

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

ISO 9001: 2015 Certified

DEPARTMENT OF COMPUTER SCIENCE



PROGRAMME REGISTER

2020-23

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UG PROGRAMMES OFFERED

S.No.	Programme	Combination offered	Programme Code
1	B.Sc.	Mathematics, Physics, Computer Science (MPCs)	303
2		Mathematics, Statistics, Computer Science (MSCs)	304
3		Mathematics, Electronics, Computer Science (MECs)	306
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PROGRAMME OUTCOMES (POs)
2020-2023

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 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)

2020-2023

B.Sc. Programme

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

PSO1: Interpret the 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.

B.Com Programme

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 imbibe theories and principles.

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

Course Outcomes (COs)
B.Sc Programme
2020-2023

S.No	Sem	Course Code	Course Title	Course Outcomes
1	I	20CSCCPM13	Programming Methodologies	CO1: Explain fundamental concepts of programming and problem solving techniques.
				CO2: Analyze and debug control statements and functions.
				CO3: Apply concepts of arrays and strings to design programs.
				CO4: Differentiate and demonstrate the concepts of pointers, structures and unions.
				CO5: Describe the basic object oriented programming concepts.
2	I	20CSP1PC12	Programming with C++ - Practical	CO1: Apply the programming concepts and write simple programs in C++.
				CO2: Develop simple code to solve a problem.
				CO3: Implement the programming with real time concepts.
3	I	20LSCCA2	Basic Computer Applications	CO1: Demonstrate basic understanding of computer hardware and software.
				CO2: Create personal, academic, business documents, spreadsheets, charts and presentations.
				CO3: Analyze data using charts and spreadsheets.
4	II	20CSCCDS23	Data Structures using C++	CO1: Identify data structures to represent data items in the real world.
				CO2: Analyze the working principles and applications of data structures.
				CO3: Develop programs by applying various operations on data structures.

				CO4: Apply various sorting, searching and hashing techniques.
5	II	20CSP2DS22	Data Structures using C++ - Practical	CO1: Identify and apply the suitable data structure for the given real world problem.
				CO2: Implement various kinds of searching and sorting techniques.
				CO3: Implement data structures such as stacks, queues and Search trees to solve various computing problems.
6	II	20LSCIT2	Information & Communication Technology	CO1: Apply skills to use various social networking sites, online forums, docs, spreadsheets, etc for communication, collaboration and Research.
				CO2: Learn a few GOI digital initiatives in higher education.
				CO3: Acquaint with internet threats and security mechanisms.
7	III	20CSCCDB33	Database Management Systems	CO1: Explain the basic concepts and various data models used in database design.
				CO2: Analyse and apply the concept of entity-relationship model
				CO3: Apply relational database theory to create a database.
				CO4: Convert the ER-model to relational tables and formulate SQL queries.
				CO5: Apply triggers and stored procedures on databases.
8	III	20CSP3DB32	Database Management Systems- Practical	CO1: Understand the basics of SQL and create database tables and establish relationships between tables.
				CO2: Design and create relational database systems.
				CO3: Formulate queries using SQL DML/DDD/DCL commands.

9	IV	20CSCCPJ43	Object Oriented Programming through Java	CO1: Recall the concepts of object oriented programming and Java syntax.
				CO2: Apply concepts such as arrays, strings, classes and inheritance.
				CO3: Develop programs on polymorphism, abstract classes, exceptions and packages.
				CO4: Make use of the concepts of file streams and multi-threading.
				CO5: Develop skills in internet programming using applets and JDBC.
10	IV	20CSP4PJ42	Object Oriented Programming through Java-Practical	CO1: Write Java application programs using OOP principles
				CO2: Develop Java programs to solve real world problems
				CO3: Develop skills in internet programming using applets
11	IV	20CSCCOS43	Operating Systems	CO1: Relate the basic functions and types of operating system.
				CO2: Describe different services of the operating system.
				CO3: Analyze process management and scheduling algorithms.
				CO4: Correlate various memory concepts.
				CO5: Compile LINUX commands on UNIX/LINUX Operating System.
12	IV	20CSP5OS42	Operating Systems using Linux-Practical	CO1: Apply various Linux commands on a standard UNIX/LINUX Operating system.
				CO2: Apply shell programming on UNIX/LINUX OS.
				CO3: Develop skills in shell programming.
13	V/VI	20CSSEC11WI3	Web Interface	CO1: Understand and appreciate the web architecture and services.

	Set 1		Designing	<p>CO2: Gain knowledge about various components of a website.</p> <p>CO3: Demonstrate skills regarding creation of a static website and an interface to a dynamic website.</p> <p>CO4: Learn how to install and configure word press.</p> <p>CO5: Apply knowledge of installing various plugins to use in their websites.</p>
14	V/VI Set 1	20CSP611WD2	Web Interface Designing - Practical	<p>CO1: Create a basic website with the help of HTML and CSS.</p> <p>CO2: Acquire the skill of installing word press and various plugins of Word press.</p> <p>CO3: Apply various themes for their websites using Word press.</p>
15	V/VI Set 1	20CSSEC12WA3	Web Applications Development with PHP & MYSQL	<p>CO1: Understand how to use regular expressions, handle exceptions, and validate data using PHP.</p> <p>CO2: Apply In-Built functions and Create User defined functions in PHP programming.</p> <p>CO3: Design PHP scripts to handle HTML forms.</p> <p>CO4: Learn how to work with various components in PHP.</p> <p>CO5: Gain knowledge on how to use PHP with MySQL database and can write database driven web pages.</p>
16	V/VI Set 1	20CSP712PM2	PHP & MYSQL-	<p>CO1: Write, debug and implement the Programs by applying concepts and error handling techniques of PHP.</p>

			Practical	<p>CO2: Create a website with reports generated from a database.</p> <p>CO3: Write programs to create an interactive website for e-commerce sites like online shopping, etc.</p>
17	V/VI Set 2	20CSSEC21IT3	Internet of Things	<p>CO1: Understand various concepts, terminologies and applications of IoT systems.</p> <p>CO2: Learn how to use various sensors and wireless technologies for the design of IoT.</p> <p>CO3: Gain knowledge on how to connect various things to the Internet.</p> <p>CO4: Understand Arduino Simulation Environment.</p> <p>CO5: Apply skills to develop simple IOT Devices.</p>
18	V/VI Set 2	20CSP621IT2	Internet of Things - Practical	<p>CO1: Connect various sensors, actuators, etc to Arduino board.</p> <p>CO2: Design a small mobile app to control the sensors.</p> <p>CO3: Deploy a simple IoT device.</p>
19	V/VI Set 2	20CSSEC22AD3	Application development with python	<p>CO1: Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.</p> <p>CO2: Demonstrate proficiency in handling Exceptions and File Systems.</p> <p>CO3: Learn how to use Regular Expressions and threads.</p> <p>CO4: Implement GUI and web programming as used in Python.</p> <p>CO5: Apply concepts of Python programming in various fields related to IOT, Web Services and Databases in Python.</p>

20	V/VI Set 2	20CSP722PP2	Programming in Python-Practical	CO1: Implement programs related to various data structures like lists, dictionaries, etc.
				CO2: Implement programs related to files.
				CO3: Implement applications related to databases, Web services and IOT.
21	V/VI Set 3	20CSSEC31DS3	Data Science	CO1: Develop relevant programming abilities.
				CO2: Demonstrate proficiency with statistical analysis of data.
				CO3: Develop the ability to build and assess data-based models.
				CO4: Demonstrate skill in data management.
				CO5: Apply data science concepts and methods to solve problems in real-world contexts.
22	V/VI Set 3	20CSP631DS2	Data Science- Practical	CO1: Apply data science solutions to real world problems.
				CO2: Implement the programs to get the required data, process it and present the outputs using Python language.
				CO3: Execute statistical analyses with Open source Python software.
23	V/VI Set 3	20CSSEC32PD3	Python for Data Science	CO1: Identify the need for data science and solve basic problems using Python built-in data types and their methods.
				CO2: Design an application with user-defined modules and packages using OOP concept.

				<p>CO3: Employ efficient storage and data operations using NumPy arrays.</p>
				<p>CO4: Apply powerful data manipulations using Pandas.</p>
				<p>CO5: Do data pre-processing and visualization using Pandas.</p>
24	V/VI Set 3	20CSP732PD2	Python for Data Science - Practical	<p>CO1: Implement simple programs in Python.</p>
				<p>CO2: Implement programs related to various structures like arrays, lists, Data frames, etc.</p>
				<p>CO3: Implement applications related to data science.</p>

Course Outcomes (COs)
B.Com. Programme
2020-2023

S. No	Semester	Course Code	Course Title	Course Outcomes
1	I	20CSCCIT13	Information Technology	CO1: Explain the fundamental computer organization and vocabulary.
				CO2: Develop professional documents.
				CO3: Utilize MS-Excel to generate reports.
				CO4: Create presentations using MS-PowerPoint.
				CO5: Develop database using MS-Access.
2	I	20CSP1MO11	MS Office - Practical	CO1: Apply appropriate menu options to create professional documents and presentations
				CO2: Build spreadsheets to perform calculations, display data and conduct analysis
				CO3: Design and construct databases to store, extract and analyze real world data
3	II	20CSCCWD23	E-Commerce & Web Designing	CO1: Explain the foundations and importance of e-commerce.
				CO2: Describe the process of the e-payment system.
				CO3: Differentiate the various types of online business transactions.
				CO4: Apply web designing concepts to create web pages.
				CO5: Explain security issues and countermeasures in e-commerce.
4	II	20CSP2WD21	Web Designing- Practical	CO1: Analyze a web page and identify its elements and attributes.
				CO2: Create web pages using HTML and Cascading Style Sheets.
				CO3: Apply web designing concepts to create web pages
5	II	20CSCCIM24	Information	CO1: Understand basic applications and concepts

			Technology for Managers	of information technology.
				CO2: Identify hardware components, categories of programs, system software and applications.
				CO3: Create Excel reports and PowerPoint Presentation.
				CO4: Solve common business problems using appropriate Information Technology applications and systems.
6	III	20CSCCPC33	Programming with C & C++	CO1: Explain the basic concepts of programming language, including the use of algorithms.
				CO2: Develop programs on arrays and strings.
				CO3: Apply the concepts of functions, structures and unions.
				CO4: Differentiate between structured and object-oriented programming.
				CO5: Apply various forms of inheritance.
7	III	20CSP3PC31	Programming with C & C++-Practical	CO1: Develop programming skills using the fundamentals and basics of C & C++ Languages.
				CO2: Solve computing problems.
				CO3: Apply various forms of inheritance.
8	IV	20CSCCDM43	Database Management	CO1: Explain the basic concepts of database management systems.
				CO2: Analyze file-based system and database approach.
				CO3: Explain entity-relationship model and relational database design.
				CO4: Formulate and apply SQL queries to relational databases.
				CO5: Discuss triggers and stored procedures.
9	IV	20CSP4DM41	Database Management-Practical	CO1: Use the basics of SQL and create database tables and establish relationships between tables.
				CO2: Formulate queries using SQL DML/DDI/DCL commands.

				CO3: Apply SQL queries to relational databases.
10	V/VI Set 1	20CSSEC11BD3	Big data Analytics with R	CO1: Explain data and classification of digital data.
				CO2: Explain Big Data Analytics.
				CO3: Load data into R.
				CO4: Organize data in the form of R objects and manipulate them as needed.
				CO5: Perform analytics using R programming.
11	V/VI Set 1	20CSP511RP1	R Programming -Practical	CO1: Load data into R.
				CO2: Organize data in the form of R objects and manipulate them as needed.
				CO3: Perform analytics using R programming.
12	V/VI Set 1	20CSSEC12DP3	Data Science with Python	CO1: Explain the basic concepts of data science
				CO2: Understand why python is a useful scripting language for developers.
				CO3: Use standard programming constructs like selection and repetition.
				CO4: Use aggregated data (list, tuple, and dictionary).
				CO5: Implement functions and modules.
13	V/VI Set 1	20CSP612PP1	Python Programming -Practical	CO1: Use standard programming constructs like selection and repetition.
				CO2: Use aggregated data (list, tuple, and dictionary).
				CO3: Implement functions and modules in python.
14	V/VI Set 2	20CSSEC21MA 3	Mobile Application Development	CO1: Identify basic terms ,tools and software related to android systems
				CO2: Describe components of IDE, understand features of android development tools.
				CO3: Describe the layouts and controls.
				CO4: Explain the features of services and be able to publish android Application.

				CO5: Developing interesting Android applications using MIT App.
15	V/VI Set 2	20CSP521AP1	Android Programming -Practical	CO1: Explain the android platform.
				CO2: Explain the features of services and be able to publish android Application.
				CO3: Design and implementation of various mobile applications.
16	V/VI Set 2	20CSSEC22CM 3	Cyber Security & Malware	CO1: Explain the computer networks, networking tools and cyber security.
				CO2: Describe about NIST CyberSecurity Framework
				CO3: Explain the OWASP Vulnerabilities.
				CO4: Implement various Malware analysis tools.
				CO5: Explain about Information Technology act 2000
17	V/VI Set 2	20CSP622CS1	Cyber Security- Practical	CO1: Implement the concepts of switch, router and packet.
				CO2: Implement the features of services and able to publish Networking Applications.
				CO3: Implement various Malware analysis tools.
18	V/VI Set 3	20CSSEC31EA3	E– Commerce Applications	CO1: Apply knowledge in all fields of business studies by drafting a website presence plan.
				CO2: Understand the factors needed in order to be successful in e-commerce.
				CO3: Gain skills to gather about the different components of building a web presence
				CO4: Solve problems and issues that might pop up during the establishment of the web presence
				CO5: Apply WordPress as a content management system (CMS) and design a website.
19	V/VI Set 3	20CSP531EC1	E– Commerce- Practical	CO1: Gain skills to gather about the different components of building a web presence.
				CO2: Apply WordPress as a content management system (CMS).

				CO3: Design a website.
20	V/VI Set 3	20CSSEC32RG3	Real Time Governance System	CO1: Appreciate the terms regarding Governance, E-Governance and RTGS
				CO2: Learn about E-Governance Infrastructure
				CO3: Understand the E-Governance implementation in several countries
				CO4: Understand the E-Governance implementation in several Indian states
				CO5: Analyze the applications of RTG
21	V/VI Set 3	20CSP632RG1	RTGS- Practical	CO1: Understand the E-Governance implementation in several countries
				CO2: Understand the E-Governance implementation in several Indian states
				CO3: Analyze the applications of RTG
22	V/VI Set 4	20CSSEC41MM 3	Multimedia Tools & Applications	CO1: Gain knowledge on the concepts related to Multimedia.
				CO2: Understand the concepts like image data representation and colour modes.
				CO3: Understand the different types of video signals and digital audio.
				CO4: Know about multimedia data compression types and audio compression standards.
				CO5: Learn about basic video compression techniques.
23	V/VI Set 4	20CSP541MM1	Multimedia Tools & Applications- Practical	CO1: Implement the concepts like image data representation and colour modes.
				CO2: Apply different types of video signals and digital audio.
				CO3: Know about multimedia data compression types and audio compression standards.
24	V/VI Set 4	20CSSEC42DI3	Digital Imaging	CO1: Gain knowledge about Types of Graphics, Objects and video editing tools.
				CO2: Show their skills in editing and altering photographs.

				CO3: Gain knowledge in using the layers.
				CO4: Apply knowledge in using selection and drawing tools.
				CO5: Gain knowledge in using touch up tools and filters.
25	V/VI Set 4	20CSP642DI1	Digital Imaging- Practical	CO1: Implement their skills in editing and altering photographs
				CO2: Apply selection and drawing tools to digitalize the images
				CO3: Apply filters and touchup tools to modify the images

Mapping of COs with PSOs & POs
B.Sc Programme

S.No	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	20CSCCPM13	Programming Methodologies	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	20CSP1PC12	Programming with 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
3	I	20LSCCA2	Basic Computer Applications	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
4	II	20CSCCDS23	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

5	II	20CSP2DS22	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
6	II	20LSCIT2	Information and Communication 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
7	III	20CSCCDB3	Database Management 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
8	III	20CSP3DB3 2	Database management 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
9	IV	20CSCCPJ43	Object Oriented Programming through 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
10	IV	20CSP4PJ42	Object Oriented Programming through 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
11	IV	20CSCCOS4 3	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
12	IV	20CSP5OS42	Operating Systems Lab using Linux-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/VI Set 1	20CSSEC11 WI3	Web Interface 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
14	V/VI	20CSP611W	Web	CO1	PSO1,PSO2,PSO3,PSO4	PO1,PO2,PO3,PO4,PO5, PO6,PO7,PO8

	Set 1	D2	Designing - Practical	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	V/VI Set 1	20CSSEC12 WA3	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
16	V/VI Set 1	20CSP712P M2	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
17	V/VI Set 2	20CSSEC21I T3	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
18	V/VI Set 2	20CSP621IT 2	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

19	V/VI Set 2	20CSSEC22 AD3	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
20	V/VI Set 2	20CSP722PP 2	Programming in 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
21	V/VI Set 3	20CSSEC31 DS3	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
22	V/VI Set 3	20CSP631DS 2	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
23	V/VI Set 3	20CSSEC32P D3	Python for 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
24	V/VI Set 3	20CSP732PD 2	Python for 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

**Mapping of COs with PSOs & POs
B.Com Programme**

S. N O	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	20CSCCIT13	Information 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
2	I	20CSP1MO11	MS Office - 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	II	20CSCCW D23	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	II	20CSP2WD 21	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	II	20CSCCIM 24	Information Technology for Managers	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	III	20CSCCPC 33	Programmin g with C & 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
7	III	20CSP3PC3 1	Programmin g with C & 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
8	IV	20CSCCD M43	Database Managemen t	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
9	IV	20CSP4DM 41	Database Managemen t-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
10	V/VI Set 1	20CSSEC11 BD3	Big data Analytics using R	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
11	V/VI Set 1	20CSP511R P1	R Programmin g-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
12	V/VI Set 1	20CSSEC12 DP3	Data Science 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
13	V/VI Set 1	20CSP612P P1	Python Programmin	CO1	PSO1,PSO2,PSO3,PSO4	PO1,PO2,PO3,PO4,PO5, PO6,PO7,PO8

			g-Practical	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
14	V/VI Set 2	20CSSEC21 MA3	Mobile Application Developme nt	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
15	V/VI Set 2	20CSP521A P1	Android Programmin g-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
16	V/VI Set 2	20CSSEC22 CM3	Cyber Security and Malware	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
17	V/VI Set 2	20CSP622C S1	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

18	V/VI Set 3	20CSSEC31 EA3	E– Commerce Application s	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
19	V/VI Set 3	20CSP531E C1	E– Commerce- 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
20	V/VI Set 3	20CSSEC32 RG3	Real Time Governance 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
21	V/VI Set 3	20CSP632R G1	RTGS- 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
22	V/VI Set 4	20CSSEC41 MM3	Multimedia Tools & Application s	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
23	V/VI Set 4	20CSP541 MM1	Multimedia Tools & Applications- 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
24	V/VI Set 4	20CSSEC42 DI3	Digital Imaging	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
25	V/VI Set 4	20CSP642D I1	Digital Imaging- 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	PSO2	PSO3	PSO4
Programming Methodologies (PM)	✓	✓	✓	✓
Programming with C++ - Practical(PC-P1)	✓	✓	✓	✓
Basic Computer Applications (CA)	✓	✓	✓	✓
Data Structures Using C++ (DS)	✓	✓	✓	✓
Data Structures Using C++ - Practical(DS-P2)	✓	✓	✓	✓
Information and Communication Technology (IT)	✓	✓	✓	✓
Database Management Systems (DB)	✓	✓	✓	✓
Database management Systems-Practical(DB-P3)	✓	✓	✓	✓
Object Oriented Programming through Java (PJ)	✓	✓	✓	✓
Object Oriented Programming through Java-Practical(PJ-P4)	✓	✓	✓	✓
Operating Systems (OS)	✓	✓	✓	✓
Operating Systems Lab using Linux-Practical (OS-P5)	✓	✓	✓	✓
Web Interface Designing (WI)	✓	✓	✓	✓
Web Designing –Practical(WD-P6)	✓	✓	✓	✓
Web Applications Development using PHP & MYSQL (WA)	✓	✓	✓	✓
PHP & MYSQL-Practical(PM-P7)	✓	✓	✓	✓
Internet of Things (IT)	✓	✓	✓	✓
Internet of Things -Practical(IT-P6)	✓	✓	✓	✓
Application development using python (AD)	✓	✓	✓	✓
Programming in Python-Practical(AD-P7)	✓	✓	✓	✓
Data Science (DS)	✓	✓	✓	✓
Data Science-Practical(DS-P6)	✓	✓	✓	✓

Python for Data Science (PD)	✓	✓	✓	✓
Python for Data Science – Practical(PD-P7)	✓	✓	✓	✓

Mapping of Courses with PSOs
B.Com Programme

Course Title	PSO1	PSO2	PSO3	PSO4
Information Technology(IT)	✓	✓	✓	✓
MS Office – Practical(MO-P1)	✓	✓	✓	✓
E-commerce & Web Designing(WD)	✓	✓	✓	✓
Web Designing-Practical(WD-P2)	✓	✓	✓	✓
Information Technology for Managers (IT)	✓	✓	✓	✓
Programming with C & C++(PC)	✓	✓	✓	✓
Programming With C & C++-Practical(PC-P3)	✓	✓	✓	✓
Database Management (DM)	✓	✓	✓	✓
Database Management-Practical(DM-P4)	✓	✓	✓	✓
Big data Analytics using R(BD)	✓	✓	✓	✓
R Programming-Practical(RP-P5)	✓	✓	✓	✓
Data Science using Python(DP)	✓	✓	✓	✓
Python Programming-Practical(PP-P6)	✓	✓	✓	✓
Mobile Application Development(MA)	✓	✓	✓	✓
Android Programming-Practical(AP-P5)	✓	✓	✓	✓
Cyber Security and Malware(CM)	✓	✓	✓	✓
Cyber Security-Practical(CS-P6)	✓	✓	✓	✓
E– Commerce Applications(EA)	✓	✓	✓	✓
E– Commerce-Practical(EC-P5)	✓	✓	✓	✓
Real Time Governance System(RG)	✓	✓	✓	✓
RTGS-Practical(RG-P6)	✓	✓	✓	✓
Multimedia Tools & Applications (MM)	✓	✓	✓	✓
Multimedia Tools & Applications - Practical (MM-P6)	✓	✓	✓	✓
Digital Imaging	✓	✓	✓	✓
Digital Imaging - Practical	✓	✓	✓	✓

Mapping of Courses with POs
B.Sc Programme

Course	PO1 Essen tial Know ledge	PO2 Creati ve and critical thinki ng and proble m Solv ing abilitie s	PO3 Teamwork and communica tion skills	PO4 Motivati on and preparat ion in life- long learning	PO5 Professiona lism and leadership readiness	PO6 Intercult ural and ethical competen cy	PO7 Self- awareness and emotio nal intelligen ce	PO8 Social Responsib ility
PM	✓	✓	✓	✓	✓	✓	✓	✓
PC-P1	✓	✓	✓	✓	✓	✓	✓	✓
LSC-CA	✓	✓	✓	✓	✓	✓	✓	✓
DS	✓	✓	✓	✓	✓	✓	✓	✓
DS-P2	✓	✓	✓	✓	✓	✓	✓	✓
LSC-IT	✓	✓	✓	✓	✓	✓	✓	✓
DB	✓	✓	✓	✓	✓	✓	✓	✓
DB-P3	✓	✓	✓	✓	✓	✓	✓	✓
PJ	✓	✓	✓	✓	✓	✓	✓	✓
PJ-P4	✓	✓	✓	✓	✓	✓	✓	✓
OS	✓	✓	✓	✓	✓	✓	✓	✓
OS-P5	✓	✓	✓	✓	✓	✓	✓	✓
WI	✓	✓	✓	✓	✓	✓	✓	✓
WD-P6	✓	✓	✓	✓	✓	✓	✓	✓
WA	✓	✓	✓	✓	✓	✓	✓	✓
PM-P7	✓	✓	✓	✓	✓	✓	✓	✓
IT	✓	✓	✓	✓	✓	✓	✓	✓
IT-P6	✓	✓	✓	✓	✓	✓	✓	✓
AD	✓	✓	✓	✓	✓	✓	✓	✓

AD-P7	✓	✓	✓	✓	✓	✓	✓	✓
DS	✓	✓	✓	✓	✓	✓	✓	✓
DS-P6	✓	✓	✓	✓	✓	✓	✓	✓
PD	✓	✓	✓	✓	✓	✓	✓	✓
PD-P7	✓	✓	✓	✓	✓	✓	✓	✓

**Mapping of Courses with POs
B.Com Programme**

Course	PO1 Essen tial Know ledge	PO2 Creati ve and critical thinki ng and proble m Solv ing abilitie s	PO3 Teamwork and communica tion skills	PO4 Motivati on and preparat ion in life- long learning	PO5 Professiona lism and leadership readiness	PO6 Intercult ural and ethical competen cy	PO7 Self- awaren ess and emotio nal intelligen ce	PO8 Social Responsibil ity
IT	✓	✓	✓	✓	✓	✓	✓	✓
MO-P1	✓	✓	✓	✓	✓	✓	✓	✓
WD	✓	✓	✓	✓	✓	✓	✓	✓
WD-P2	✓	✓	✓	✓	✓	✓	✓	✓
IM	✓	✓	✓	✓	✓	✓	✓	✓
PC	✓	✓	✓	✓	✓	✓	✓	✓
PC-P3	✓	✓	✓	✓	✓	✓	✓	✓
DM	✓	✓	✓	✓	✓	✓	✓	✓
DM-P4	✓	✓	✓	✓	✓	✓	✓	✓
BD	✓	✓	✓	✓	✓	✓	✓	✓
RP-P5	✓	✓	✓	✓	✓	✓	✓	✓
DP	✓	✓	✓	✓	✓	✓	✓	✓

PP-P6	✓	✓	✓	✓	✓	✓	✓	✓
MA	✓	✓	✓	✓	✓	✓	✓	✓
AP-P5	✓	✓	✓	✓	✓	✓	✓	✓
CM	✓	✓	✓	✓	✓	✓	✓	✓
CS-P6	✓	✓	✓	✓	✓	✓	✓	✓
EA	✓	✓	✓	✓	✓	✓	✓	✓
EC-P5	✓	✓	✓	✓	✓	✓	✓	✓
RG	✓	✓	✓	✓	✓	✓	✓	✓
RG-P6	✓	✓	✓	✓	✓	✓	✓	✓
MM	✓	✓	✓	✓	✓	✓	✓	✓
MM-P5	✓	✓	✓	✓	✓	✓	✓	✓
DI	✓	✓	✓	✓	✓	✓	✓	✓
DI-P6	✓	✓	✓	✓	✓	✓	✓	✓