZLP1421PH53	Postharvest Technology of fish & Fisheries - Practical	**CO1:** Identify the quality of aqua processed products.
				CO2: Determine the quality of fishery by products.
				CO3: Analyze the protocols of aqua processing methods

Mapping of COs with PSOs &POs

S. No.	Sem.	Course code	Course Title	COs	PSOs	POs
1	1	23SCCCCB14	Introduction to Classical Biology	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
2	I	23SCCCAB14	Introduction to Applied Biology	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
3	1	23MDCBS12	Principles of Biological Sciences	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
4	II	23ZLCCAN23	Animal diversity I- Biology of Non-Chordates	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
5	II	23ZLP1AN21	Animal diversity – I Non-Chordates - Practical	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**

6	II	23ZLCCCM23	Cell & Molecular Biology	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
7	II	23ZLP2CM21	Cell & Molecular Biology - Practical	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
8	III	23ZLCCAC33	Animal Diversity II - Biology of Chordates	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
9	III	23ZLP3AC31	Animal Diversity II - Biology of Chordates - Practical	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
10	III	23ZLCCPG33	Principles of Genetics	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
11	III	23ZLP4PG31	Principles of Genetics - Practical	**CO1:**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2:	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
12	III	23ZLCCAB33	Animal Biotechnology	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2,**	**PO1, PO2,**

					PSO3, PSO4	**PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
13	III	23ZLP5AB31	Animal Biotechnology - Practical	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
14	III	23ZLCCEZ33	Evolution & Zoogeography	**CO1**	**PSO1, PSO2, PSO3,PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
15	III	23ZLP6EZ31	Evolution & Zoogeography - Practical	**CO1**	**PSO1, PSO2, PSO3,PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
16	III	23MDCHH32	Health and Hygiene	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4**
17	IV	23ZLCCEB43	Embryology	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO5	**PSO1, PSO2,**	**PO1, PO2,**

					PSO3, PSO4	**PO3, PO4, PO7**
18	IV	23ZLP7EB41	Embryology - Practical	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
19	IV	23ZLCCAL43	Animal Physiology: Life Sustaining Systems	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
20	IV	23ZLP8AL41	Animal Physiology: Life Sustaining Systems - Practical	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
21	IV	23ZLCCIM43	Immunology	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4,**

						PO7
22	IV	3ZLP9IM41	Immunology-Practical	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
23	V	23ZLCCPM53	Poultry Management I	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
24	V	23ZLP10PM51	Poultry Management I - Practical	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
25	V	23ZLCCPP53	Poultry Management II	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**

26	V	23ZLP11PP51	Poultry Management II - Practical	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
27	V	23ZLEC11AQ53	Sustainable Aquaculture Management	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
28	V	23ZLP1211AQ51	Sustainable Aquaculture Management - Practical	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
29	V	23ZLEC12LM53	Live Stock Management - I	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**

30	V	23ZLP1312LM51	Live Stock Management - Practical- I	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
31	V	23ZLEC22LP53	Live Stock Management - II	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
32	V	23ZLP1522LP51	Live Stock Management - II - Practical	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
33	V	23ZLEC21PH53	Postharvest Technology of fish & Fisheries	**CO1**	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO4	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO5	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
34	V	23ZLP1421PH51	Postharvest	**CO1**	**PSO1, PSO2,**	**PO1, PO2,**

			Technology of fish & Fisheries - Practical		**PSO3, PSO4**	**PO3, PO4, PO7**
				CO2	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**
				CO3	**PSO1, PSO2, PSO3, PSO4**	**PO1, PO2, PO3, PO4, PO7**

Mapping of Courses with PSOs

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
Introduction to Classical Biology	23SCCCCB14	✔	✔	✔	✔
Introduction to Applied Biology	23SCCCAB14	✔	✔	✔	✔
Animal Diversity I: Biology of Non-Chordates - Minor	23ZLCCAN23	✔	✔	✔	✔
Animal Diversity I: Biology of Non-Chordates – Practical - Minor	23ZLP1AN21	✔	✔	✔	✔
Cell & Molecular Biology	23ZLCCCM23	✔	✔	✔	✔
Cell & Molecular Biology - Practical	23ZLP2CM21	✔	✔	✔	✔
Animal Diversity II: Biology of Chordates - Minor	23ZLCCAC33	✔	✔	✔	✔
Animal Diversity II: Biology of Chordates - Practical - Minor	23ZLP3AC31	✔	✔	✔	✔
Principles of Genetics	23ZLCCPG33	✔	✔	✔	✔
Principles of Genetics - Practical	23ZLP4PG31	✔	✔	✔	✔
Animal Biotechnology	23ZLCCAB33	✔	✔	✔	✔
Animal Biotechnology - Practical	23ZLP5AB31	✔	✔	✔	✔
Evolution & Zoogeography	23ZLCCEZ33	✔	✔	✔	✔
Evolution & Zoogeography - Practical	23ZLP6EZ31	✔	✔	✔	✔

Embryology - Minor	23ZLCCEB43	✔	✔	✔	✔
Embryology - Practical - Minor	23ZLP7EB41	✔	✔	✔	✔
Animal Physiology: Life Sustaining Systems - Minor	23ZLCCAL43	✔	✔	✔	✔
Animal Physiology: Life Sustaining Systems - Practical - Minor	23ZLP8AL41	✔	✔	✔	✔
Immunology	23ZLCCIM43	✔	✔	✔	✔
Immunology - Practical	23ZLP9IM41	✔	✔	✔	✔
Poultry Management I - Minor	23ZLCCPM53	✔	✔	✔	✔
Poultry Management I - Practical - Minor	23ZLP10PM51	✔	✔	✔	✔
Poultry Management II - Minor	23ZLCCPP53	✔	✔	✔	✔
Poultry Management II – Practical - Minor	23ZLP11PP51	✔	✔	✔	✔
Sustainable Aquaculture Management	23ZLEC11AQ53	✔	✔	✔	✔
Sustainable Aquaculture Management - Practical	23ZLP1211AQ51	✔	✔	✔	✔
Live Stock Management I	23ZLEC12LM53	✔	✔	✔	✔
Live Stock Management I - Practical	23ZLP1312LM51	✔	✔	✔	✔
Post-Harvest Technology of Fish & Fisheries	23ZLEC21PH53	✔	✔	✔	✔
Post-Harvest Technology of Fish & Fisheries – Practical	23ZLP1421PH51	✔	✔	✔	✔

Live Stock Management II	23ZLEC22LP53	✔	✔	✔	✔
Live Stock Management II - Practical	23ZLP1522LP51	✔	✔	✔	✔

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO3 Teamwork and communi-cation skills	PO4 Motivation and preparation in life- long learning	PO5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO7 Self-awareness and emotional intelligence	PO8 Social Responsibility and Effective Citizenship
Classical Biology	✔	✔	✔	✔				
Applied Biology	✔	✔	✔	✔				
MDCBS	✔	✔	✔	✔				
AN	✔	✔	✔	✔				
P1AN	✔	✔	✔	✔				
CM	✔	✔	✔	✔				
P2CM	✔	✔	✔	✔				
AC	✔	✔	✔	✔				
P3AC	✔	✔	✔	✔				
PG	✔	✔	✔	✔				
P4PG	✔	✔	✔	✔				
AB	✔	✔	✔	✔				

P5AB	✔	✔	✔	✔				
EZ	✔	✔	✔	✔				
P6EZ	✔	✔	✔	✔				
MDCHH	✔	✔	✔	✔				
EB	✔	✔	✔	✔			✔	
P7EB	✔	✔	✔	✔			✔	
AL	✔	✔	✔	✔			✔	
P8AL	✔	✔	✔	✔			✔	
IM	✔	✔	✔	✔			✔	
P9IM	✔	✔	✔	✔			✔	
PM	✔	✔	✔	✔			✔	
P10PM	✔	✔	✔	✔			✔	
PP	✔	✔	✔	✔			✔	
P11PP	✔	✔	✔	✔			✔	
AQ	✔	✔	✔	✔			✔	
P12AQ	✔	✔	✔	✔			✔	
LM	✔	✔	✔	✔			✔	

LP13LM	✔	✔	✔	✔			✔	
PH	✔	✔	✔	✔			✔	
P14PH	✔	✔	✔	✔			✔	
LP	✔	✔	✔	✔			✔	
P15LP	✔	✔	✔	✔			✔	
	✔	✔	✔	✔			✔	

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

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DEPARTMENT OF BIOCHEMISTRY

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PROGRAMME OUTCOMES
(POs) 2023-26

Students of all Undergraduate Programmes at the time of graduation will be able to possess

PO1: Essential Knowledge:

Have comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi-professional contexts.

PO2: Creative, Critical Thinking and Problem-Solving Abilities:

Be effective problem-solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and Communication Skills:

Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated, Self-directed, and Life-long Learning:

Exhibit life-long skills; broad-based multiple career oriented general skills; self and field-based learning skills; digital skills; preparedness for living, learning and working in any environment.

PO5: Professionalism and Leadership Readiness:

Engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and Ethical Competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and Emotional Intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social Responsibility and Effective Citizenship:

Exhibit social responsibility and compassionate commitment; Be sensitive to and demonstrate institution in matters of environment, gender and other social issues to promote an equitable society and sustainable development.

PROGRAMME SPECIFIC OUTCOMES

(PSOs) 2023-26

At the end of the programme students will be able to possess/exhibit:

PSO1: Quantitative Analysis:

Interpret principles, classifications, concepts, theories and mechanisms learnt.

PSO2: Practical and Analytical Skills:

Analyze hypotheses, procedures, properties, experimental facts and draw conclusions.

PSO3: Logical and Critical Thinking:

Apply knowledge and techniques in sample analysis, problem-solving, results, and production.

PSO4: Teamwork and Communication:

Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes

(COs) 2023 - 26

S. No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1.	I	23SCCCCB14	Introduction to Classical Biology	**CO1:** Understand the fundamental principles of taxonomic classification, ecological and environmental concepts.
				CO2: Gain knowledge of the classification, morphology, reproduction and physiological processes of plants
				CO3: Develop a comprehensive understanding of the structure hereditary and molecular processes of prokaryotic and eukaryotic cells.
				CO4: Acquire knowledge on classification Physiology and development of animals
				CO5: Learn about chemical bonds and different branches of chemistry and their applications
2.	I	23SCCCAB14	Introduction to Applied Biology	**CO1:** Learn the basics of microbiology, immunology and their roles in health, disease and the environment.
				CO2: Explore the structure, function and metabolism of biomolecules.
				CO3: Outline the fundamentals of biotechnology, genetic engineering and their applications.
				CO4: Demonstrate different analytical tools, techniques and their applications.
				CO5: Gain knowledge on collection, storage and analysis of biological data using statistical and bioinformatics tools.
3.	II	23BCCCBM23	Biomolecules	**CO1:** Schematize the structure of biomolecules
				CO2: Classify the carbohydrates lipids proteins and amino acids with examples
				CO3: Summarize the physical, chemical properties of biomolecules
				CO4: Analyze the biochemical reactions undergone by Biomolecules
				CO5: Understand the importance of biomolecules in living organisms.
4.	II	23BCP1BM21	Biomolecules – Practical	**CO1:** Prepare all the Laboratory reagents, buffers, and solutions
				CO2: Calibrate of pH meter, weighing machine.

				CO3: Perform qualitative estimation of different biomolecules.
5.	II	23BCCCCB23	Cell Biology	**CO1:** Gain the knowledge about the differences between prokaryotes and eukaryotes
				CO2: Understand the role of MPF in cell cycle regulation.
				CO3: Analyze different signal transduction pathways involved in cell communication
				CO4: Realize the role of endoplasmic reticulum in protein sorting and targeting.
				CO5: Learn the different types of membrane transport and their role.
6.	II	23BCP2CB21	Cell Biology -Practical	**CO1:** Perform quantitative estimation of different biomolecules.
				CO2: Analyze the viability and examine the division mechanisms of cells
				CO3: Isolate the cell organelles from different tissues.
7.	III	23BCCCAT33	Analytical Techniques	**CO1:** Learn about different homogenization techniques.
				CO2: Understand the importance of different biophysical techniques.
				CO3: Learn the principles of different Biophysical Instruments and their use for research purpose.
				CO4: Acquire Knowledge about isolation and microbiological methods
				CO5: Use isolation and microbiological methods for research purpose.
8.	III	23BCP3AT31	Analytical techniques practical	**CO1:** Different biomolecules and plant-based compounds.
				CO2: Able to do biochemical characterization of lipids
				CO3: Efficiently extract various phytoconstituents.
9.	III	23BCCCBM33	Basic Microbiology	**CO1:** Understand the basic concepts in microbiology.
				CO2: Classify microorganisms like Mold, yeast and mycoplasma.
				CO3: Summarise the different microbial interactions
				CO4: Gain the knowledge about microbial diseases.
				CO5: Know about basic characteristics of a virus and viral diseases.

10.	III	23BCP4BM31	Basic Microbiology - Practical	**CO1:** Understand the concept of basic microbiology. Sterilization Techniques.
				CO2: Discuss the staining techniques to study the morphology of microorganisms.
				CO3: Know about isolation of microorganisms from various sources.
11.	III	23BCCCGP33	General Physiology	**CO1:** Describe the different components of blood and process of blood clotting
				CO2: Discuss the mechanism of muscle contraction and nerve impulse propagation
				CO3: Summarise the process of urine formation and importance of renal system.
				CO4: Understand the role of different enzymes and hormones in digestion
				CO5: Classify the hormones based upon their function and origin.
12.	III	23BCP5GP31	General Physiology - Practical	**CO1:** Recognise and analyse blood cells and blood groups.
				CO2: Estimate different biochemical parameters from blood sample
13.	III	23BCCCGT33	Genetics	**CO1:** Understand the organization of genetic material and its significance.
				CO2: Discuss the mechanism of gene regulation mapping and reprogramming.
				CO3: Describe the process of bacterial gene transfer methods
				CO4: Explain the regulation of lytic and lysogenic cycles.
				CO5: Classify different types of mutations and mutagens
14.	III	23BCP6GT31	Genetics - Practical	**CO1:** Isolate the DNA From the various sources like bacteria, onion and leaves.
				CO2: Gain knowledge on karyotyping and chromosomal aberrations.
15.	IV	23BCCCCL43	Bioenergetics & Metabolism of Carbohydrates & Lipids	**CO1:** Analyse different energy transformation laws.
				CO2: Gain knowledge about the physiological importance of ETC and enzymes

				CO3: Explain the utilization of glucose in various metabolic pathways
				CO4: Describe the key pathways involved in lipid metabolism.
				CO5: Discuss the inborn errors of lipid metabolism.
16.	IV	23BCP7CL41	Bioenergetics & Metabolism of Carbohydrates & Lipids - Practical	**CO1:** Isolate different proteins from milk and milk products
				CO2: Efficiently estimate various biochemical parameters from serum
17.	IV	23BCCCCB43	Clinical Biochemistry	**CO1:** Describe the water – electrolyte balance and acid-base balance in humans.
				CO2: Identify and classify abnormal haemoglobin and haemoglobinopathies
				CO3: Explain the importance of RFT in assessing kidney function
				CO4: Understand the role of enzymes in liver and pancreatic function tests.
				CO5: Discuss the significance of iso enzymes in disease diagnosis.
18.	IV	23BCP8CB41	Clinical Biochemistry-Practical	**CO1:** Correlate the normal values to those present in diseased conditions.
				CO2: Estimate different biochemical parameters from a serum sample.
19.	IV	23BCCCIG43	Immunology	**CO1:** Understand the basic concepts of immunology.
				CO2: Explain the components of innate immunity.
				CO3: Describe the mechanism behind adaptive immunity
				CO4: Discuss various antigen antibody interactions
				CO5: Classify autoimmunity hypersensitivity and immuno deficiencies
20.	IV	23BCP9IG41	Immunology Practical	**CO1:** Understand the plant defensive mechanism
				CO2: Perform Blood Grouping and immunodiffusion

Mapping of COs with PSOs & POs

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1.	I	23SCCCCB14	Introduction to Classical Biology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
2.	I	23SCCCAB14	Introduction to Applied Biology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
3.	II	23BCCCBM23	Biomolecules	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
4.	II	23BCP1BM21	Biomolecules – Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
5.	II	23BCCCCB23	Cell Biology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
6.	II	23BCP2CB21	Cell Biology -Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
7.	III	23BCCCAT33	Analytical Techniques	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,

						PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
8.	III	23BCP3AT31	Analytical techniques practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
9.	III	23BCCCBM33	Basic Microbiology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
10.	III	23BCP4BM31	Basic Microbiology - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
11.	III	23BCCCGP33	General Physiology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
12.	III	23BCP5GP31	General Physiology - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
13.	III	23BCCCGT33	Genetics	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7

				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
14.	III	23BCP6GT31	Genetics - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
15.	IV	23BCCCCL43	Bioenergetics & Metabolism of Carbohydrates & Lipids	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
16.	IV	23BCP7CL41	Bioenergetics & Metabolism of Carbohydrates & Lipids - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
17.	IV	23BCCCCB43	Clinical Biochemistry	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
18.	IV	23BCP8CB41	Clinical Biochemistry-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
19.	IV	23BCCCIG43	Immunology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
20.	IV	23BCP9IG41	Immunology Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7

Mapping of Courses with PSOs

Course Title	PSO1 Quantitative Analysis	PSO2 Practical and Analytical Skills	PSO3 Logical, Critical Thinking	PSO4 Teamwork and Communication
Introduction to Classical Biology	✔	✔	✔	✔
Introduction to Applied Biology	✔	✔	✔	✔
Biomolecules	✔	✔	✔	✔
Biomolecules – Practical	✔	✔	✔	✔
Cell Biology	✔	✔	✔	✔
Cell Biology -Practical	✔	✔	✔	✔
Analytical Techniques	✔	✔	✔	✔
Analytical techniques practical	✔	✔	✔	✔
Basic Microbiology	✔	✔	✔	✔
Basic Microbiology - Practical	✔	✔	✔	✔
General Physiology	✔	✔	✔	✔
General Physiology – Practical	✔	✔	✔	✔
Genetics	✔	✔	✔	✔
Genetics – Practical	✔	✔	✔	✔
Bioenergetics & Metabolism of Carbohydrates & Lipids	✔	✔	✔	✔
Bioenergetics & Metabolism of Carbohydrates & Lipids – Practical	✔	✔	✔	✔
Clinical Biochemistry	✔	✔	✔	✔
Clinical Biochemistry-Practical	✔	✔	✔	✔
Immunology	✔	✔	✔	✔
Immunology Practical	✔	✔	✔	✔

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative, Critical thinking and Problem-solving abilities	PO3 Teamwork and Communication skills	PO4 Motivated, Self-directed and Life-long Learning	PO5 Professionalism and Leadership Readiness	PO6 Intercultural and Ethical Competency	PO7 Self-awareness and Emotional Intelligence	PO8 Social Responsibility and Effective Citizenship
Introduction to Classical Biology	✔	✔	✔	✔				
Introduction to Applied Biology	✔	✔	✔	✔				
Biomolecules	✔	✔	✔	✔				
Biomolecules – Practical	✔	✔	✔	✔				
Cell Biology	✔	✔	✔	✔				
Cell Biology-Practical	✔	✔	✔	✔				
Analytical Techniques	✔	✔	✔	✔	✔	✔	✔	
Analytical techniques practical	✔	✔	✔	✔	✔	✔	✔	
Basic Microbiology	✔	✔	✔	✔				
Basic Microbiology - Practical	✔	✔	✔	✔				
General Physiology	✔	✔	✔	✔				
General Physiology - Practical	✔	✔	✔	✔				
Genetics	✔	✔	✔	✔	✔	✔	✔	
Genetics - Practical	✔	✔	✔	✔	✔	✔	✔	

Bioenergetics & Metabolism of Carbohydrates & Lipids	✔	✔	✔	✔				
Bioenergetics & Metabolism of Carbohydrates & Lipids - Practical	✔	✔	✔	✔				
Clinical Biochemistry	✔	✔	✔	✔	✔	✔	✔	
Clinical Biochemistry-Practical	✔	✔	✔	✔	✔	✔	✔	
Immunology	✔	✔	✔	✔	✔	✔	✔	
Immunology Practical	✔	✔	✔	✔	✔	✔	✔	

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

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PROGRAMME REGISTER: 2023-26

DEPARTMENT OF BIOTECHNOLOGY

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PROGRAMME OUTCOMES (POs)

2023-26

Students of all Undergraduate Programmes at the time of graduation will be able to possess

PO1: Essential Knowledge:

Have comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi-professional contexts.

PO2: Creative, Critical Thinking and Problem-Solving Abilities:

Be effective problem-solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and Communication Skills:

Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated, Self-directed, and Life-long Learning:

Exhibit life-long skills; broad-based multiple career oriented general skills; self and field-based learning skills; digital skills; preparedness for living, learning and working in any environment.

PO5: Professionalism and Leadership Readiness:

Engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and Ethical Competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and Emotional Intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social Responsibility and Effective Citizenship:

Exhibit social responsibility and compassionate commitment; Be sensitive to and demonstrate institution in matters of environment, gender and other social issues to promote an equitable society and sustainable development.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2023-26

At the end of the programme students will be able to possess/exhibit:

PSO1: Quantitative Analysis:

Interpret principles, classifications, concepts, theories and mechanisms learnt.

PSO2: Practical and Analytical Skills:

Analyse hypotheses, procedures, properties, experimental facts and draw conclusions.

PSO3: Logical and Critical Thinking:

Apply knowledge and techniques in sample analysis, problem-solving, results, and production.

PSO4: Teamwork and Communication:

Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)

2023-26

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	I	23SCCCCB14	Introduction to Classical Biology	**CO1:** Understand the fundamental principles of taxonomic classification and ecological and environmental concepts.
				CO2: Gain knowledge of the classification, morphology, reproduction, and physiological processes of plants.
				CO3: Develop a comprehensive understanding of the structure, hereditary, and molecular processes of prokaryotic and eukaryotic cells.
				CO4: Acquire knowledge of the classification, physiology, and development of animals, including aquaculture.
				CO5: Learn about the different types of chemical bonds, the various branches of chemistry, and their applications.
2	I	23SCCCAB14	Introduction to Applied biology	**CO1:** Learn the basics of microbiology and immunology and their roles in health, disease, and the environment.
				CO2: Explore the structure, function and metabolism of biomolecules.
				CO3: Outline the fundamentals of biotechnology and genetic engineering and their applications.
				CO4: Demonstrate different analytical tools and techniques and their applications.
				CO5: Gain knowledge on collection, storage and analysis of biological data using statistical and bioinformatics tools.

3	II	23BYCCBA23	Biomolecules & Analytical Techniques	**CO1:** Learn about classification, structure and properties of Carbohydrates, Proteins and Lipids.
				CO2: Enumerate structure and function of DNA, RNA, Vitamins and Bioenergetics.
				CO3: Understand the basic principles of Centrifugation, Chromatography and Electrophoresis.
				CO4: Learn about principles of Spectroscopy, Microscopy and Techniques.
				CO5: Explain the basics of Biostatistics.
4	II	23BYP1BA21	Biomolecules & Analytical Techniques - practical	**CO1:** Demonstrate proper use and record operation procedures for essential laboratory instruments.
				CO2: Employ qualitative and quantitative methods to identify and quantify different biomolecules (carbohydrates, proteins, DNA, RNA).
				CO3: Design, conduct, and analyze laboratory experiments to investigate enzyme activity and biomolecule separation techniques. comprehending the complex biological data.
5	II	23BYCCMC23	Microbiology & Cell biology	**CO1:** Explain the historical development of microbiology and the contributions of key figures.
				CO2: Demonstrate a comprehensive understanding of bacterial structure and growth.
				CO3: Apply fundamental techniques for isolation and manipulation of bacteria.
				CO4: Select and implement appropriate sterilization methods based on their principles and applications.
				CO5: Differentiate between different bacterial groups using basic staining techniques.
6	II	23BYP2MC21		**CO1:** Demonstrate proficiency in essential aseptic techniques and media preparation.

			Microbiology & Cell biology - Practical	**CO2:** Acquire the skills to isolate, identify, and characterize microorganisms.
				CO3: Develop essential laboratory skills and gain hands-on experience in microbiological practices.
7	III	23BYCCPA33	Plant & Animal Biotechnology	**CO1:** Learn about plant tissue culture techniques and secondary metabolites production.
				CO2: Learn about transgenesis and molecular markers.
				CO3: Learn about animal tissue culture techniques.
				CO4: Learn about transgenic animals and gene therapy.
				CO5: Learn about application of tissue culture techniques in plant breeding.
8	III	23BYP3PA31	Plant & Animal Biotechnology - Practical	**CO1:** Understands the principles of various plant and animal cell/tissue culture techniques.
				CO2: understands the commercial applications of various cell and tissue culture- based technologies in plants and animals.
				CO3: Ability to rationalize and develop strategies for incorporating novel traits in plants and animals through genetic engineering.
9	III	23BYCCMB33	Molecular Biology	**CO1:** To understand Molecular Biology which chiefly deals with interactions among various systems of the cell.
				CO2: Understands of chemical and molecular processes that occurs in and between the cells.
				CO3: Interpret most significant molecular and cell-based methods used today to expand our understanding of biology.
				CO4: Will be able to design and implement experimental procedures using relevant techniques.

				CO5: Understand the process of protein synthesis and Post Transcriptional Modifications and Processing of Eukaryotic RNA.
10	III	23BYP4MB31	Molecular Biology - Practical	**CO1:** Understand the basic concepts on the functioning of cell.
				CO2: Helps student in developing abilities to understand the fascinating aspects of hereditary material and information of gene functioning.
				CO3: The students will unravel mysteries regarding DNA and RNA functioning and their correlation with the protein functions in cell.
11	III	23BYCCGE33	Genetic Engineering	**CO1:** Understand the fundamental concepts of genetic engineering, including its history, scope, and recent advancements.
				CO2: Learn about the different molecular tools used in genetic engineering
				CO3: Learn about the restriction enzymes, Modifying enzymes, and ligation techniques.
				CO4: learn the strategies involved in plant and animal genetic engineering, considering the relevant guidelines and regulations.
				CO5: learn the applicationof recombinant DNA technology in biotechnological research.
12	III	23BYP5GE31	Genetic Engineering - Practical	**CO1:** The students will able to have the practical skills on basic genetic engineering techniques.
				CO2: The students will able to practise various basic techniques in Genetic Engineering.
				CO3: Develop practical skills in different laboratory equipment's and their handling.
13	III	23BYCCMT33	Metabolism	**CO1:** The student will be able to learn Carbohydrate catabolism.

				CO2: Understand the metabolism about Lipids and there importance.
				CO3: Illustrate about Amino Acid metabolism and its Biosynthesis.
				CO4: Learn about nomenclature and specificity of enzymes.
				CO5: Learn about fundamentals nucleic acids and their association with various metabolic diseases.
14	III	23BYP6MT31	Metabolism - Practical	**CO1:** Practice the biochemical parameters in biological system.
				CO2: Explain enzyme assay of salivary enzyme.
				CO3: Practice the estimation of amino acids, Protein, glucose.
15	IV	23BYCCIM43	Immunology	**CO1:** Classify and explain the types of antigen-antibody and hypersensitivity reactions.
				CO2: Discuss the mechanism, manifestations of clinical transplantations and autoimmune deficiency diseases.
				CO3: Enumerate the types of tumour antigens and explain cancer induction by oncogenes.
				CO4: Summarize the preparation of vaccines and monoclonal antibodies.
				CO5: understand about vaccines and its function know about vaccines.
16	IV	23BYP7IM41	Immunology - Practical	**CO1:** Experiment on antigen- antibody reactions
				CO2: Analyze the Total RBC count and Total leucocytes count.
				CO3: Learn the biochemical tests

17	IV	23BYCCBB43	Bioinformatics & Course Biostatistics	**CO1:** The student will be able to apply basic principles of biology, computer science and mathematics to address complex biological problems.
				CO2: Students are taught to operate various statistical software packages.
				CO3: Students are able to appreciate the importance of statistics in research and prepares them for a career in research.
				CO4: Students are able to Measurement of central tendency, standard deviations–parametric and nonparametric hypothesis testing.
				CO5: Students are able to understand t test, Correlation and regression. Chi square test. ANOVA.
18	IV	23BYP8BB41	Bioinformatics & Biostatistics - Practical	**CO1:** Concepts and overview for biostatistics for solving biological problems.
				CO2: Importance of biostatistics in biological sciences.
				CO3: Biological database handling and database management of different biological database.
19	IV	23BYCCMB43	Medical Biotechnology	**CO1:** Learn about the methods for chromosomal analysis & abnormalities.
				CO2: Learn about the difference between chromosomal and genetic disorders.
				CO3: Understand the biochemical and physiological complexity and Diseases.
				CO4: Learn about the fundamentals of cytoskeletal networks and their varied functions and their use in diagnostics. and Drug delivery systems.
				CO5: Demonstrate various methods to understand the subcellular reactions and molecular processes.

20	IV	23BYP9MB41	Medical Biotechnology - Practical	**CO1:** Plan and organize laboratory activities and develop further experimental strategies.
				CO2: Stay up-to-date about the regulations, methods, technologies and relevant biotechnological instruments, also through the use of bibliographic resources, fundamental in an ever-changing field.
				CO3: Acquired a study methodology and goal-oriented working skills to conduct research independently and in a team.

Mapping of COs with PSOs & POs

S.No	SEM	Course Code	Course Title	COs	PSOs	POs
1.	I	23SCCCCB14	Introduction to Classical Biology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
2.	I	23SCCCAB14	Introduction to Applied biology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
3.	II	23BYCCBA23	Biomolecules & Analytical Techniques	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4,	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
4	II	23BYP1BA21	Biomolecules & Analytical Techniques - practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
5	II	23BYCCMC23	Microbiology & Cell biology Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
6	II	23BYP2MC21	Microbiology & Cell biology Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
7	III	23BYCCPA33	Plant & Animal Biotechnology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
8	III	23BYP3PA31	Plant & Anima-l Biotechnology -Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
9	III	23BYCCMB33	Molecular Biology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
10	III	23BYP4MB31	Molecular Biology -Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
11 .	III	23BYCCGE33	Genetic Engineering	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7.
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
12	III	23BYP5GE31	Genetic Engineering	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7

			practical	CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
13	III	23BYCCMT33	Metabolism	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
14	III	23BYP6MT31	Metabolism - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4 PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4 PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
15	IV	23BYCCIM43	Immunology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
16	IV	23BYP7IM41	Immunology - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
17	IV	23BYCCBB43	Bioinformatics & Course Biostatistics	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
18	IV	23BYP8BB41	Bioinformatics & Biostatistics - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
19	IV	23BYCCMB43	Medical Biotechnology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
20	IV	23BYP9MB41	Medical Biotechnology - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

Mapping of Courses with PSOs

Course Title	PSO1 Quantitative Analysis	PSO2 Practical and Analytical Skills	PSO3 Logical, Critical Thinking	PSO4 Teamwork and Communication
Introduction to Classical Biology	✓	✓	✓	✓
Introduction to Applied biology	✓	✓	✓	✓
Biomolecules & Analytical Techniques	✓	✓	✓	✓
Biomolecules & Analytical Techniques – practical.	✓	✓	✓	✓
Microbiology & Cell biology	✓	✓	✓	✓
Microbiology & Cell biology - Practical	✓	✓	✓	✓
Plant & Animal Biotechnology	✓	✓	✓	✓
Plant & Animal Biotechnology - Practical	✓	✓	✓	✓
Molecular Biology	✓	✓	✓	✓
Molecular Biology- Practical	✓	✓	✓	✓
Genetic Engineering	✓	✓	✓	✓
Genetic Engineering - Practical	✓	✓	✓	✓
Metabolism	✓	✓	✓	✓
Metabolism - Practical	✓	✓	✓	✓
Immunology	✓	✓	✓	✓
Immunology – Practical	✓	✓	✓	✓
Bioinformatics & Biostatistics	✓	✓	✓	✓
Bioinformatics & Biostatistics - Practical	✓	✓	✓	✓
Medical Biotechnology	✓	✓	✓	✓
Medical Biotechnology - Practical	✓	✓	✓	✓

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative, Critical thinking and Problemsolving abilities	PO3 Teamwork and Communication skills	PO4 Motivated, Self-directed and Life-long Learning	PO5 Professionalism and Leadership Readiness	PO6 Intercultural and Ethical Competency	PO7 Self-awareness and Emotional Intelligence	PO8 Social Responsibility and Effective Citizenship
ICB	✓	✓	✓	✓				
IAB	✓	✓	✓	✓				
BA	✓	✓	✓	✓	✓	✓	✓	
BA-P	✓	✓	✓	✓	✓	✓	✓	
MC	✓	✓	✓	✓				
MC-P	✓	✓	✓	✓				
PA	✓	✓	✓	✓				
PA-P	✓	✓	✓	✓				
MB	✓	✓	✓	✓				
MB-P	✓	✓	✓	✓				
GE	✓	✓	✓	✓	✓	✓	✓	
GE-P	✓	✓	✓	✓	✓	✓	✓	
MT	✓	✓	✓	✓				
MT-P	✓	✓	✓	✓				
IM	✓	✓	✓	✓	✓	✓	✓	
IM-P	✓	✓	✓	✓	✓	✓	✓	
BB	✓	✓	✓	✓				
BB-P	✓	✓	✓	✓				
MB	✓	✓	✓	✓				
MB-P	✓	✓	✓	✓				

MARIS STELLA COLLEGE (AUTONOMUS), VIJAYAWADA

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PROGRAMME REGISTER 2023-2026

DEPARTMENT OF MICROBIOLOGY

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PROGRAMME OUTCOMES (POs)

2023-26

At the end of the programme students will have:

PO1: Essential Knowledge:
Comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi professional contexts.

PO2: Creative and critical thinking and problem solving abilities:

Be effective problem solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and communication skills:

Be able to convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivation and preparation in life-long learning:

Exhibit life-long skills; broad based multiple career oriented general skills; self and field based learning skills; digital skills; social responsibility and compassionate commitment; preparedness for living, learning and working in any environment

PO5: Professionalism and leadership readiness:

Be able to engage in professional behavior and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and ethical competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and emotional intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social responsibility:

Be sensitive to and demonstrate agency in matters of environment, gender and other social issues to promote an equitable society.

PROGRAMME SPECIFIC OUTCOMES

2023-26

At the end of the programme students will be able to:

PSO1: Interpret principles, classifications, concepts, theories and mechanisms.

PSO2: Analyze hypothesis, procedures, properties, experimental facts and draw conclusions.

PSO3: Apply techniques in solving problems, results, sample analysis and production.

PSO4: Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

COURSE OUTCOMES (COs)

2023-26

S. No	Sem	Course Code	Course Title	Course Outcomes
1.	I	23SCCCCB14	Introduction to Classical Biology	**CO1:**Understand the fundamental principles of taxonomic classification and ecological and environmental concepts.
				CO2: Gain knowledge of the classification, morphology, reproduction, and physiological processes of plants
				CO3: Develop a comprehensive understanding of the structure, hereditary, and molecular processes of prokaryotic and eukaryotic cells
				CO4: Acquire knowledge of the classification, physiology, and development of animals, including aquaculture.
				CO5: Learn about the different types of chemical bonds, the various branches of chemistry, and their applications.
2.	I	23SCCCAB14	Introduction to Applied Biology	**CO1:**Learn the basics of microbiology and immunology and their roles in health, disease, and the environment
				CO2: Explore the structure, function and metabolism of biomolecules.
				CO3: Outline the fundamentals of biotechnology and genetic engineering and their applications
				CO4: Demonstrate different analytical tools and techniques and their applications
				CO5: Gain knowledge on collection, storage and analysis of biological data using statistical and bioinformatics tools.
3.	II	23MBCCIM23	Introduction to Microbiology	**CO1:**Understand the historical significance of microbiology and the contributions of key scientists
				CO2: Recognize the classification of microorganisms and their place in the living world.
				CO3: Comprehend the scope and applications of microbiology, including the origin of microbial life and the distinction between eukaryotic and prokaryotic cells.
				CO4: Describe the characteristics of bacteria, archaea, fungi, algae, and protozoa.
				CO5: Describe viruses, including their nature, composition, and diversity in structure
4.	II	23MBP1IM21	Introduction to Microbiology – Practical	**CO1**:Implement safety protocols, handling hazardous materials, and practicing personal protective measures.
				CO2: Identify microscope parts, adjusting focus and diaphragm, and accurately observing and documenting microscopic images.

				CO3: Prepare smears, identifying different microorganisms, and interpreting microscopic characteristics.
5.	II	23MBCCBV23	Bacteriology & Virology	**CO1:**Understand the concept of prokaryotic diversity and taxonomy
				CO2: Identify and describe the salient features of various bacterial groups
				CO3: Comprehend the discovery, nature, and definition of viruses.
				CO4: Describe the replication processes of specific viruses
				CO5: Comprehend the concept of oncogenic viruses, and role of viruses in the ecosystem.
6.	II	23MBP2BV21	Bacteriology & Virology-Practical	**CO1:**Develop practical skills in the isolation, identification, and cultivation of bacteria.
				CO2: Acquire knowledge about the preparation of growth media and study host-pathogen interactions.
				CO3: Gain the ability to examine the bacteria through microscopy.
7.	III	23MBCCEM33	Eukaryotic Microorganisms	**CO1:** Recognize the traits, categories, and reproduction processes of algae, protozoa, and fungi.
				CO2: Acknowledge the significance of fungi in biotechnology, as well as their applications in agriculture, medicine, and food production.
				CO3: Recognize the importance of algae as a food source, in a variety of sectors, and in the environment.
				CO4: Recognize pathogenic protozoa and learn how they affect the environment and public health
8.	III	23MBP3EM31	Eukaryotic Microorganisms - Practical	**CO1:**Gain hands-on experience isolating, identifying, and cultivating fungus and algae.
				CO2: Learn how to prepare growth media and study the relationships between hosts and pathogens
				CO3: Acquire the capacity to use microscopy to analyze the vegetative and reproductive structures of particular genera.
9.	III	23MBCCBE33	Biomolecules & Enzymology	**CO1:** Recognize the several types of carbohydrates, such as polysaccharides, disaccharides, monosaccharides, and sugar derivatives, as well as their characteristics.
				CO2: Gain knowledge on classification, structures, roles in cell signaling and metabolism, and aspects of lipids and fatty acids.
				CO3: Learn about primary, secondary, tertiary, and quaternary structures of proteins their roles

				CO4: Acquire knowledge of base composition, nucleic acid-protein interactions, and the structure and functions of nucleic acids (DNA and RNA). Function of vitamins in metabolism.
				CO5: Acquire knowledge on taxonomy, structure, and modes of activity of enzymes, enzyme inhibition and the factors that affect enzyme activity.
10.	III	23MBP4BE31	Biomolecules & Enzymology-Practical	**CO1:**Demonstrate the ability to qualitatively identify monosaccharides and disaccharides
				CO2: Demonstrate proficiency in qualitatively identifying specific amino acids.
				CO3: Apply quantitative techniques to estimate DNA content.
11.	III	23MBCCMT33	Microbial & Analytical Techniques	**CO1:**Understand microscopy techniques, including bright field and electron microscopy, as well as staining methods.
				CO2: Know sterilization and disinfection techniques, such as physical methods and chemical agents.
				CO3: Perform tasks related to pure culture isolation, maintenance, anaerobic bacterial cultivation, and accessing Viable Non-Culturable Bacteria (VNBC).
				CO4: Understand spectrophotometry and chromatography techniques, including UV-visible spectrophotometry and various chromatographic methods.
				CO5: Gain knowledge of centrifugation, electrophoretic techniques, and the principles and applications of radioisotopes
12.	III	23MBP5MT31	Microbial & Analytical Techniques - Practical	**CO1:** Identify different types of microscopes, understand how to see microbial structures, and interpret microscope images easily.
				CO2: Prepare slides with stains, tell apart stained and unstained parts, and describe staining methods and how they color microbial cells.
				CO3: Learn how to stain bacteria, tell Gram-positive from Gram-negative, understand why Gram staining matters, and interpret stained slides.
13.	III	23MBCCCG33	Cell Biology & Genetics	**CO1:** Understand basic cell theory, cell parts, the cell cycle, and the importance of the cytoskeleton in simple terms.
				CO2: Comprehend the roles of the cell membrane, nuclear envelope, and nucleolus, and get a basic grasp of how cancer develops.
				CO3: Learn about protein movement inside cells, how cells communicate, programmed cell death, stem cells, and some special types of chromosomes.

				CO4: Gain understanding of Mendelian genetics, including how traits are inherited and the frequencies of different versions of genes.
				CO5: Grasp concepts like linked genes, genetic mixing, the Hardy-Weinberg Law, how traits evolve, and how sex is determined in simple language.
14.	III	23MBP6CG31	Cell Biology & Genetics - Practical	**CO1:** Master techniques for counting cells and assessing their viability accurately.
				CO2: Analyze mitosis and meiosis in onion root tips, recognizing their stages and importance.
				CO3: Identify and analyze cell ultrastructure using electron micrographs effectively.
15.	IV	23MBCCMG43	Molecular Biology & Microbial Genetics	**CO1:** Understand how genetic material works in cells, including its structure in different types of organisms and the importance of DNA and RNA.
				CO2: Explain DNA replication in prokaryotic organisms and enzymes and factors involved in the process.
				CO3: Recognize practical applications of extra chromosomal genetic elements like plasmids and transposons.
				CO4: Distinguish between traditional and contemporary views on genes, grasp gene structure, and the conversion of genetic information into functional molecules through transcription.
				CO5: Comprehend how genetic information is translated into proteins, and how bacteria manage the activity of their genes.
16.	IV	23MBP7MG41	Molecular Biology & Microbial Genetics - Practical	**CO1:** Understand isolation, purification and estimation of DNA and perform UV exposure
				CO2: Solve problems related to DNA and RNA characteristics, transcription, and translation processes.
				CO3: Prepare gels, load DNA samples, visualize DNA bands, analyze fragment size, and understand the principles of electrophoresis.
17.	IV	23MBCCPM43	Microbial Physiology & Metabolism	**CO1:** Understand the nutritional requirements of microorganisms and the different methods of nutrient uptake
				CO2: Comprehend microbial growth, including the definition of growth, generation time, and the different phases of growth.
				CO3: Gain knowledge of thermodynamics in biological systems, including concepts of free energy, enthalpy, and entropy.
				CO4: Understand microbial respiration, including aerobic and anaerobic respiration, chemoautotrophy, and fermentative modes.

				CO5: Differentiate the processes of oxygenic and anoxygenic photosynthesis
18.	IV	23MBP8PM41	Microbial Physiology & Metabolism - Practical	**CO1:** Understand how temperature and pH affect bacterial growth.
				CO2: Learn colony counting techniques for microbial enumeration.
				CO3: Analyze growth curve data to understand bacterial growth patterns.
19.	IV	23MBCCBB43	r DNA Technology, Biostatistics & Bioinformatics	**CO1:** Learn genetic engineering principles like restriction endonucleases and DNA transformation techniques.
				CO2: Understand vectors, basics of polymerase chain reaction, and applications of genetic engineering in industry, agriculture, and medicine.
				CO3: Gain knowledge of blotting techniques, DNA labeling, DNA sequencing, and basics of intellectual property rights.
				CO4: Learn about bioinformatic resources, sequence databases, sequence alignment, and the use of biostatistics in data analysis.
				CO5: Develop skills in measuring central tendency and dispersion, understanding types of data, and utilizing biostatistical software for analysis.
20.	IV	23MBP9BB41	r DNA Technology, Biostatistics & Bioinformatics - Practical	**CO1:** Perform plasmid DNA isolation and gel electrophoresis.
				CO2: Understand DNA fingerprinting principles and applications for genetic profiling.
				CO3: Utilize nucleic acid and protein databases for sequence analysis.
21.	V	23MBCCIM53	Immunology & Medical Microbiology	**CO1**: Explain the basics of Immunology and how the immune system identifies self and non-self
				CO2: Describe how innate and adaptive immunity work together to fight infections
				CO3: Understand how the immune system responds to a wide range of antigens.
				CO4: Learn the principles of diagnostic microbiology.
				CO5: Relate disease symptoms to their causes and identify pathogens.
22.	V	23MBP10IM51	Immunology & Medical Microbiology - Practical	**CO1:** Perform antigen-antibody reactions.
				CO2: Conduct biochemical tests to identify bacteria.
				CO3: Perform antibiotic sensitivity testing and identification of microorganisms
23.	V	23MBCCEB53	Environmental Biotechnology	**CO1:** Explore ecosystems and the microflora in soil, water, atmosphere, and living organisms.
				CO2: Learn about microbial interactions and focusing on plant-microbe and animal-microbe relationships.

				CO3: Understand the role of microbes in the carbon, nitrogen, phosphorus, and sulfur cycles
				CO4: Study solid waste disposal, liquid waste treatment, and microbial bioremediation
				CO5: Apply microorganisms in bioremediation processes.
24.	V	23MBP11EB51	Environmental Biotechnology - Practical	**CO1:** Assess soil properties and understand their effects on plant growth and soil fertility.
				CO2: Isolate bacteria and fungi from soil samples and understand nutrient cycling and plant health.
				CO3: Measure MPN, BOD and COD in wastewater in assessing pollution levels and wastewater treatment effectiveness.
25.	V	23MBEC11PM53	Pharmaceutical Microbiology	**CO1:** Understand biosafety and Manufacturing Practices (cGMP) in pharmaceutical industry
				CO2: Explain methods to detect microorganisms in pharmaceuticals.
				CO3: Describe molecular techniques for pathogen detection in quality control.
				CO4: Design media to identify microbes in pharmaceutical products.
				CO5: Follow and apply safety practices in pharmaceutical product development
26.	V	23MBP1211PM51	Pharmaceutical Microbiology - Practical	**CO1:** Conduct sterility tests for equipment.
				CO2: Apply disinfection and sterility methods to instruments in the lab.
				CO3: Check sterility of pharmaceutical products.
27.	V	23MBEC12AM53	Applied Microbiology	**CO1:** Identify opportunities for entrepreneurship and evaluate their potential.
				CO2: Understand the production and economics of fermentation products.
				CO3: Explain how biofertilizers and mushrooms are produced.
				CO4: Describe the processes of baking and brewing.
				CO5: Prepare a detailed project report (DPR) and understand patenting.
28.	V	23MBP1312AM51	Applied Microbiology - Practical	**CO1:** Create microbial consortia for composting.
				CO2: Report on the production of mushrooms or biofertilizers.
				CO3: Develop a sample detailed project report (DPR).
29.	V	23MBEC21DM53	Diagnostic Microbiology	**CO1:** Understand Collection of clinical samples for diagnosis.
				CO2: Learn about microscopic and culture methods for diagnosis.
				CO3: Apply serological and molecular diagnostic techniques.

				CO4: Understand antimicrobial sensitivity and resistance.
				CO5: Learn about advances in diagnostic microbiology.
30.	V	23MBP1421DM51	Diagnostic Microbiology - Practical	**CO1**: Collect, label, and transport clinical specimens.
				CO2: Isolate pure bacterial cultures and identify common bacteria
				CO3: Maintain and preserve stock cultures.
31.	V	23MBEC22IM53	Industrial Microbiology	**CO1**: Identify important microorganisms used in industries.
				CO2: Learn methods to screen biologically important microorganisms.
				CO3: Choose suitable fermentation methods for production.
				CO4: Understand key concepts in industrial microbiology, important microbes and its metabolites.
				CO5: Explain upstream and downstream bioprocessing steps.
32.	V	23MBP1522IM51	Industrial Microbiology - Practical	**CO1:** Understand and demonstrate microbial diversity by isolating microorganisms from natural environments.
				CO2: Observe microorganisms in fermented foods under a microscope, prepare fermented products and study physical and chemical changes.
				CO3: Perform small-scale microbial production organic acids and estimate the yield.
33.	V	23MBEC31AM53	Agricultural Microbiology	**CO1:** Study soil as a habitat for microorganisms, their diversity, and interactions.
				CO2: Understand microbial pathogenicity, virulence factors and plant defense mechanisms.
				CO3: Learn methods for managing plant diseases, including regulatory, chemical and biological approaches.
				CO4: Study key plant diseases caused by fungi, bacteria, viruses and viroids, focusing on their causes, symptoms.
				CO5: Explore plant growth-promoting bacteria, biofertilizers, mycorrhizae and their role in improving plant growth.
34.	V	23MBP1631AM51	Agricultural Microbiology - Practical	**CO1:** Understand soil composition, water activity, pH, soil profiles and soil fertility.
				CO2: Identify microorganisms present in soil and learn about Rhizobium's characteristics.
				CO3: Demonstrate field application techniques and identify plant diseases.
35.	V	23MBEC32DM53	Food & Dairy Microbiology	**CO1:** Understand factors affecting microbial growth, food contamination, and sources of contamination.
				CO2: Learn about the microflora in milk, contamination of raw milk and butter, and spoilage of various foods.
				CO3: Use dairy starter cultures in fermented dairy products, other fermented foods, and probiotics.

				CO4: Differentiate between foodborne diseases, intoxications, and infections.
				CO5: Apply food sanitation practices, control measures, follow HACCP guidelines, and test for pathogens in foods.
36.	V	23MBP1732DM51	Food & Dairy Microbiology - Practical	**CO1:** Learn MBRT method, standard plate count and MPN to assess milk quality.
				CO2: Evaluate the efficiency of milk pasteurization by enzymatic reactions.
				CO3: Isolate and identify food spoilage microorganisms and prepare fermented dairy products.

Mapping of COs with PSOs & POs

S. No	Sem	Course Code	Course Title	COs	PSOs	POs
1.	I	23SCCCCB14	Introduction to Classical Biology	CO1	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
2.	I	23SCCCAB14	Introduction to Applied Biology	CO1	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
3.	II	23MBCCIM23	Introduction to Microbiology	CO1	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
4.	II	23MBP1IM21	Introduction to Microbiology – Practical	CO1	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
5.	II	23MBCCBV23	Bacteriology & Virology	CO1	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
6.	II	23MBP2BV21	Bacteriology & Virology- Practical	CO1	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
7.	III	23MBCCEM33	Eukaryotic Microorganisms	CO1	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4

8.	III	23MBP3EM31	Eukaryotic Microorganisms - Practical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
9.	III	23MBCCBE33	Biomolecules & Enzymology	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
10	III	23MBP4BE31	Biomolecules & Enzymology- Practical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
11	III	23MBCCMT33	Microbial & Analytical Techniques	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
12	III	23MBP5MT31	Microbial & Analytical Techniques - Practical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
13	III	23MBCCCG33	Cell Biology & Genetics	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
14	III	23MBP6CG31	Cell Biology & Genetics - Practical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
15	IV	23MBCCMG43	Molecular Biology & Microbial Genetics	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4

16	IV	23MBP7MG41	Molecular Biology & Microbial Genetics - Practical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
17	IV	23MBCCPM43	Microbial Physiology & Metabolism	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
18	IV	23MBP8PM41	Microbial Physiology & Metabolism - Practical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
19	IV	23MBCCBB43	r DNA Technology, Biostatistics & Bioinformatics	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO5
20	IV	23MBP9BB41	r DNA Technology, Biostatistics & Bioinformatics - Practical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO5
21	V	23MBCCIM53	Immunology & Medical Microbiology	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
22	V	23MBP10IM51	Immunology & Medical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8

			Microbiology - Practical			
23	V	23MBCCEB53	Environmental Biotechnology	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
24	V	23MBP11EB51	Environmental Biotechnology - Practical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
25	V	23MBEC11PM53	Pharmaceutical Microbiology	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
26	V	23MBP1211PM51	Pharmaceutical Microbiology - Practical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
27	V	23MBEC12AM53	Applied Microbiology	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4
28	V	23MBP1312AM51	Applied Microbiology - Practical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4
29	V	23MBEC21DM53	Diagnostic Microbiology	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
30	V	23MBP1421DM51		**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8

			Diagnostic Microbiology - Practical	**CO3**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
31	V	23MBEC22IM53	Industrial Microbiology	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO5
32	V	23MBP1522IM51	Industrial Microbiology - Practical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO5
33	V	23MBEC31AM53	Agricultural Microbiology	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
34	V	23MBP1631AM51	Agricultural Microbiology - Practical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
35	V	23MBEC32DM53	Food & Dairy Microbiology	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO4	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO5	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
36	V	23MBP1732DM51	Food & Dairy Microbiology - Practical	**CO1**	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO8
				CO2	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8
				CO3	PSO1, PSO2,PSO3,PSO4	PO1, PO2, PO4, PO8

Mapping of Courses with PSOs

Course Title	PSO1 Qualitative Analysis	PSO2 Practical and Analytical Skills	PSO3 Logical and Critical Thinking	PSO4 Teamwork and Communication
Introduction to Classical Biology (CB)	✓	✓	✓	✓
Introduction to Applied Biology (AB)	✓	✓	✓	✓
Introduction to Microbiology (IM)	✓	✓	✓	✓
Introduction to Microbiology-Practical (IM-P)	✓	✓	✓	✓
Bacteriology & Virology (BV)	✓	✓	✓	✓
Bacteriology & Virology- Practical (BV-P)	✓	✓	✓	✓
Eukaryotic Microorganisms (EM)	✓	✓	✓	✓
Eukaryotic Microorganisms – Practical (EM-P)	✓	✓	✓	✓
Biomolecules & Enzymology (BE)	✓	✓	✓	✓
Biomolecules & Enzymology-Practical (BE-P)	✓	✓	✓	✓
Microbial & Analytical Techniques (MT)	✓	✓	✓	✓
Microbial & Analytical Techniques – Practical (MT-P)	✓	✓	✓	✓
Cell Biology & Genetics (CG)	✓	✓	✓	✓
Cell Biology & Genetics – Practical (CG-P)	✓	✓	✓	✓
Molecular Biology & Microbial Genetics (MG)	✓	✓	✓	✓
Molecular Biology & Microbial Genetics – Practical (MG-P)	✓	✓	✓	✓
Microbial Physiology & Metabolism (PM)	✓	✓	✓	✓
Microbial Physiology & Metabolism – Practical (PM-P)	✓	✓	✓	✓
r DNA Technology, Biostatistics & Bioinformatics (BB)	✓	✓	✓	✓

r DNA Technology, Biostatistics & Bioinformatics – Practical (BB-P)	✓	✓	✓	✓
Immunology & Medical Microbiology (IM)	✓	✓	✓	✓
Immunology & Medical Microbiology – Practical (IM-P)	✓	✓	✓	✓
Environmental Biotechnology (EB)	✓	✓	✓	✓
Environmental Biotechnology – Practical (EB-P)	✓	✓	✓	✓
Pharmaceutical Microbiology (PM)	✓	✓	✓	✓
Pharmaceutical Microbiology – Practical (PM-P)	✓	✓	✓	✓
Applied Microbiology (AM)	✓	✓	✓	✓
Applied Microbiology – Practical (AM-P)	✓	✓	✓	✓
Diagnostic Microbiology (DM)	✓	✓	✓	✓
Diagnostic Microbiology – Practical (DM-P)	✓	✓	✓	✓
Industrial Microbiology (IMB)	✓	✓	✓	✓
Industrial Microbiology – Practical (IMB-P)	✓	✓	✓	✓
Agricultural Microbiology (AM)	✓	✓	✓	✓
Agricultural Microbiology – Practical (AM-P)	✓	✓	✓	✓
Food & Dairy Microbiology (DM)	✓	✓	✓	✓
Food & Dairy Microbiology – Practical (DM-P)	✓	✓	✓	✓

Mapping of Courses with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CB	✓	✓		✓				
AB	✓	✓		✓				
IM	✓	✓		✓				
IM-P	✓	✓	✓	✓				
BV	✓	✓		✓				✓
BV-P	✓	✓	✓	✓				✓
EM	✓	✓		✓				
EM-P	✓	✓	✓	✓				
BE	✓	✓		✓				
BE-P	✓	✓	✓	✓				
MT	✓	✓		✓				
MT-P	✓	✓	✓	✓				
CG	✓	✓		✓				
CG-P	✓	✓	✓	✓				
MG	✓	✓		✓				
MG-P	✓	✓	✓	✓				
PM	✓	✓		✓				
PM-P	✓	✓	✓	✓				
BB	✓	✓		✓	✓			
BB-P	✓	✓	✓	✓	✓			
IMB	✓	✓		✓				✓
IMB-P	✓	✓	✓	✓				✓
EB	✓	✓		✓				✓
EB-P	✓	✓	✓	✓				✓
PM	✓	✓		✓				✓
PM-P	✓	✓	✓	✓				✓

AM	✓	✓		✓				
AM-P	✓	✓	✓	✓				
DM	✓	✓		✓				✓
DM-P	✓	✓	✓	✓				✓
IM	✓	✓		✓	✓			
IM-P	✓	✓	✓	✓	✓			
AM	✓	✓		✓				✓
AM-P	✓	✓	✓	✓				✓
DMB	✓	✓		✓				✓
DMB-P	✓	✓	✓	✓				✓

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

NAAC Accredited & ISO 21001: 2018 Certified

PROGRAMME REGISTER: 2023-26

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

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PROGRAMME OUTCOMES (POs)

2023-26

Students of all Undergraduate Programmes at the time of graduation will be able to possess

PO1: Essential Knowledge:

Have comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi-professional contexts.

PO2: Creative, Critical Thinking and Problem-Solving Abilities:

Be effective problem-solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and Communication Skills:

Convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivated, Self-directed, and Life-long Learning:

Exhibit life-long skills; broad-based multiple career oriented general skills; self and field-based learning skills; digital skills; preparedness for living, learning and working in any environment.

PO5: Professionalism and Leadership Readiness:

Engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and Ethical Competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and Emotional Intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social Responsibility and Effective Citizenship:

Exhibit social responsibility and compassionate commitment; Be sensitive to and demonstrate institution in matters of environment, gender and other social issues to promote an equitable society and sustainable development.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2023-26

At the end of the programme students will be able to possess/exhibit:

PSO1: Quantitative Analysis:

Interpret principles, classifications, concepts, theories and mechanisms learnt.

PSO2: Practical and Analytical Skills:

Analyse hypotheses, procedures, properties, experimental facts and draw conclusions.

PSO3: Logical and Critical Thinking:

Apply knowledge and techniques in sample analysis, problem-solving, results, and production.

PSO4: Teamwork and Communication:

Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)

2023-26

S. No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1.	I	23FTCCFN14	Introduction to Food Science & Nutrition	**CO1:** Design food products that meet the various food regulations and laws
				CO2: Comprehend the idea of food safety of the product and preserving it in goodcondition.
				CO3: Plan adequate meals for different stages of life cycle to maintain health.
				CO4: Principles of diet therapy and different therapeutic diets.
				CO5: Research and standards organization of Food Science and Food Technology.
2.	I	23FTCCHW14	Health, Hygiene & Wellness	**CO1:** Possess an understanding of the concept of good health and means to achieveit.
				CO2: Display the ability to identify the morphology, growth and reproductive features of various microorganisms.
				CO3: Acquire the skills in various sterilization techniques.
				CO4: To gain knowledge about prevention and control measures of infections.
				CO5: To learn about managing health and wellness.
3.	II	23FTCCFB23	Food Biochemistry	**CO1:** To study about classification structure and functions of carbohydrates.
				CO2: To study about classification structure and function of proteins.
				CO3: To study about classification, structure and functions of lipids.
				CO4: To study about classification and specificity of enzymes

				CO5: To know about the fundamental properties of water classification of vitamins and minerals.
4.	II	23FTP1FB21	Food Biochemistry-Practical	**CO1:** Estimate Titrable acidity in food samples to understand their preservation potential,
				CO2: Develop, build, and assess electrical circuits using diverse components, andmeasuring instruments.
				CO3: Demonstrate experimental skills to accurately record, analyze experimental data, and determine the respective physical parameters.
5.	II	23FTCCHN23	Human Nutrition	**CO1:** To Understand about Nutrition, and importance of food for Health
				CO2: To Analyze about different vitamins and minerals and their importance.
				CO3: To know about Balanced diet and Recommended Daily Allowances
				CO4: To study about diet surveys and Vitamin Deficiency Control Programmes.
				CO5: To gain knowledge about International agencies like WHO, FAO, UNICEF andCARE
6.	II	23FTP2HN21	Human Nutrition-Practical	**CO1:** Demonstrate the ability to identify nutrient-rich food sources using food composition tables and apply this knowledge to nutritional analysis and dietary planning.
				CO2: Analyze and interpret individual dietary data using the 24-hour dietary recall method and nutritional status indicators, such as BMI, to assess and improve dietary intake.
				CO3: Plan and develop balanced, customized meal plans catering to various age groups, activity levels, and income groups, including specialized diets for weaning and elderly individuals.
7.	III	23FTCCFM33	Food Microbiology	**CO1:** To understand about scope of microbiology & classification of microorganisms & sterilization methods.

				CO2: To study about the prokaryotic cells like bacteria, yeast, Molds & viruses which are associated with food
				CO3: To learn about physical & chemical factors affecting growth of microorganisms.
				CO4: To understand about metabolism & growth of microorganisms.
				CO5: To study bacterial genetics & mutation.
8.	III	23FTP3FM31	Food Microbiology-Practical	**CO1:** Apply Gram staining techniques to differentiate microbes based on their cell wall characteristics.
				CO2: Perform microbial motility tests using the hanging drop method to assess microbial movement.
				CO3: Recognize fungi present in food items such as bread, pickles, jam, and groundnuts.
9.	III	23FTCCFO33	Chemistry of Fats & Oils	**CO1:** To study about the composition & classification of fats
				CO2: To study about the nutritional aspects & characteristics of fats.
				CO3: To know about the processing aspects of fats.
				CO4: To gain knowledge about the various value added products from facts oftechnologies to improve.
				CO5: To understand the utilization of byproducts from oil & fat industry.
10.	III	23FTP4FO31	Chemistry of Fats & Oils - Practical	**CO1:** List out, identify and handle laboratory instruments related to chemistry of Fats and Oils.
				CO2: Identify and quantify free fatty acids (FFA) in fats and oils using titration methods
				CO3: Determine the melting point of fats to assess their thermal behaviour and applications.
11.	III	23FTCCDT33	Diary Technology	**CO1:** To study about the different methods of processing.
				CO2: To study about the knowledge.

				CO3: The understanding about freezing food industry.
				CO4: To understand about microorganisms.
				CO5: To understand about sterilization method.
12.	III	23FTP5DT31	Diary Technology - Practical	**CO1:** List out, identify and handle laboratory instruments related to DairyTechnology.
				CO2: Gain practical skills in determining fat content and total solids in milk samples.
				CO3: Operate cream separators to separate cream from milk and quantify cream yield.
13.	III	23FTCCCT33	Confectionery Technology	**CO1:** To gain knowledge about the status of confectionery industries & information about sugar.
				CO2: To learn about the various ingredients used in confectionery product.
				CO3: To learn the manufacturing methods of chocolates.
				CO4: To study the technology & ingredients involved in production of jams & jellies.
				CO5: To understand the causes of cereal bars.
14.	III	23FTP6CT31	Confectionery Technology- Practical	**CO1:** List out, identify and handle laboratory instruments related to confectionaryTechnology.
				CO2: Interpret analytical results to assess the quality and characteristics of differentconfectionery items
				CO3: Acquire hands-on experience in recipe formulation, cooking processes, andproduct finishing
15.	IV	23FTCCFA43	Food Additives & Toxicology	**CO1:** To learn about the effective processing on vitamins.
				CO2: To study about the flavoring agents & nutritional, preservatives.
				CO3: To know about the food colors & sources.

				CO4: To learn about the fruits & vegetables composition.
				CO5: To understand milk and egg composition and processing effects.
16.	IV	23FTP7FA41	Food Additives & Toxicology - Practical	**CO1:** List out, identify and handle laboratory instruments related to Food additives and toxicology.
				CO2: Understand the quality control methods applicable to food industry setting
				CO3: Capability to analyse experimental results, identify patterns, and draw conclusions.
17.	IV	23FTCCFP43	Food Packaging	**CO1:** To understand about packing methods of food & preservation.
				CO2: To study about food packing materials.
				CO3: To understand flexible packing materials.
				CO4: To know the evaluation of packing material & packing performance.
				CO5: To understand about recent trends in packing
18.	IV	23FTP8FP41	Food Packaging – Practical	**CO1:** Identify and classify different types of packaging materials used in the foodindustry.
				CO2: Demonstrate proficiency in vacuum packaging, gas flushing, and shrinkwrapping of food products.
				CO3: Develop innovative packaging solutions that address food safety,sustainability, and consumer preferences.
19.	IV	23FTCCCP43	Technology of Cereals Pulses & Oil Seeds	**CO1:** Student will have basic knowledge of Cereals Pulses and oil seeds
				CO2: Student will learn how to Mill cereals pulses and oil seeds at home scale, and large scale.
				CO3: Student will learn about changes occurring during processing of Cereals Pulses and oil seeds.

				CO4: Student will learn about various processing Technologies.
				CO5: Student will learn how to prepare value added products from Cereals Pulses and oil waste.
20.	IV	23FTP9CP41	Technology of Cereals Pulses & Oil Seeds - Practical	**CO1:** Identify the chemical constituents present in spices and understand their roles in flavor, aroma, and health benefits
				CO2: Evaluate factors influencing extraction efficiency, yield, and quality of spiceextracts
				CO3: Explore emerging technologies and innovations in spice processing,extraction, and product formulation
21.	V	23FTCCQC53	Food Safety & Quality Control	**CO1:** To gain the knowledge about the food safety of various hazards involved in it.
				CO2: To understand the quality assurance & various voluntary & obligatory food standards
				CO3: To learn the sampling methods & testing of raw materials & finished food products.
				CO4: To learn about sensory parameters & its associated subjective & objective tests
				CO5: To study about the sanitation, hygiene & quality assurance in food industries.
22.	V	23FTP10QC51	Food Safety & Quality Control - Practical	**CO1:** chemical evaluation of dairy products to analyze their quality, flavor, and safety.
				CO2: Perform microbiological quality control using SWAB and RINSE methods.
				CO3: Conduct sensory evaluation of canned foods.
23.	V	23FTCCBT53	Baking Science & Technology	**CO1:** To gain knowledge about the bread, formulation & ingredients.
				CO2: To learn the bread making & its baking process.

				CO3: To understand the methods & ingredients used in biscuit production.
				CO4: To learn the principles & procession preparation of cakes.
				CO5: To learn the preparation of frozen dough products & application of starches in bakery industry.
24.	V	23FTP11BT51	Baking Science & Technology – Practical	**CO1:** Analyze the structural and functional properties of wheat gluten protein and its role in baking.
				CO2: Evaluate the importance of gluten proteins
				CO3: Understand the role of major and minor bakery ingredients
25.	V	23FTEC11MP53	Technology of Meat, Fish Poultry & Their Products	**CO1:** To gain knowledge about various sources, feed, & structure of meat.
				CO2: To study about the various steps involved in slaughtering of meat animals.
				CO3: To know about the preservative & processing methods of meat.
				CO4: To understand the steps involved in the processing of poultry meat.
				CO5: To gain knowledge about the types of fish, its composition & processing & preservation methods
26.	V	23FTP1211MP51	Technology of Meat, Fish Poultry & Their Products - Practical)	**CO1:** Understand the pre-slaughter operations of meat animals and poultry.
				CO2: Perform slaughtering and dressing of meat animals.
				CO3: Study the anatomy of poultry to understand the structure.
27.	V	23FTEC12PE53	Food Process Engineering	**CO1:** Study about units & dimensions.
				CO2: Solve problems involved in dilution, concentration & dehydration.

				CO3: Study about fluid dynamics
				CO 4: Understand about heat transfer
				CO5: To understand about filtration sedimentation & reverse osmosis.
28.	V	23FTP1312PE51	Food Process Engineering - Practical	**CO1:** Analyze the cooking properties of parboiled and raw rice.
				CO2: Estimate the microbial load in food materials to assess their safety and quality.
				CO3: Evaluate the properties of milk, including composition and physicochemical characteristics.
29.	V	23FTEC21FV53	Technology of Fruits, Vegetable & Plantation Crops	**CO1:** Student will learn overview of fruit and vegetable production and its handling
				CO2: Student will learn how the preserve the harvested fruits and vegetables
				CO3: Student will learn how to prepare various products from fruits as per FASSAI standards
				CO4: Student will learn how to prepare various products Vegetables fruits as per FSSAI Standards
				CO5: Student will learn how to prepare value added products from fruit and vegetable waste
30.	V	23FTP1421FV51	Technology of Fruits, Vegetable & Plantation Crops - Practical (OR)	**CO1:** Perform primary processing of selected fruits and vegetables.
				CO2: Conduct qualitative analysis of pectin to assess its suitability for jam, jelly.
				CO3: Determine the salt concentration in processed and preserved products
31.	V	23FTEC22FI53	Fermentation Technology	**CO1:** Learn the Basics of Fermentor and types of fermentation.
				CO2: Learn about traditional fermented food.

				CO3: Learn about various types about beverages.
				CO4: Learn aboutfruit based Juices and beverages, tea, coffee, cocoa processing
				CO5: Learn about fermentation of various alcolohic To know types of beverages & quality control in beverage industry.
32.	V	23FTP1522FI51	Fermentation Technology - Practical	**CO1:** Perform the screening and isolation of industrially important microorganisms
				CO2: Prepare yogurt using starter cultures and optimize the fermentation process for quality.
				CO3: Prepare buttermilk using traditional and industrial methods.

Mapping of COs with PSOs & POs

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1.	I	23FTCCFN14	Introduction to Food Science & Nutrition	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
2.	I	23FTCCHW14	Health, Hygiene & Wellness	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
3.	II	23FTCCFB23	Food Biochemistry	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5, PO6

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5,
4.	II	23FTP1FB21	Food Biochemistry-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
5.	II	23FTCCHN23	Human Nutrition	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6 PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6 PO7
6.	II	23FTP2HN21	Human Nutrition-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6 PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO7
7.	III	23FTCCFM33	Food Microbiology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
8.	III	23FTP3FM31	Food Microbiology-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
9.	III	23FTCCFO33	Chemistry of Fats & Oils	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
10.	III	23FTP4FO31	Chemistry of Fats & Oils - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
11.	III	23FTCCDT33	Diary Technology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
12.	III	23FTP5DT31	Diary Technology - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
13.	III	23FTCCCT33	Confectionery Technology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
14.	III	23FTP6CT31	Confectionery Technology- Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
15.	IV	23FTCCFA43	Food Additives & Toxicology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
16.	IV	23FTP7FA41	Food Additives & Toxicology - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
17.	IV	23FTCCFP43	Food Packaging	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
18.	IV	23FTP8FP41	Food Packaging – Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO7
19.	IV	23FTCCCP43	Technology of Cereals Pulses & Oil Seeds	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
20.	IV	23FTP9CP41	Technology of Cereals Pulses & Oil Seeds - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
21.	V	23FTCCQC53	Food Safety & Quality Control	**CO1**	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
22.	V	23FTP10QC51	Food Safety & Quality Control - Practical	**CO1**	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
23.	V	23FTCCBT53	Baking Science & Technology	**CO1**	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
24.	V	23FTP11BT51	Baking Science & Technology – Practical	**CO1**	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
25.	V	23FTEC11MP53	Technology of Meat, Fish Poultry & Their Products	**CO1**	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
26.	V	23FTP1211MP51	Technology of Meat, Fish Poultry & Their Products - Practical)	**CO1**	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
27.	V	23FTEC12PE53		**CO1**	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7

			Food Process Engineering	**CO2**	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
28.	V	23FTP1312PE51	Food Process Engineering - Practical	**CO1**	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
29.	V	23FTEC21FV53	Technology of Fruits, Vegetable & Plantation Crops	**CO1**	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4.
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO6
30.	V	23FTP1421FV51	Technology of Fruits, Vegetable & Plantation Crops - Practical (OR)	**CO1**	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4,
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5,
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
31.	V	23FTEC22FI53	Fermentation Technology	**CO1**	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4.
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
32.	V	23FTP1522FI51	Fermentation Technology - Practical	**CO1**	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

Mapping of Courses with PSOs

Course Title	PSO1 Quantitative Analysis	PSO2 Practical and Analytical Skills	PSO3 Logical, Critical Thinking	PSO4 Teamwork and Communication
Introduction to Food Science & Nutrition	✓	✓	✓	✓
Health, Hygiene & Wellness	✓	✓	✓	✓
Food Biochemistry	✓	✓	✓	✓
Food Biochemistry - Practical	✓	✓	✓	✓
Human Nutrition	✓	✓	✓	✓
Human Nutrition - Practical	✓	✓	✓	✓
Food Microbiology	✓	✓	✓	✓
Food Microbiology - Practical	✓	✓	✓	✓
Chemistry of Fats & Oils	✓	✓	✓	✓
Chemistry of Fats & Oils - Practical	✓	✓	✓	✓
Diary Technology	✓	✓	✓	✓
Diary Technology - Practical	✓	✓	✓	✓
Confectionery Technology	✓	✓	✓	✓
Confectionery Technology - Practical	✓	✓	✓	✓

Food Additives & Toxicology	✓	✓	✓	✓
Food Additives & Toxicology - Practical	✓	✓	✓	✓
Food Packaging	✓	✓	✓	✓
Food Packaging – Practical	✓	✓	✓	✓
Technology of Cereals Pulses & Oil Seeds	✓	✓	✓	✓
Technology of Cereals Pulses & Oil Seeds - Practical	✓	✓	✓	✓
Food Safety & Quality Control	✓	✓	✓	✓
Food Safety & Quality Control - Practical	✓	✓	✓	✓
Baking Science & Technology	✓	✓	✓	✓
Baking Science & Technology – Practical	✓	✓	✓	✓
Technology of Meat, Fish Poultry & Their Products	✓	✓	✓	✓
Technology of Meat, Fish Poultry & Their Products - Practical	✓	✓	✓	✓
Food Process Engineering	✓	✓	✓	✓
Food Process Engineering - Practical	✓	✓	✓	✓
Technology of Fruits, Vegetable & Plantation Crops	✓	✓	✓	✓

Technology of Fruits, Vegetable & Plantation Crops - Practical	✓	✓	✓	✓
Fermentation Technology	✓	✓	✓	✓
Fermentation Technology - Practical	✓	✓	✓	✓

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative, Critical thinking and Problemsolving abilities	PO3 Teamwork and Communication skills	PO4 Motivated, Self-directed and Life-long Learning	PO5 Professionalism and Leadership Readiness	PO6 Intercultural and Ethical Competency	PO7 Self-awareness and Emotional Intelligence	PO8 Social Responsibility and Effective Citizenship
FS	✓	✓	✓	✓				
HW	✓	✓	✓	✓				
FB	✓	✓	✓	✓	✓	✓	✓	
FB-P1	✓	✓	✓	✓	✓	✓	✓	
HN	✓	✓	✓	✓	✓	✓	✓	
HN-P2	✓	✓	✓	✓	✓	✓	✓	
FM	✓	✓	✓	✓	✓		✓	
FM-P3	✓	✓	✓	✓	✓		✓	
CFO	✓	✓	✓	✓	✓		✓	
CFO-P4	✓	✓	✓	✓	✓		✓	

DT	✓	✓	✓	✓	✓		✓	
DT-P5	✓	✓	✓	✓	✓		✓	
CT	✓	✓	✓	✓	✓		✓	
CT P6	✓	✓	✓	✓	✓		✓	
FA	✓	✓	✓	✓	✓		✓	
FA P7	✓	✓	✓	✓	✓		✓	
FP	✓	✓	✓	✓	✓		✓	
FP-P8	✓	✓	✓	✓	✓		✓	
CP	✓	✓	✓	✓	✓		✓	
CP-P9	✓	✓	✓	✓	✓		✓	
FS	✓	✓	✓	✓	✓		✓	
FS-P10	✓	✓	✓	✓	✓		✓	
BS	✓	✓	✓	✓	✓		✓	
BS-P11	✓	✓	✓	✓	✓		✓	
MP	✓	✓	✓	✓	✓		✓	
FE	✓	✓	✓	✓	✓		✓	
MP-P12	✓	✓	✓	✓	✓		✓	

FE-P13	✓	✓	✓	✓	✓		✓	
TFV	✓	✓	✓	✓	✓	✓	✓	
TFV-P14	✓	✓	✓	✓	✓		✓	
FT	✓	✓	✓	✓	✓	✓	✓	
FT-P15	✓	✓	✓	✓	✓		✓	

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

NAAC Accredited & ISO 91001: 2018 Certified

PROGRAMME REGISTER

2023-2026

UG DEPARTMENT OF COMMERCE AND MANAGEMENT STUDIES

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UG PROGRAMMES OFFERED

S.No.	Programme	Combination offered	Programme Code
1	**B.Com**	General (G)	201
2		Computers (C)	202
3		Tax Planning and Procedure (T)	203

PROGRAMME OUTCOMES (POs) 2023-2026

At the end of the programme students will have:

PO1: Essential Knowledge:

Comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi- professional contexts.

PO2: Creative and critical thinking and problem-solving abilities:

Be effective problem solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and communication skills:

Be able to convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivation and preparation in life-long learning:

Exhibit life-long skills; broad based multiple career oriented general skills; self and field based learning skills; digital skills; social responsibility and compassionate commitment; preparedness for living, learning and working in any environment

PO5: Professionalism and leadership readiness:

Be able to engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and ethical competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and emotional intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social responsibility:

Be sensitive to and demonstrate agency in matters of environment, gender and other social issues to promote an equitable society.

PROGRAMME SPECIFIC OUTCOMES

(PSOs)

2023-2026

At the end of the Programme the student will be able to

PSO1: Fundamental Knowledge

Demonstrate a strong understanding of the domain areas.

PSO2: Analytical Skills

Apply techniques to analyze data, interpret the results, and make informed decisions.

PSO3: Problem-Solving

Use theories and principles to address real-world business challenges with logical and innovative thinking.

PSO4: Communication and Responsibility

Develop teamwork, communication, technical skills, and ethical awareness to contribute effectively in professional and social settings.

Course Outcomes (COs)

Commerce and Management Studies

2023-2026

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	I	23CMCCFC14	Fundamentals of Commerce	CO1:Demonstrate an understanding of the role of commerce and accounting concepts.
				CO2:Acquire knowledge about demand, supply and elasticity.
				CO3:Understand the branches of Accounting
				CO4:Familiarize with the taxation system and its practices.
				CO5:Developing simple website in wordpress.
2	I	23CMCCBO14	Business Organisation	CO1: Understand the concept of Business Organization along with the basic laws and norms of Business Organization
				CO2: Classify different forms of Business Organization.
				CO3: Identify the importance of plant location and layout.
				CO4: Explore the need for Forms and Kinds of Business Combination
				CO5: Explain the evolution of Computer Evolution in relation to Business Organization
3	II	23CMCCFA24/23	Financial Accounting	CO1: Identify monetary transactions and record in books of accounts.
				CO2: Determine the financial position of Organisations..
				CO3: Calculate depreciation under various methods.
				CO4: Illustrate the accounting treatment of Consignment
				CO5: Summarize the accounting procedure of Joint Venture
4	II	23CMCCBM24	Business Management	CO1: Understand the concept of Business Management along with the basic laws and norms.
				CO2: Enumerate the terminologies associated with the field of Business Management and control along with their relevance.
				CO3: Identify the appropriate method and techniques of Business Management for solving different problems.

				CO4: Apply basic Business Management principles to solve business and industry related problems
				CO5: Ascertain various control techniques in organization
5	II	23CMP1FA21	Financial Accounting - Practical	CO1:Identify monetary transactions and record in books of accounts.
				CO2:Determine the financial position of Organisations.
				CO3: Calculate depreciation under various methods.
				CO4: Illustrate the accounting treatment of Consignment
				CO5: Summarize the accounting procedure of Joint Venture
6	II	23CMCCIT24	Income Tax Law & Practice I	CO1: Understand the structure and types of taxes in India
				CO2: Differentiate between tax evasion and tax avoidance
				CO3: Determine tax incidence based on residential status
				CO4: Identify exempted incomes and compute agricultural income tax treatment
				CO5: Calculate taxable income from salary and house property effectively
7	III	23CMCCAA33/34	Advanced Accounting	CO1: Prepare Receipts & Payments account and Income & Expenditure accounts
				CO2: Determine the Hire purchase transactions
				CO3: Demonstrate different stages of Partnership
				CO4: Explain the statement of affairs
				CO5: Prepare partnership accounts
8	III	23CMCCIT33/34	Income Tax	CO1: Demonstrate an understanding of concepts of income tax and residential status of a person.
				CO2: Determine the income of a salaried person.
				CO3:Compute the income under House Property and Profits and Gains from Business
				CO4: Calculate the income under Capital Gains and other sources
				CO5: Compute Total Income & Tax liability.
9	III	23CMCCBL34	Business Laws	CO1: Understand the fundamental concepts, principles relating to Contract Act that applies to business situations

				CO2: Acquire knowledge on Negotiable Instruments Act and Partnership Act in India
				CO3: Recognize the regulatory framework of companies with reference to various provisions of Companies Act
				CO4: Understand the essentials and execution of Sale contracts
				CO5: Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to execution of Sale contracts
10	III	23CMP2AA31	Advanced Accounting - Practical	CO1: Prepare Receipts & Payments account and Income & Expenditure accounts
				CO2: Determine the Hire purchase transactions
				CO3: Demonstrate different stages of Partnership
				CO4: Explain the statement of affairs
				CO5: Prepare partnership accounts
11	III	23CMP3IT31	Income Tax - Practical	CO1: Demonstrate an understanding of concepts of income tax and residential status of a person.
				CO2: Determine the income of a salaried person.
				CO3: Compute the income under House Property and Profits and Gains from Business
				CO4:Calculate the income under Capital Gains and other sources
				CO5: Compute Total Income & Tax liability.
12	III	23CMCCDM33	Digital Marketing	CO1: Use digital media for the creation of products and services and Relate Search Engines in the digital marketing ecosystem.
				CO2: Use Search Engine Marketing for advertisements and know the Social Media platforms like Face book, Twitter, YouTube & LinkedIn for marketing.
				CO3:Outline email Marketing and strategy to craft email marketing campaign.
				CO4: Frame the digital marketing strategy for brands
				CO5: Analyse the impact of E-mail campaign
13	III	23CMP4DM31	Digital Marketing - Practical	CO1: Use digital media for the creation of products and services and relate Search Engines in the digital marketing ecosystem.
				CO2: Use Search Engine Marketing for advertisements and know th e Social Media platforms like Face book, Twitter, YouTube & LinkedIn for marketing.

				CO3: Outline email Marketing and strategy to craft email marketing campaign.
				CO4: Frame the digital marketing strategy for brands
				CO5: Analyse the impact of E-mail campaign
14	III	23CMCCIT34	Income Tax Law & Practice II	CO1:Compute Business/Professional incomes
				CO2: Compute Capital gains & income from other sources.
				CO3: Determine the incomes to be clubbed, losses to be set off and carry forward and deductions under 80.
				CO4: Compute total income and tax liability
				CO5: File ITR forms
15	III	23CMCCIP34	Income Tax Practice & Procedures I	CO1: Categorize various methods of assessment procedures
				CO2: Computation of Total Income
				CO3: Compute the assessment of individuals and HUF.
				CO4: Determine Penalties as per income tax rules and regulations
				CO5: File e-Returns
16	IV	23CMCCCA43/44	Corporate Accounting	CO1: Explain accounting procedures for share capital and debentures.
				CO2: Determine the value of goodwill of a firm.
				CO3: Prepare company final accounts.
				CO4: Apply accounting treatment for internal reconstruction.
				CO5: Determine the value of shares in various methods
17	IV	23CMCCCM43/44	Cost & Management Accounting	CO1: Explain cost concepts and classifications.
				CO2: Determine the elements of cost.
				CO3: Explain concepts of management accounting.
				CO4: Analyze Financial Statements of various organizations
				CO5: Ascertain Profit Volume Ration & Break -Even Point
18	IV	23CMCCAU44	Auditing	CO1: Identify the financial state of affairs and corporate frauds.
				CO2: Classify different types of Audits in various forms of organization.

				CO3: Develop an audit programme for checking and internal controlling of an organization.
				CO4: Analyse and interpret cash and trading transactions of a business.
				CO5: Explain the procedures and preparation of company audits
19	IV	23CMP5CA41	Corporate Accounting - Practical	CO1: Exp lain accounting procedures for share capital and debentures.
				CO2: Determine the value of goodwill and equity share of a firm.
				CO3: Prepare company final accounts.
				CO4: Apply accounting treatment for internal reconstruction
				CO5: Determine the value of shares in various methods
20	IV	23CMP6CM41	Cost & Management Accounting - Practical	CO1: Explain cost concepts and classifications.
				CO2: Determine the elements of cost.
				CO3: Explain concepts of management accounting.
				CO4: Analyze Financial Statements of various organizations
				CO5: Ascertain Profit Volume Ration & Break -Even Point
21	IV	23CMCCIP44	Income Tax Practice & Procedures II	CO1:Compute total income & tax liability of partnership firm and AOP.
				CO2:Assess the total income of companies.
				CO3:Demonstrate an understanding of powers of income tax authorities.
				CO4:Explain the concepts of tax planning in case of individuals and HUF.
				CO5:Compute profits from various businesses
22	V G	23CMEC11AM54	Advertising & Media Planning	CO1:Understand basic characteristics of all media to ensure most effective use of advertising budget
				CO2: Comprehend an insight on Media Planning, Budgeting, Scheduling
				CO3: Analyse the Indian Media Market
				CO4: Evaluate Media Planning, Strategy and Management with reference to current business scenario.
				CO5: Create an advertisement copy with various elements
23	V G	23CMEC12SM54	Stock Markets	CO1: Understand the basics of Stock Market and need of investment

				CO2:Evaluate the Different Types of Securities Issued in the Capital Market
				CO3:Explain the role of financial intermediaries
				CO4:Analyze Various Types of Stock Indices
				CO5:Comprehend SEBI's Powers and Functions
24	V G	23CMEC21CR54	Customer Relationship Management	CO1: Understand the concepts and needs to adapt CRM:
				CO2: Differentiate various CRM models in service industry
				CO3: Analyse the development of customer relationship based on the customer expectations
				CO4: Ascertain different issues in CRM
				CO5: Frame a CRM strategy
25	V G	23CMEC22SA54	Stock Markets Analysis	CO1:Understand the Concept of Investments and need of security analysis
				CO2:Assess Intrinsic Value of a Company
				CO3:Identify Bullish and Bearish Market Patterns
				CO4:Apply Descriptive, Correlation, Comparative, and Experimental Analysis
				CO5:Examine Asset Management Mutual Funds
26	V G	23CMEC31DM54	Digital Marketing	CO1: Understand the concept of digital marketing and real-life applications
				CO2: Identify and utilise various tools such as social media
				CO3: Explain emerging trends in digital marketing
				CO4: Critically assess the use of digital marketing tools by applying relevant marketing theories and frameworks.
				CO5: Create and run digital media-based campaigns
27	V G	23CMEC32AC54	Advanced Corporate Accounting	CO1:Demonstrate the recording of the transactions relating to Purchasing of Business
				CO2:Prepare purchase consideration for amalgamation of companies.
				CO3:Apply accounting treatment for internal reconstruction.
				CO4:Prepare consolidated balance sheet for holding companies
				CO5:Compute financial statement of affairs for liquidation of companies.
28	V G	23CMEC41SM54	Service Marketing	CO1: Understand the Concept of Services and intangible products

				CO2: Discuss the relevance of consumer behaviour in services Industry
				CO3: Examine the segmentation strategies in service marketing
				CO4: Suggest measures to improve services quality and their service delivery
				CO5: Handle conflict and customer Responses
29	V G	23CMEC42SS54	Software Solutions to Accounting	CO1: Understand the features and functionalities of leading accounting software
				CO2: Apply Microsoft Excel functions to prepare accounts, statements, and budgets
				CO3: Create and manage company accounts in Tally ERP-9
				CO4: Design and modify accounting and inventory masters in Tally
				CO5: Evaluate and generate accurate reports through voucher entry
30	V C	23CMEC11AC53	Advanced Corporate Accounting	CO1:Demonstrate the recording of the transactions relating to Purchasing of Business
				CO2:Prepare purchase consideration for amalgamation of companies.
				CO3:Apply accounting treatment for internal reconstruction.
				CO4:Prepare consolidated balance sheet for holding companies
				CO5:Compute financial statement of affairs for liquidation of companies.
31	V C	23CMEC12AM53	Advertisement & Media Planning	CO1:Understand basic characteristics of all media to ensure most effective use of advertising budget
				CO2: Comprehend an insight on Media Planning, Budgeting, Scheduling
				CO3: Analyse the Indian Media Market
				CO4: Evaluate Media Planning, Strategy and Management with reference to current business scenario.
				CO5: Create an advertisement copy with various elements
32	V C	23CMP711AC512	Advanced Corporate Accounting - Practical	CO1:Demonstrate the recording of the transactions relating to Purchasing of Business
				CO2:Prepare purchase consideration for amalgamation of companies.
				CO3:Apply accounting treatment for internal reconstruction.
				CO4:Prepare consolidated balance sheet for holding companies
				CO5:Compute financial statement of affairs for liquidation of companies.

33	V C	23CMP812AM51	Advertisement & Media Planning - Practical	CO1:Understand basic characteristics of all media to ensure most effective use of advertising budget
				CO2: Comprehend an insight on Media Planning, Budgeting, Scheduling
				CO3: Analyse the Indian Media Market
				CO4: Evaluate Media Planning, Strategy and Management with reference to current business scenario.
				CO5: Create an advertisement copy with various elements
35	V C	23CMEC21SM53	Stock Markets	CO1: Understand the basics of Stock Market and need of investment
				CO2:Evaluate the Different Types of Securities Issued in the Capital Market
				CO3:Explain the role of financial intermediaries
				CO4:Analyze Various Types of Stock Indices
				CO5:Comprehend SEBI's Powers and Functions
36	V C	23CMEC22GS53	GST Procedures & Practices	CO1: Understand the concept of Liability and Payment of GST
				CO2. Create a new company in Tally with GST components and establish an environment for GST Voucher entry.
				CO3. Comprehend the utilization of input tax credit, and the reverse charge mechanism in GST
				CO4. Acquire Skills of preparation of GST Returns in accordance with GST Law and Tally
				CO5: File GST returns electronically
37	V C	23CMP921SM51	Stock Markets - Practical	CO1: Understand the basics of Stock Market and need of investment
				CO2:Evaluate the Different Types of Securities Issued in the Capital Market
				CO3:Explain the role of financial intermediaries
				CO4:Analyze Various Types of Stock Indices
				CO5:Comprehend SEBI's Powers and Functions
38	V C	23CMP1022GS51	GST Procedures & Practices - Practical	CO1: Understand the concept of Liability and Payment of GST
				CO2. Create a new company in Tally with GST components and establish an environment for GST Voucher entry.

				CO3. Comprehend the utilization of input tax credit, and the reverse charge mechanism in GST
				CO4. Acquire Skills of preparation of GST Returns in accordance with GST Law and Tally
				CO5: File GST returns electronically
39	V T	GST Procedures & Practice	GST Procedures & Practice	CO1: Understand the concept of Liability and Payment of GST
				CO2. Create a new company in Tally with GST components and establish an environment for GST Voucher entry.
				CO3. Comprehend the utilization of input tax credit, and the reverse charge mechanism in GST
				CO4. Acquire Skills of preparation of GST Returns in accordance with GST Law and Tally
				CO5: File GST returns electronically
40	V T	Advertising & Media Planning	Advertising & Media Planning	CO1:Understand basic characteristics of all media to ensure most effective use of advertising budget
				CO2: Comprehend an insight on Media Planning, Budgeting, Scheduling
				CO3: Analyse the Indian Media Market
				CO4: Evaluate Media Planning, Strategy and Management with reference to current business scenario.
				CO5: Create an advertisement copy with various elements
41	V T	Tax Planning	Tax Planning	CO1: Understand the concept of foreign income.
				CO2: Apply the provisions for relief of Double Taxation for Domestic companies
				CO3: Understand Tax Compliance and Payment Requirements
				CO4: Demonstrate filing online returns of income
				CO5: Prepare TDS/TCS and online filing of Tax returns.
42	V T	Software Solutions to Accounting	Software Solutions to Accounting	CO1: Understand the features and functionalities of leading accounting software
				CO2: Apply Microsoft Excel functions to prepare accounts, statements, and budgets
				CO3: Create and manage company accounts in Tally ERP-9
				CO4: Design and modify accounting and inventory masters in Tally

				CO5: Evaluate and generate accurate reports through voucher entry
43	V T	E-Commerce	E-Commerce	CO1: Understand the mechanism of e commerce
				CO2: Extend the specialization in website designing for e commerce
				CO3: Enhance their skills in operational services of e commerce
				CO4: Summarize the activities of e commerce and payment system mechanism.
				CO5: Identify the different e-payment methods
44	V T	Stock Markets	Stock Markets	CO1: Understand the basics of Stock Market and need of investment
				CO2:Evaluate the Different Types of Securities Issued in the Capital Market
				CO3:Explain the role of financial intermediaries
				CO4:Analyze Various Types of Stock Indices
				CO5:Comprehend SEBI’s Powers and Functions
45	V T	E- Filing	E- Filing	CO1:Understand basic knowledge of Indian Tax System
				CO2:Equip specialization in taxation system
				CO3: Enhance their skills in presenting returns
				CO4: Involve in activities of Chartered Accountants for filing returns.
				CO5: Understand the penalties and prosecution under IT & GST
46	V T	Stock Market Analysis	Stock Market Analysis	CO1:Understand the Concept of Investments and need of security analysis
				CO2:Assess Intrinsic Value of a Company
				CO3:Identify Bullish and Bearish Market Patterns
				CO4:Apply Descriptive, Correlation, Comparative, and Experimental Analysis
				CO5:Examine Asset Management Mutual Funds

Course Outcomes (COs)

Bachelor of Commerce & Management Studies

MINORS

2023-2026

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	II	23CMCCHR24	Principles of HRM (Human Resource Management)	CO1: Understand the basic concepts, functions and processes of human resource Management
				CO2: Recognize the role, functions and functioning of human resource department of the organizations
				CO3: Design and formulate various HRM processes such as Recruitment, Selection, Training & development
				CO4: Evaluate the developing role of human resources in the global arena
				CO5: Ascertain the HR activities in any organization
2	II	23CMCCMK24	Fundamentals of Marketing (Marketing)	CO1: Appreciate the importance of marketing in businesses
				CO2: Understand the need for market segmentation, targeting and positioning
				CO3: Analyze the recent trends in marketing
				CO4: Ascertain the marketing plans of leading brands
				CO5: Develop the steps involved in developing a marketing plan
3	II	23CMCCRM24	Foundations of Retail Management (Retail Management)	CO1: Understand the impact of retailing on the economy and its role in society
				CO2: Study the policies, methods, and procedures used by successful retailers in today's global economy
				CO3: Appreciate the importance of retail site location
				CO4: Analyse the retail shoppers' behaviour
				CO5: Appraise the changing trends in retailing

4	III	23CMCCCM34	Change Management (Human Resource Management)	CO1: Understand the types of changes
				CO2: Analyse knowledge on implementing change
				CO3: Evaluate how people feel about the changes
				CO4: Offer techniques to overcome change
				CO5: Appraise resistance to change
5	III	23CMCCCB34	Consumer Behaviour (Marketing)	CO1: Understand the factors affecting the consumer behaviour
				CO2: Acquire basic knowledge on consumer protection rights
				CO3: Ascertain buying patterns in digital era
				CO4: Analyse the consumer decision making process
				CO5: Appraise decision making process
6	III	23CMCCRS34	Retail Store Operations (Retail Management)	CO1: Manage inventory through understanding ABC analysis, EOQ, GAP
				CO2: Understand the procedure for preparing and managing receipts
				CO3: Emphasise how to handle customer complaints
				CO4: Analyse credit management
				CO5: Appraise the financial trends
7	IV	23CMCCTM44	Talent Management (Human Resource Management)	CO1: Understand and explain talent Management practices in India and Global level
				CO2: Understand and explain How to Acquire and retain talent
				CO3: Analyse and appreciate the role of HR in talent management
				CO4: Appreciate the organizational context and apply relevant contemporary organizational practices to connect the talent
				CO5: Appraise talent management strategy
10	IV	23CMCCTD44	Training & Development (Human Resource Management)	CO1: Identify the training needs, training processes, training methods

				CO2: Ascertain the usefulness of training expertise in the organizational work environment
				CO3: Asses the training program effectiveness in the companies
				CO4: Evaluate the emerging trends in training and development
				CO5: Appraise feedback mechanism
11	IV	23CMCCAD44	Advertising (Marketing)	CO1: To understand the task of advertising under contemporary conditions.
				CO2: To develop an awareness of the major types of advertising and role of ad agencies
				CO3: Use analytical skills in planning and evaluating advertising campaigns
				CO4: Frame Advertising Campaign Strategy
				CO5: Appraise Media Mix effectiveness
12	IV	23CMCCBD44	Brand Management (Marketing)	CO1: Study how brand communication is done by organisations
				CO2: Understand strategies for brand management
				CO3: Analyse the brand performance in modern digital world
				CO4: Explore the opportunities in Brand Management
				CO5: Appraise brand strategies
13	IV	23CMCCCR44	Communications in Retail Business (Retail Management)	CO1: Understand the role of advertising in retail communication
				CO2: Emphasize on the importance of different forms of direct marketing
				CO3: Comprehend the consumer-oriented sales promotion techniques
				CO4: Analyse Retail Sales Promotion Programs
				CO5: Appraise Sales Presentation Techniques
15	IV	23CMCCMM44	Merchandise Management (Retail Management)	CO1: Learn the roles and responsibilities of merchandiser and buyer
				CO2: Enable to procure right merchandise

				CO3: Get aware of basics of visual merchandising
				CO4: Appreciate the tools used for merchandise planning
				CO5: Appraise the merchandise core designing strategies
18	V	23CMCCLL54	Labour Legislation & Compensation Management (Human Resource Management)	CO1: Elaborate the concept of Industrial Relations
				CO2: Understanding of Labour legislations to address problems in labour-employer relationships
				CO3: Illustrate the role of trade union in the industrial setup
				CO4: Outline the important causes & impact of industrial disputes
				CO5: Demonstrate skills in analyzing labour issues
19	V	23CMCCOB54	Organisation Behaviour (Human Resource Management)	CO1: understand individual and group behaviour at work place to improve the effectiveness of an organization
				CO2: understand different types of personality and learning styles
				CO3: Comprehend concepts relating to group dynamics and conflict management
				CO4: understand leadership and its impact on group dynamics
				CO5: Construct a process of Change management and issues involved in it
20	V	23CMCCSM54	Service Marketing (Marketing)	CO1: Understand the Concept of Services and intangible products
				CO2: Discuss the relevance of consumer behaviour in services Industry
				CO3: Examine the segmentation strategies in service marketing
				CO4: Suggest measures to improve services quality and their service delivery
				CO5: Handle conflict and customer Responses
21	V	23CMCCDM54	Digital Marketing (Marketing)	CO1: Understand the concept of digital marketing and real-life applications

				CO2: Identify and utilise various tools such as social media
				CO3: Explain emerging trends in digital marketing
				CO4: Critically assess the use of digital marketing tools by applying relevant marketing theories and frameworks.
				CO5: Create and run digital media-based campaigns
22	V	23CMCCET54	E-Tailing (Retail Management)	CO1: Provide overview of e-tailing from both technological and managerial perspectives
				CO2: Understand e-tailing frameworks, and technological foundations
				CO3: Study how enterprises formulate strategies for e-tailing
				CO4: Familiarize students with current and emerging electronic r-tailing changes
				CO5: Analyse the global trends in e-tailing
23	V	23CMCCRL54	Retail Logistics (Retail Management)	CO1: Understand the basics of logistics in retail logistics
				CO2: Comprehend the importance of logistics
				CO3: Develop competencies necessary for a retain logistics professionals
				CO4: Analyse recent trends in network designs for global operations
				CO5: Develop strategic role of a retail logistics management

Course Outcomes (COs)

MDCs & SECs

2023-2026

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	III	23MDCPM32	Principles of Management	CO1: Acquire knowledge on various management concepts such as planning, organizing, implementing, staffing, coordinating, controlling and motivating
				CO2: Recognize the human skills and conceptual skills as per industry requirements about basic management skills
				CO3: Analyze various styles and qualities of efficient leadership, Coordination, Controlling
2	III	23MDCPA32	Principles of Accounting	CO1: Use the accounting cycle to develop financial statements from business transactions
				CO2: Analyze basic business events and to determine their effect on accounts and financial statements
				CO3: Interpret and analyze financial statements to aid in decision making.
3	II	23SECED12	Entrepreneurship Development	CO1: Demonstrate the concept of Entrepreneurship, its applications and scope
				CO2: Determine various types of financial institutions that help the business at Central, State and Local Level
				CO3: Apply the knowledge for generating a broad idea to start an enterprise/ start up
4	II	23SECMS22	Marketing Skills	CO1: Formulate a marketing plan that will meet the needs or goals of a business organization
				CO2: Understand different strategies for effective design of Marketing Mix
				CO3: Know the Sales Skills including effective personal selling skills
5	II	23SECIP22	Investment Planning	CO1: Identify and differentiate between investment and speculation
				CO2: Gain proficient in defining and measuring security returns.

				CO3: Construct an investment portfolio based on specific criteria
6	II	23SECSM22	Stock Market Operations	CO1: Evaluate recent trends in the primary market and assess the impact of regulatory policies on market operations.
				CO2: Implement strategies to minimize transactional risks and ensure smooth settlement procedures.
				CO3: Interpreting stock market indices and utilizing them to make informed investment decisions.
7	III	23SECPM32	Project Management	CO1: Understand the basic elements necessary for Project Management
				CO2: Conduct preliminary screening of project.
				CO3: Analyse the financial viability of the project

Mapping of COs with PSOs & PO

B.Com

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	23CMCCFC14	Fundamentals of Commerce	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO2,PO3, PO5
2	I	23CMCCBO14	Business Organisation	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO2,PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
3	II	23CMCCFA24/23	Financial Accounting	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5,
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5,
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5,
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5,
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5,
4	II	23CMCCBM24	Business Management	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1,PO2, PO3 PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO2, PO3 PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO3, PO4, PO5, PO8
5	II	23CMP1FA21	Financial Accounting - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5,
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5,

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5,
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5,
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5,
6	II	23CMCCIT24	Income Tax Law & Practice I	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
7	III	23CMCCAA33/34	Advanced Accounting	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
8	III	23CMCCIT33/34	Income Tax	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
9	III	23CMCCBT34	Business Laws	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6, PO8
10	III	23CMP2AA31	Advanced Accounting - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
11	III	23CMP3IT31	Income Tax - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
12	III	23CMCCDM33	Digital Marketing	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
13	III	23CMP4DM31	Digital Marketing - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
14	III	23CMCCIT34	Income Tax Law & Practice II	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
15	III	23CMCCIP34	Income Tax Practice & Procedures I	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6

16	IV	23CMCCCA43/44	Corporate Accounting	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
17	IV	23CMCCCM43/44	Cost & Management Accounting	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
18	IV	23CMCCAU44	Auditing	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
19	IV	23CMP5CA41	Corporate Accounting - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
20	IV	23CMP6CM41	Cost & Management Accounting - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
21	IV	23CMCCIP44	Income Tax Practice & Procedures II	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
22	V G	23CMEC11AM54	Advertising & Media Planning	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
23	V G	23CMEC12SM54	Stock Markets	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO3, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO2, PO4, PO5, PO6, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO3, PO4, PO5, PO8
24	V G	23CMEC21CR54	Customer Relationship Management	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
25	V G	23CMEC22SA54	Stock Markets Analysis	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO3, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO2, PO4, PO5, PO6, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO3, PO4, PO5, PO8

26	V G	23CMEC31DM54	Digital Marketing	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
27	V G	23CMEC32AC54	Advanced Corporate Accounting	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
28	V G	23CMEC41SM54	Service Marketing	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
29	V G	23CMEC42SS54	Software Solutions to Accounting	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO3, PO4, PO5,
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO3, PO4, PO5,
30	V C	23CMEC11AC53	Advanced Corporate Accounting	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

31	V C	23CMEC12AM53	Advertisement & Media Planning	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
32	V C	23CMP711AC512	Advanced Corporate Accounting - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
33	V C	23CMP812AM51	Advertisement & Media Planning - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
35	V C	23CMEC21SM53	Stock Markets	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO3, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO2, PO4, PO5, PO6, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO3, PO4, PO5, PO8
36	V C	23CMEC22GS53	GST Procedures & Practices	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
37	V C	23CMP921SM51	Stock Markets - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO3, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO2, PO4, PO5, PO6, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO3, PO4, PO5, PO8
38	V C	23CMP1022GS51	GST Procedures & Practices - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
39	V T	GST Procedures & Practice	GST Procedures & Practice	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
40	V T	Advertising & Media Planning	Advertising & Media Planning	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
41	V T	Tax Planning	Tax Planning	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
42	V T	Software Solutions to Accounting	Software Solutions to Accounting	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO3, PO4, PO5,
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO3, PO4, PO5,
43	V T	E-Commerce	E-Commerce	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
44	V T	Stock Markets	Stock Markets	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO3, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO2, PO4, PO5, PO6, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO3, PO4, PO5, PO8
45	V T	E- Filing	E- Filing	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
46	V T	Stock Market Analysis	Stock Market Analysis	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO3, PO4, PO5, PO8

				CO4	PSO1, PSO2, PSO3, PSO4	PO2, PO4, PO5, PO6, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO3, PO4, PO5, PO8

Mapping of COs with PSOs & POs
MINORS

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	II	23CMCCHR24	Principles of HRM (Human Resource Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
2	II	23CMCCMK24	Fundamentals of Marketing (Marketing)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
3	II	23CMCCRM24	Foundations of Retail Management (Retail Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
4	III	23CMCCCM34	Change Management (Human Resource Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
5	III	23CMCCCB34	Consumer Behaviour (Marketing)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
6	III	23CMCCRS34	Retail Store Operations (Retail Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
7	IV	23CMCCTM44	Talent Management (Human Resource Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
8	IV	23CMCCTD44	Training & Development (Human Resource Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
9	IV	23CMCCAD44	Advertising (Marketing)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
10	IV	23CMCCBD44	Brand Management (Marketing)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8

				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
11	IV	23CMCCCR44	Communications in Retail Business (Retail Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
12	IV	23CMCCMM44	Merchandise Management (Retail Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
13	V	23CMCCLL54	Labour Legislation & Compensation Management (Human Resource Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
14	V	23CMCCOB54	Organisation Behaviour (Human Resource Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
15	V	23CMCCSM54	Service Marketing (Marketing)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8

16	V	23CMCCDM54	Digital Marketing (Marketing)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
17	V	23CMCCET54	E-Tailing (Retail Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
18	V	23CMCCRL54	Retail Logistics (Retail Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6

Mapping of COs with PSOs & POs
MDCs & SECs

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	III	23MDCPM32	Principles of Management	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
2	III	23MDCPA32	Principles of Accounting	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
3	II	23SECED12	Entrepreneurship Development	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
4	II	23SECMS22	Marketing Skills	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
5	II	23SECIP22	Investment Planning	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
6	II	23SECSM22	Stock Market Operations	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
7	III	23SECPM32	Project Management	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

Mapping of Courses with PSOs
B.Com.

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
Fundamentals of Commerce	23CMCCFC14	✔	✔	✔	✔
Business Organisation	23CMCCBO14	✔	✔	✔	✔
Financial Accounting	23CMCCFA24/23	✔	✔	✔	✔
Business Management	23CMCCBM24	✔	✔	✔	✔
Financial Accounting - Practical	23CMP1FA21	✔	✔	✔	✔
Income Tax Law & Practice I	23CMCCIT24	✔	✔	✔	✔
Advanced Accounting	23CMCCAA33/34	✔	✔	✔	✔
Income Tax	23CMCCIT33/34	✔	✔	✔	✔
Business Laws	23CMCCBT34	✔	✔	✔	✔
Advanced Accounting - Practical	23CMP2AA31	✔	✔	✔	✔
Income Tax - Practical	23CMP3IT31	✔	✔	✔	✔
Digital Marketing	23CMCCDM33	✔	✔	✔	✔
Digital Marketing - Practical	23CMP4DM31	✔	✔	✔	✔
Income Tax Law & Practice II	23CMCCIT34	✔	✔	✔	✔
Income Tax Practice & Procedures I	23CMCCIP34		✔	✔	✔
Corporate Accounting	23CMCCCA43/44	✔	✔	✔	✔
Cost & Management Accounting	23CMCCCM43/44	✔	✔	✔	✔
Auditing	23CMCCAU44	✔	✔	✔	✔
Corporate Accounting - Practical	23CMP5CA41	✔	✔	✔	✔
Cost & Management Accounting - Practical	23CMP6CM41	✔	✔	✔	✔
Income Tax Practice & Procedures II	23CMCCIP44	✔	✔	✔	✔
Advertising & Media Planning	23CMEC11AM54	✔	✔	✔	✔
Stock Markets	23CMEC12SM54	✔	✔	✔	✔
Customer Relationship Management	23CMEC21CR54	✔	✔	✔	✔
Stock Markets Analysis	23CMEC22SA54	✔	✔	✔	✔
Digital Marketing	23CMEC31DM54	✔	✔	✔	✔
Advanced Corporate Accounting	23CMEC32AC54	✔	✔	✔	✔
Service Marketing	23CMEC41SM54	✔	✔	✔	✔

Software Solutions to Accounting	23CMEC42SS54	✔	✔	✔	✔
Advanced Corporate Accounting	23CMEC11AC53	✔	✔	✔	✔
Advertisement & Media Planning	23CMEC12AM53	✔	✔	✔	✔
Advanced Corporate Accounting - Practical	23CMP711AC512	✔	✔	✔	✔
Advertisement & Media Planning - Practical	23CMP812AM51	✔	✔	✔	✔
Stock Markets	23CMEC21SM53	✔	✔	✔	✔
GST Procedures & Practices	23CMEC22GS53	✔	✔	✔	✔
Stock Markets - Practical	23CMP921SM51	✔	✔	✔	✔
GST Procedures & Practices - Practical	23CMP1022GS51	✔	✔	✔	✔
GST Procedures & Practice	GST Procedures & Practice	✔	✔	✔	✔
Advertising & Media Planning	Advertising & Media Planning	✔	✔	✔	✔
Tax Planning	Tax Planning	✔	✔	✔	✔
Software Solutions to Accounting	Software Solutions to Accounting	✔	✔	✔	✔
E-Commerce	E-Commerce	✔	✔	✔	✔
Stock Markets	Stock Markets	✔	✔	✔	✔
E- Filing	E- Filing	✔	✔	✔	✔
Stock Market Analysis	Stock Market Analysis	✔	✔	✔	✔

Mapping of Courses with PSOs
B.Com

MINORS

Course Title	**Course Code**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
Principles of HRM (Human Resource Management)	23CMCCHR24	✔	✔	✔	✔
Fundamentals of Marketing (Marketing)	23CMCCMK24	✔	✔	✔	✔
Foundations of Retail Management (Retail Management)	23CMCCRM24	✔	✔	✔	✔
Change Management (Human Resource Management)	23CMCCCM34	✔	✔	✔	✔
Consumer Behaviour (Marketing)	23CMCCCB34	✔	✔	✔	✔

Retail Store Operations (Retail Management)	23CMCCRS34	✔	✔	✔	✔
Talent Management (Human Resource Management)	23CMCCTM44	✔	✔	✔	✔
Training & Development (Human Resource Management)	23CMCCTD44	✔	✔	✔	✔
Advertising (Marketing)	23CMCCAD44	✔	✔	✔	✔
Brand Management (Marketing)	23CMCCBD44	✔	✔	✔	✔
Communications in Retail Business (Retail Management)	23CMCCCR44	✔	✔	✔	✔
Merchandise Management (Retail Management)	23CMCCMM44	✔	✔	✔	✔
Labour Legislation & Compensation Management (Human Resource Management)	23CMCCLL54	✔	✔	✔	✔
Organisation Behaviour (Human Resource Management)	23CMCCOB54	✔	✔	✔	✔
Service Marketing (Marketing)	23CMCCSM54		✔	✔	✔
Digital Marketing (Marketing)	23CMCCDM54	✔	✔	✔	✔
E-Tailing (Retail Management)	23CMCCET54	✔	✔	✔	✔
Retail Logistics (Retail Management)	23CMCCRL54	✔	✔	✔	✔

Mapping of Courses with PSOs
MDCs and SECs

Course Title	**Course Code**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
Principles of Management	23MDCPM32	✔	✔	✔	✔
Principles of Accounting	23MDCPA32	✔	✔	✔	✔
Entrepreneurship Development	23SECED12	✔	✔	✔	✔
Marketing Skills	23SECMS22	✔	✔	✔	✔
Investment Planning	23SECIP22	✔	✔	✔	✔
Stock Market Operations	23SECSM22	✔	✔	✔	✔
Project Management	23SECPM32	✔	✔	✔	✔

Mapping of Courses with POs
B.Com.

Course	PO1 Essential Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO3 Teamwork and communication skills	PO4 Motivation and preparation in life-long learning	PO5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO7 Self-awareness and emotional intelligence	PO8 Social Responsibility
FOC	✔	✔	✔	✔	✔			✔
BO	✔	✔	✔	✔	✔			✔
FA	✔	✔	✔	✔	✔			
BM	✔	✔	✔	✔	✔			✔
FA(P)	✔	✔	✔	✔	✔			
IT	✔	✔	✔	✔	✔			
AA	✔	✔	✔	✔	✔			✔
IT	✔	✔	✔	✔	✔			
BL	✔	✔	✔	✔	✔			✔
AA(P)	✔	✔	✔	✔	✔			✔
IT(P)	✔	✔	✔	✔	✔			✔
DM	✔	✔	✔	✔	✔			
DM(P)	✔	✔	✔	✔	✔			
IT	✔	✔	✔	✔	✔			✔
IP	✔	✔	✔	✔	✔			✔
CA	✔	✔	✔	✔	✔			✔
CM	✔	✔	✔	✔	✔			✔
AU	✔	✔	✔	✔	✔			✔
CA(P)	✔	✔	✔	✔	✔			
CMA	✔	✔	✔	✔	✔			✔
IP -II	✔	✔	✔	✔	✔			✔
AMP	✔	✔	✔	✔	✔			✔
SM	✔	✔	✔	✔	✔			✔
CRM	✔	✔	✔	✔	✔			✔
SMA	✔	✔	✔	✔	✔			✔
DM	✔	✔	✔	✔	✔			✔
ACA	✔	✔	✔	✔	✔			✔

SM	✔	✔	✔	✔	✔			✔
SSA	✔	✔	✔	✔	✔			✔
ACA	✔	✔	✔	✔	✔			✔
AMP	✔	✔	✔	✔	✔			
ACA (P)	✔	✔	✔	✔	✔			✔
SM	✔	✔	✔	✔	✔			✔
GST	✔	✔	✔	✔	✔			
SM(P)	✔	✔	✔	✔	✔			✔
GST (P)	✔	✔	✔	✔	✔			✔
GST	✔	✔	✔	✔	✔			✔
AMP	✔	✔	✔	✔	✔			✔
TP	✔	✔	✔	✔	✔			✔
SSA	✔	✔	✔	✔	✔			✔
EC	✔	✔	✔	✔	✔			✔
SM	✔	✔	✔	✔	✔			✔
EF	✔	✔	✔	✔	✔			✔
SMA	✔	✔	✔	✔	✔			✔

Mapping of Courses with POs

B.Com.

MINORS

Course	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7 Self-**	**PO8 Social**
PHRM	✔	✔	✔	✔	✔			
FM	✔	✔	✔	✔	✔			✔
FRM	✔	✔		✔	✔	✔		
CM	✔	✔		✔	✔			
CB	✔	✔		✔	✔			✔
RSO	✔	✔		✔	✔	✔		
TM	✔	✔		✔	✔			
TD	✔	✔		✔	✔			
AD	✔	✔		✔	✔			✔
BD	✔	✔		✔	✔			✔
CRB	✔	✔		✔	✔	✔		
MM	✔	✔		✔	✔	✔		
LL	✔	✔		✔	✔			
OB	✔	✔		✔	✔			
SM	✔	✔		✔	✔			✔
DM	✔	✔		✔	✔			✔
ET	✔	✔		✔	✔	✔		
RL	✔	✔		✔	✔	✔		

Mapping of Courses with POs
MDCs & SECs

Course	PO1 Essential Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO3 Teamwork and communication skills	PO4 Motivation and preparation in life-long learning	PO5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO7 Self-awareness and emotional intelligence	PO8 Social Responsibility
POM	✔	✔	✔	✔	✔			
POA	✔	✔	✔	✔	✔			
ED	✔	✔	✔	✔	✔			
MS	✔	✔	✔	✔	✔			
IP	✔	✔	✔	✔	✔			
SMO	✔	✔	✔	✔	✔			
PM	✔	✔	✔	✔	✔			

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

NAAC Accredited & ISO 9001: 2015 Certified

PROGRAMME REGISTER

2023-2026

UG DEPARTMENT OF BUSINESS ADMINISTRATION

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UG PROGRAMMES OFFERED

S.No.	Programme	Combination offered	Programme Code
1	**BBA**	General (G)	506
2		Business Analytics (BA)	507

PROGRAMME OUTCOMES (POs) 2023-2026

At the end of the programme students will have:

PO1: Essential Knowledge:

Comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi- professional contexts.

PO2: Creative and critical thinking and problem-solving abilities:

Be effective problem solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and communication skills:

Be able to convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivation and preparation in life-long learning:

Exhibit life-long skills; broad based multiple career oriented general skills; self and field based learning skills; digital skills; social responsibility and compassionate commitment; preparedness for living, learning and working in any environment

PO5: Professionalism and leadership readiness:

Be able to engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and ethical competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and emotional intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social responsibility:

Be sensitive to and demonstrate agency in matters of environment, gender and other social issues to promote an equitable society.

PROGRAMME SPECIFIC OUTCOMES

(PSOs)

2023-2026

At the end of the Programme the student will be able to

PSO1: Fundamental Knowledge

Demonstrate a strong understanding of the domain areas.

PSO2: Analytical Skills

Apply techniques to analyze data, interpret the results, and make informed decisions.

PSO3: Problem-Solving

Use theories and principles to address real-world business challenges with logical and innovative thinking.

PSO4: Communication and Responsibility

Develop teamwork, communication, technical skills, and ethical awareness to contribute effectively in professional and social settings.

Course Outcomes (COs)

Bachelor of Business Administration

2023-2026

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	I	23CMCCFC14	Fundamental of Commerce	CO1: Demonstrate an understanding of role of commerce and accounting concepts
				CO2: Acquire knowledge about demand, supply and elasticity
				CO3: Understand the branches of Accounting
				CO4: Familiarize with the taxation system and its practices
				CO5: Developing simple website in wordpress
2	I	23CMCCBO14	Business Organization	CO1: Understand the concept of Business Organization along with the basic laws and norms of Business Organization
				CO2: Classify different forms of Business Organization
				CO3: Identify the importance of plant location and layout
				CO4: Explore the need for Forms and Kinds of Business Combination
				CO5: Explain the evolution of Computer Evolution in relation to Business Organization
3	II	23BACCOB24	Organizational Behaviour	CO1: Understand the dynamics of individual, organizational behaviour and relationships
				CO2: Illustrate the values and attitudes of individuals in the organisation
				CO3: Demonstrate different leadership styles and motivational tools to the individuals
				CO4: Assess the group dynamics and organisational culture
				CO5: Analyse the organisational change post COVID in any given organisation
4	II	23BACCPM24		CO1: Examine the broad functions of management

			Principles of Management	CO2: Comprehend the contemporary issues and challenges in the field of management
				CO3: Understand various control techniques practised at organisations
				CO4: Analyse the various issues in the management
				CO5: Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to management
5	II	23BACCBE24	Business Economics	CO1: Learn to apply the concepts of cost and Break-even analysis and learn various theories on production
				CO2: Understand concepts of perfect competition and monopoly for fixation of prices
				CO3: Understand the international business scenario and concepts of BOP
				CO4: Analyse various issues in the balanced trade
				CO5: Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to economy
6	III	23BACCME34	Managerial Economics	CO1: Apply the knowledge of the mechanics of supply and demand to explain working of markets
				CO2: Describe how changes in demand and supply affect markets
				CO3: Understand the choices made by a rational consumer
				CO4: Explain relationships between production and costs
				CO5: Define key consequences of different forms of markets
7	III	23BACCBA34	Fundamentals of Business Analytics	CO1: Analyse and apply different types of business analytics
				CO2: Design effective data visualizations and dashboards using popular business intelligence tools
				CO3: Implement data mining techniques for data preparation, outlier detection, and summary
				CO4: Utilize machine learning models and big data concepts to optimize business operations and strategies
				CO5: Evaluate and apply financial, HR, marketing, and supply chain analytics

8	III	23BACCBL34	Business Law	CO1: Understand the fundamental concepts, principles relating t o Contract Act that applies to business situations
				CO2: Acquire knowledge on Negotiable Instruments Act and Partnership Act in India
				CO3: Recognize the regulatory framework of companies with reference to various provisions of Companies Act
				CO4: Understand the essentials and execution of Sale contracts
				CO5: Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to execution of Sale contracts
9	III	23BACCOB34	Organizational Behaviour I	CO1: Understand the dynamics of individual, organizational behaviour and relationships
				CO2: Illustrate the values and attitudes of individuals in the organisation
				CO3: Demonstrate different leadership styles and motivational tools to the individuals
				CO4: Assess the group dynamics and organisational culture
				CO5: Comprehend the process of Change management and issues involved in it
10	III	23BACCBE34	Business Environment	CO1: Demonstrate an understanding of the concepts of the Business Environment
				CO2: Identify the factors contributing to the Economic Development
				CO3: Narrate different Economic Policies contributing to the development of the Indian economy
				CO4: Explain the social, political and legal factors influencing the Indian Economy
				CO5: Comprehend the role of international institutions in the growth of international business
11	III	23BACCBS34	Business Statistics and Mathematics	CO1: Understand the importance of Statistics in real world business applications
				CO2: Formulate complete, concise and correct mathematical proofs

				CO3: Frame problems using multiple mathematical and statistical tools, measuring relationships by using standard techniques
				CO4: Build and assess data-based models, learn and apply the statistical tools to business
				CO5: Create quantitative models to solve real world problems in appropriate contexts
12	IV	23BACCFM44	Financial Management	CO1: Demonstrate comprehension of financial management principles
				CO2: Apply the capital budgeting process to evaluate investment opportunities
				CO3: Examine the theories and determinants of capital structure
				CO4: Identify the various kinds and types of dividends, and analyze the factors influencing dividend policy decisions within a firm
				CO5: Understand the concept of working capital and its determinants
13	IV	23BACCMM44	Marketing Management	CO1: Define marketing and elucidate its importance and scope within modern business contexts
				CO2: Analyze how segmentation, targeting, and positioning can be strategically utilized to achieve competitive advantage in the marketplace
				CO3: Analyze the stages of the product life cycle (PLC) and their application to marketing strategies
				CO4: Understand the factors influencing pricing decisions, and evaluate different pricing policies, procedures, and strategies
				CO5: Examine the concept and process of integrated marketing communication (IMC)
14	IV	23BACCHR44	Human Resource Management	CO1: Understand the nature, significance, and scope of Human Resource Management (HRM)
				CO2: Identify the stages involved in the selection process
				CO3: Differentiate between training and development, highlighting their respective roles in employee growth and organizational success

				CO4: Analyze the role of job evaluation in wage fixation and establishing equitable compensation structures within organizations
				CO5: Outline the process of collective bargaining
15	IV	23BACCFM44	Financial Management	CO1: Demonstrate comprehension of financial management principles
				CO2: Apply the capital budgeting process to evaluate investment opportunities
				CO3: Examine the theories and determinants of capital structure
				CO4: Identify the various kinds and types of dividends, and analyze the factors influencing dividend policy decisions within a firm
				CO5: Understand the concept of working capital and its determinants
16	V		Sales and Distribution Management	CO1: Provide conceptual knowledge about different types of sales plans and sales organisations for different firms
				CO2: Understand sales forecasting, budgeting and different methods of analysing market potential
				CO3: Understand the recruitment, selection, training, compensation and controlling approaches relating to the sales personnel of a firm
				CO4: Design suitable channel structures to manage different channel members of a firm
				CO5: Map different channel members of a firm.
17	V		Advertising Management	CO1: Develop an awareness of the major types of advertising and role of Ad agencies
				CO2: Understand the basics of Advertising and media planning
				CO3: Know the importance of advertising budgeting, advertising agencies and evaluating advertising campaigns
				CO4: Equip the concepts of Branding its types and importance
				CO5: Understand about brand equity, brand evaluation and brand management

18	V		Training and Development	CO1: Understand the need for training and development in an organisation
				CO2: Familiarize the changing trends on training and development
				CO3: Ascertain training needs, identification of training needs, training processes, training methods
				CO4: Evaluate the design to asses training program effectiveness
				CO5: Frame a training and development program
19	V		Labour Legislation	CO1: Elaborate the concept of Industrial Relations
				CO2: Understanding of Labour legislations to address problems in labour-employer relationships
				CO3: Illustrate the role of trade union in the industrial setup
				CO4: Outline the important causes & impact of industrial disputes
				CO5: Demonstrate skills in analyzing labour issues
20	V		Security Analysis and Portfolio	CO1: Understand the various forms of investment, security Markets and other concepts
				CO2: Understand risks associated with investment and to measure different forms of risks
				CO3: Analyse the fundamental strength of stocks and predict the price trends of securities using technical analysis and valuation of stocks and fixed income securities
				CO4:To analyses the stocks using various tools of technical analysis
				CO5: To understand various models of portfolio Management and evaluate the performance of portfolio
21	V		Financial Markets	CO1: gain conceptual knowledge on financial system and markets
				CO2: comprehend the various money market instruments
				CO3: understand Capital Markets and their Operations
				CO4: understand concepts related to the foreign exchange market
				CO5: develop an understanding on derivatives market

22	V		Production and Operations Management	CO1: Equips with conceptual knowledge on Production and Operations Management
				CO2: Appreciates the need for selecting appropriate Plant location and layout
				CO3: Understands the need for Capacity planning and controlling
				CO4: Understands the importance of Productivity and Maintenance management
				CO5: Comprehends the need for Inventory management and Quality management
23	V		Project Management	CO1: Exposes the Students to the concepts of project management and planning
				CO2: Enables students identify and select of project and its feasibility
				CO3: Equips the students with network analysis tools and project evaluation techniques
				CO4:Makes them understand about the human aspects in managing the projects in an organisation
				CO5: Demonstrates effective project execution and control techniques that result in successful projects

Course Outcomes (COs)

Bachelor of Business Administration

MINORS

2023-2026

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	II	23CMCCHR24	Principles of HRM (Human Resource Management)	CO1: Understand the basic concepts, functions and processes of human resource Management
				CO2: Recognize the role, functions and functioning of human resource department of the organizations
				CO3: Design and formulate various HRM processes such as Recruitment, Selection, Training & development
				CO4: Evaluate the developing role of human resources in the global arena
				CO5: Ascertain the HR activities in any organization

2	II	23CMCCMK24	Fundamentals of Marketing (Marketing)	CO1: Appreciate the importance of marketing in businesses
				CO2: Understand the need for market segmentation, targeting and positioning
				CO3: Analyze the recent trends in marketing
				CO4: Ascertain the marketing plans of leading brands
				CO5: Develop the steps involved in developing a marketing plan
3	II	23CMCCRM24	Foundations of Retail Management (Retail Management)	CO1: Understand the impact of retailing on the economy and its role in society
				CO2: Study the policies, methods, and procedures used by successful retailers in today's global economy
				CO3: Appreciate the importance of retail site location
				CO4: Analyse the retail shoppers' behaviour
				CO5: Appraise the changing trends in retailing
4	III	23CMCCCM34	Change Management (Human Resource Management)	CO1: Understand the types of changes
				CO2: Analyse knowledge on implementing change
				CO3: Evaluate how people feel about the changes
				CO4: Offer techniques to overcome change
				CO5: Appraise resistance to change
5	III	23CMCCCB34	Consumer Behaviour (Marketing)	CO1: Understand the factors affecting the consumer behaviour
				CO2: Acquire basic knowledge on consumer protection rights
				CO3: Ascertain buying patterns in digital era
				CO4: Analyse the consumer decision making process
				CO5: Appraise decision making process
6	III	23CMCCRS34	Retail Store Operations (Retail Management)	CO1: Manage inventory through understanding ABC analysis, EOQ, GAP
				CO2: Understand the procedure for preparing and managing receipts

				CO3: Emphasise how to handle customer complaints
				CO4: Analyse credit management
				CO5: Appraise the financial trends
7	IV	23CMCCTM44	Talent Management (Human Resource Management)	CO1: Understand and explain talent Management practices in India and Global level
				CO2: Understand and explain How to Acquire and retain talent
				CO3: Analyse and appreciate the role of HR in talent management
				CO4: Appreciate the organizational context and apply relevant contemporary organizational practices to connect the talent
				CO5: Appraise talent management strategy
8	IV	23CMCCTD44	Training & Development (Human Resource Management)	CO1: Identify the training needs, training processes, training methods
				CO2: Ascertain the usefulness of training expertise in the organizational work environment
				CO3: Asses the training program effectiveness in the companies
				CO4: Evaluate the emerging trends in training and development
				CO5: Appraise feedback mechanism
9	IV	23CMCCAD44	Advertising (Marketing)	CO1: To understand task of advertising under contemporary conditions.
				CO2: To develop an awareness of the major types of advertising and role of ad agencies
				CO3: Use analytical skills in planning and evaluating advertising campaigns
				CO4: Frame Advertising Campaign Strategy
				CO5: Appraise Media Mix effectiveness
10	IV	23CMCCBD44	Brand Management (Marketing)	CO1: Study how brand communication is done by organisations
				CO2: Understand strategies for brand management
				CO3: Analyse the brand performance in modern digital world

				CO4: Explore the opportunities in Brand Management
				CO5: Appraise brand strategies
11	IV	23CMCCCR44	Communications in Retail Business (Retail Management)	CO1: Understand the role of advertising in retail communication
				CO2: Emphasize on the importance of different forms of direct marketing
				CO3: Comprehend the consumer-oriented sales promotion techniques
				CO4: Analyse Retail Sales Promotion Programs
				CO5: Appraise Sales Presentation Techniques
12	IV	23CMCCMM44	Merchandise Management (Retail Management)	CO1: Learn the roles and responsibilities of merchandiser and buyer
				CO2: Enable to procure right merchandise
				CO3: Get aware of basics of visual merchandising
				CO4: Appreciate the tools used for merchandise planning
				CO5: Appraise the merchandise core designing strategies
13	V	23CMCCLL54	Labour Legislation & Compensation Management (Human Resource Management)	CO1: Elaborate the concept of Industrial Relations
				CO2: Understanding of Labour legislations to address problems in labour-employer relationships
				CO3: Illustrate the role of trade union in the industrial setup
				CO4: Outline the important causes & impact of industrial disputes
				CO5: Demonstrate skills in analyzing labour issues
14	V	23CMCCOB54	Organisation Behaviour (Human Resource Management)	CO1: understand individual and group behaviour at work place to improve the effectiveness of an organization
				CO2: understand different types of personality and learning styles
				CO3: Comprehend concepts relating to group dynamics and conflict management
				CO4: understand leadership and its impact on group dynamics

				CO5: Construct a process of Change management and issues involved in it
15	V	23CMCCSM54	Service Marketing (Marketing)	CO1: Understand the Concept of Services and intangible products
				CO2: Discuss the relevance of consumer behaviour in services Industry
				CO3: Examine the segmentation strategies in service marketing
				CO4: Suggest measures to improve services quality and their service delivery
				CO5: Handle conflict and customer Responses
16	V	23CMCCDM54	Digital Marketing (Marketing)	CO1: Understand the concept of digital marketing and real-life applications
				CO2: Identify and utilise various tools such as social media
				CO3: Explain emerging trends in digital marketing
				CO4: Critically assess the use of digital marketing tools by applying relevant marketing theories and frameworks.
				CO5: Create and run digital media-based campaigns
17	V	23CMCCET54	E-Tailing (Retail Management)	CO1: Provide overview of e-tailing from both technological and managerial perspectives
				CO2: Understand e-tailing frameworks, and technological foundations
				CO3: Study how enterprises formulate strategies for e-tailing
				CO4: Familiarize students with current and emerging electronic r-tailing changes
				CO5: Analyse the global trends in e-tailing
18	V	23CMCCRL54	Retail Logistics (Retail Management)	CO1: Understand the basics of logistics in retail logistics
				CO2: Comprehend the importance of logistics
				CO3: Develop competencies necessary for a retain logistics professionals
				CO4: Analyse recent trends in network designs for global operations

				CO5: Develop strategic role of a retail logistics management

Course Outcomes (COs)

MULTIDISCIPLINARY COURSES & SKILL ENHANCEMENT COURSES

2023-2026

S.No.	Sem	Course Code	Course Title	Course Outcomes (COs)
1	III	23SECBF32	Business Forecasting	CO1: Understand need and importance of Business forecasting
				CO2: Know various types of Business forecasting Techniques
				CO3: Apply forecasting tools in Business through usage of technology
2	IV	23SECDM42	Digital Marketing	CO1:Know the emerging trends in digital marketing and applicable knowledge of various digital marketing tools
				CO2: Build a functional website with the help of WordPress and exposure to Search Engine Optimization tools
				CO3: Understand the different types of Social Media Marketing Techniques
3	IV	23SECDT42	Design Thinking	CO1: Understand the principles and fundamentals of Design Thinking as a problem-solving methodology
				CO2: Learn rapid prototyping methods for iterative testing and refinement of design concepts
				CO3: Foster creative thinking and ideation techniques to generate innovative solutions

Mapping of COs with PSOs & PO

B.Com

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	20CMCCFA14	Financial Accounting I	CO1	PSO1,PSO2	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO3	PO1, PO3, PO4, PO5, PO6
				CO4	PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO2,PO3, PO5
2	I	20CMCCBM14	Business Organisation	CO1	PSO1,PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
3	II	23BACCOB24	Organizational Behaviour	CO1	PSO1	PO1, PO2, PO3, PO4, PO5
				CO2	PSO3, PSO4	PO1, PO3, PO4, PO5
				CO3	PSO1	PO1, PO2, PO3, PO4, PO5
				CO4	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO3, PSO4	PO1, PO3, PO4, PO5,
4	II	23BACCPM24	Principles of Management	CO1	PSO1	PO1, PO2, PO3, PO4, PO5
				CO2	PSO2,PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO3,PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO2,PSO3,PSO4	PO1, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO3, PSO4	PO1, PO3, PO4, PO5, PO8
5	II	23BACCBE24	Business Economics	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1,PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1,PSO3	PO1, PO2, PO3, PO4, PO5

				CO4	PSO1,PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
6	III	23BACCME34	Managerial Economics	CO1	PSO1,PSO2	PO1, PO2, PO3, PO4, PO5
				CO2	PSO2, PSO3	PO1,PO3, PO4, PO5
				CO3	PSO1, PSO3	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
7	III	23BACCBA34	Fundamentals of Business Analytics	CO1	PSO1,PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO4	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
				CO5	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
8	III	23BACCBL34	Business Law	CO1	PSO2,PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO2,PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
9	III	23BACCOB34	Organizational Behaviour I	CO1	PSO1,PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO2,PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO4	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO2,PSO3	PO1, PO2, PO3, PO4, PO5
10	III	23BACCBE34	Business Environment	CO1	PSO1,PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1,PSO2	PO1, PO2, PO3, PO4, PO5
				CO3	PSO3	PO1, PO3, PO4, PO5
				CO4	PSO4	PO1, PO3, PO4, PO5, PO8

				CO5	PSO2,PSO3	PO1, PO2, PO3, PO4, PO5
11	III	23BACCBS34	Business Statistics and Mathematics	CO1	PSO1, PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1,	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3	PO1, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO2,PSO3	PO1, PO2, PO3, PO4, PO5
12	IV	23BACCFM44	Financial Management	CO1	PSO1,PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2	PO1, PO2, PO3, PO4, PO5
				CO3	PSO3, PSO4	PO1, PO3, PO4, PO5
				CO4	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
13	IV	23BACCMM44	Marketing Management	CO1	PSO1, PSO2,PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO3	PO1, PO3, PO4, PO5
				CO3	PSO3	PO1, PO3, PO4, PO5
				CO4	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
14	IV	23BACCHR44	Human Resource Management	CO1	PSO1,PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1	PO1, PO2, PO3, PO4, PO5
				CO3	PSO2,PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
15	IV	23BACCFM44	Financial Markets	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO3	PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO4	PSO2,PSO3,PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO7

16	V		Sales and Distribution Management	CO1	PSO1, PSO2, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO3	PO1, PO2, PO3, PO4, PO5
				CO4	PSO2, PSO3	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
17	V		Advertising Management	CO1	PSO1,PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO2	PO1, PO2, PO3, PO4, PO5
				CO3	PSO2,PSO3	PO1, PO2, PO3, PO4, PO5
				CO4	PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
18			Training and Development	CO1	PSO1,PSO2	PO1, PO2, PO3, PO4, PO5
				CO2	PSO3	PO1, PO3, PO4, PO5
				CO3	PSO2,PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO4	PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO7
19			Labour Legislation	CO1	PSO1, PSO2	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2	PO1, PO2, PO3, PO4, PO5
				CO3	PSO3, PSO4	PO1, PO3, PO4, PO5
				CO4	PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO3, PSO4	PO1, PO3, PO4, PO5
20			Security Analysis and Portfolio	CO1	PSO1,PSO2	PO1, PO2, PO3, PO4, PO5
				CO2	PSO3, PSO4	PO1, PO3, PO4, PO5
				CO3	PSO1, PSO2	PO1, PO2, PO3, PO4, PO5
				CO4	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO3, PSO4	PO1, PO3, PO4, PO5
21			Financial Markets	CO1	PSO1	PO1, PO2, PO3, PO4, PO5

				CO2	PSO1, PSO2	PO1, PO2, PO3, PO4, PO5
				CO3	PSO3	PO1, PO3, PO4, PO5
				CO4	PSO2, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO5	PSO3, PSO4	PO1, PO3, PO4, PO5
22			Production and Operations Management	CO1	PSO1	PO1, PO2, PO3, PO4, PO5
				CO2:	PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO3, PSO4	PO1, PO3, PO4, PO5
23			Project Management	CO1	PSO1	PO1, PO2, PO3, PO4, PO5
				CO2	PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO4	PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO5	PSO3, PSO4	PO1, PO3, PO4, PO5

Mapping of COs with PSOs & POs
MINORS
BBA

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	II	23CMCCHR24	Principles of HRM (Human Resource Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
2	II	23CMCCMK24	Fundamentals of Marketing (Marketing)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
3	II	23CMCCRM24	Foundations of Retail Management (Retail Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
4	III	23CMCCCM34	Change Management (Human Resource Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
5	III	23CMCCCB34	Consumer Behaviour (Marketing)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
6	III	23CMCCRS34	Retail Store Operations (Retail Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
7	IV	23CMCCTM44	Talent Management (Human Resource Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
8	IV	23CMCCTD44	Training & Development (Human Resource Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
9	IV	23CMCCAD44	Advertising (Marketing)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
10	IV	23CMCCBD44	Brand Management (Marketing)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
11	IV	23CMCCCR44	Communications in Retail Business (Retail Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
12	IV	23CMCCMM44	Merchandise Management (Retail Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6

				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
13	V	23CMCCLL54	Labour Legislation & Compensation Management (Human Resource Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
14	V	23CMCCOB54	Organisation Behaviour (Human Resource Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5
15	V	23CMCCSM54	Service Marketing (Marketing)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
16	V	23CMCCDM54	Digital Marketing (Marketing)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO8
17	V	23CMCCET54	E-Tailing (Retail Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6

18	V	23CMCCRL54	Retail Logistics (Retail Management)	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO4, PO5, PO6

Mapping of COs with PSOs & POs
MDCs & SECs
BBA

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	III	23SECBF32	Business Forecasting	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO8
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
2	IV	23SECDM42	Digital Marketing	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
3	IV	23SECDT42	Design Thinking	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

Mapping of Courses with PSOs

B. B. A

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
Financial Accounting I	20CMCCFA14	✓	✓	✓	✓
Business Organisation & Management	20CMCCBM14	✓	✓	✓	✓
Organizational Behaviour	23BACCOB24	✓	✓	✓	✓
Principles of Management	23BACCPM24	✓	✓	✓	✓
Business Economics	23BACCBE24	✓	✓	✓	✓
Managerial Economics	23BACCME34	✓	✓	✓	✓
Fundamentals of Business Analytics	23BACCBA34	✓	✓	✓	✓
Business Law	23BACCBL34	✓	✓	✓	✓
Organizational Behaviour I	23BACCOB34	✓	✓	✓	✓
Business Environment	23BACCBE34	✓	✓	✓	✓
Business Statistics and Mathematics	23BACCBS34	✓	✓	✓	✓
Financial Management	23BACCFM44	✓	✓	✓	✓
Marketing Management	23BACCMM44	✓	✓	✓	✓
Human Resource Management	23BACCHR44	✓	✓	✓	✓
Financial Markets	23BACCFM44	✓	✓	✓	✓
Sales and Distribution Management		✓	✓	✓	✓
Advertising Management		✓	✓	✓	✓
Training and Development		✓	✓	✓	✓
Labour Legislation		✓	✓	✓	✓
Security Analysis and Portfolio		✓	✓	✓	✓
Financial Markets		✓	✓	✓	✓
Production and Operations Management		✓	✓	✓	✓
Project Management		✓	✓	✓	✓

Mapping of Courses with PSOs

B. B. A

MINORS

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
Principles of HRM (Human Resource Management)	23CMCCHR24	✓	✓	✓	✓
Fundamentals of Marketing (Marketing)	23CMCCMK24	✓	✓	✓	✓
Foundations of Retail Management (Retail Management)	23CMCCRM24	✓	✓	✓	✓
Change Management (Human Resource Management)	23CMCCCM34	✓	✓	✓	✓
Consumer Behaviour (Marketing)	23CMCCCB34	✓	✓	✓	✓
Retail Store Operations (Retail Management)	23CMCCRS34	✓	✓	✓	✓
Talent Management (Human Resource Management)	23CMCCTM44	✓	✓	✓	✓
Training & Development (Human Resource Management)	23CMCCTD44	✓	✓	✓	✓
Advertising (Marketing)	23CMCCAD44	✓	✓	✓	✓
Brand Management (Marketing)	23CMCCBD44	✓	✓	✓	✓
Communications in Retail Business (Retail Management)	23CMCCCR44	✓	✓	✓	✓
Merchandise Management (Retail Management)	23CMCCMM44	✓	✓	✓	✓
Labour Legislation & Compensation Management (Human Resource Management)	23CMCCLL54	✓	✓	✓	✓
Organisation Behaviour (Human Resource Management)	23CMCCOB54	✓	✓	✓	✓
Service Marketing (Marketing)	23CMCCSM54		✓	✓	✓
Digital Marketing (Marketing)	23CMCCDM54	✓	✓	✓	✓
E-Tailing (Retail Management)	23CMCCET54	✓	✓	✓	✓
Retail Logistics (Retail Management)	23CMCCRL54	✓	✓	✓	✓

Mapping of Courses with PSOs

MDCs and SECs

B. B. A

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
Business Forecasting	23SECBF32	✓	✓	✓	✓
Digital Marketing	23SECDM42	✓	✓	✓	✓
Design Thinking	23SECDT42	✓	✓	✓	✓

Mapping of Courses with POs

B.B.A

POs	PO1 Essential Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO3 Teamwork and communication skills	PO4 Motivation and preparation in life-long learning	PO5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO7 Self-awareness and emotional intelligence	PO8 Social Responsibility
FC	✓	✓	✓	✓	✓			
BO	✓	✓	✓	✓	✓			✓
OB	✓	✓	✓	✓	✓			
PM	✓	✓	✓	✓	✓			✓
BE	✓	✓	✓	✓	✓			
ME	✓	✓	✓	✓	✓			
BA	✓	✓	✓	✓	✓			✓
BL	✓	✓	✓	✓	✓			
OB-I	✓	✓	✓	✓	✓			✓
BE	✓	✓	✓	✓	✓			✓
BS	✓	✓	✓	✓	✓			✓
FM	✓	✓	✓	✓	✓			
MM	✓	✓	✓	✓	✓			
HR	✓	✓	✓	✓	✓			✓
FM	✓	✓	✓	✓	✓			✓
SDM	✓	✓	✓	✓	✓			✓
AM	✓	✓	✓	✓	✓			✓
TD	✓	✓	✓	✓	✓			✓
LL	✓	✓	✓	✓	✓			✓
SAP	✓	✓	✓	✓	✓			✓
FM	✓	✓	✓	✓	✓			✓
POM	✓	✓	✓	✓	✓			✓
PM	✓	✓	✓	✓	✓			✓

Mapping of Courses with POs

B.Com.

MINORS

POs	PO1 Essential Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO3 Teamwork and communication skills	PO4 Motivation and preparation in life-long learning	PO5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO7 Self-awareness and emotional intelligence	PO8 Social Responsibility
PHRM	✓	✓	✓	✓	✓			
FM	✓	✓	✓	✓	✓			✓
FRM	✓	✓		✓	✓	✓		
CM	✓	✓		✓	✓			
CB	✓	✓		✓	✓			✓
RSO	✓	✓		✓	✓	✓		
TM	✓	✓		✓	✓			
TD	✓	✓		✓	✓			
AD	✓	✓		✓	✓			✓
BD	✓	✓		✓	✓			✓
CRB	✓	✓		✓	✓	✓		
MM	✓	✓		✓	✓	✓		
LL	✓	✓		✓	✓			
OB	✓	✓		✓	✓			
SM	✓	✓		✓	✓			✓
DM	✓	✓		✓	✓			✓
ET	✓	✓		✓	✓	✓		
RL	✓	✓		✓	✓	✓		

Mapping of Courses with POs

MDCs and SECs

BBA

PSOs	PO1 Essential Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO3 Teamwork and communication skills	PO4 Motivation and preparation in life-long learning	PO5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO7 Self-awareness and emotional intelligence	PO8 Social Responsibility
BF	✓	✓	✓	✓	✓			✓
DM	✓	✓	✓	✓	✓			
DT	✓	✓	✓	✓	✓			