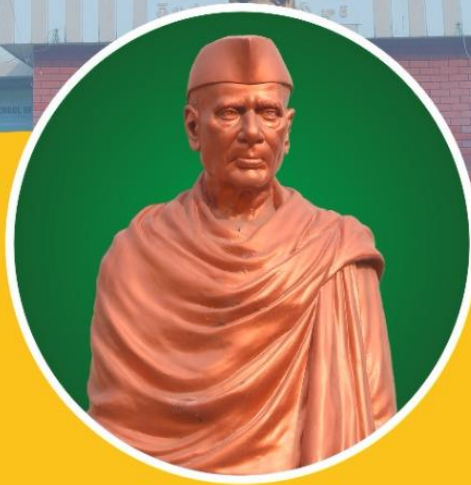ISO 9001-2015 CERTIFIED

NAAC 'A' GRADE CYCLE 3

KAKARAPARTI BHAVANARAYANA COLLEGE
(AUTONOMOUS)

(Sponsored by S.K.P.V.V. Hindu High Schools' Committee), Kothapeta, Vijayawada - 520 001.

A College with Potential for Excellence (CPE)   3.5 Star Rating in Innovations & Start-Ups by MoE

Recognized as Band PERFORMER in ARIIA by Ministry of Education, Govt. of India

1.1.1: Curricula developed and implemented have relevance to the local, regional, national, and global developmental needs, which is reflected in the Programme outcomes (POs) and Course Outcomes (COs) of the Programmes offered by the institution

ADDITIONAL INFO.

- List of Programmes offered by the Institution

- Programme Outcomes, Programme Specific Outcomes, Course Outcomes

- Stakeholder Feedback Analysis - HEI Links

- Course Structure

- List of Life Skill Courses & Skill Development Courses – Programme wise

- BoS Meetings Scanned copies – 2022-23 A.Y. [3 Departments (For Reference)]

LIST OF PROGRAMMES OFFERED BY THE INSTITUTION

S. No.	Name of the Programme
UNDER-GRADUATE PROGRAMMES	
1	B.Com. (General)
2	B.Com. (T.P)
3	B.Com. (Logistics)
4	B.Com. (Comp.)
5	BBA
6	BCA
7	B.Sc. (MPC)
8	B.Sc. (CBZ)
9	B.Sc. (MPCS)
10	B.Sc. (MECS)
11	B.Sc. (MSCS)
12	B.Sc. (MCCS)
13	B.Sc. (Data Science)
14	B.Sc. (IoT)
15	B.Voc. (WT&SD)
16	B.Voc. (IT-ITes)
POST-GRADUATE PROGRAMMES	
1	MBA
2	MCA
3	M.Sc. (Organic Chemistry)
4	M.Sc. (Analytical Chemistry)
5	M.Sc. (Data Science)
DIPLOMA PROGRAMMES	
1	Diploma in Yoga for Human Excellence
UNDER UGC-NSQF	
1	Diploma in Drone Pilot
2	Diploma in Event Management
3	Diploma in Data Analytics
4	Diploma in Computer Science
UGC CAREER ORIENTED PROGRAMMES	
1	MS Office
2	Accounting Packages - Tally
3	DTP

PROGRAMME OUTCOMES & SPECIFIC OUTCOMES

PROGRAMME OUTCOMES

B.Sc.	✔ PO 1: Develop a deep understanding of the core concepts, theories, and principles within the chosen field of study, whether it's physics, biology, chemistry, mathematics, computer science, or any other discipline. ✔ PO 2: Acquire the ability to conduct research, gather and analyze data, and apply scientific methods to investigate questions and solve problems. ✔ PO 3: Develop critical thinking skills to evaluate information, identify issues, and solve complex problems within the discipline. ✔ PO 4: Gain proficiency in quantitative and analytical methods relevant to the field, including mathematical analysis, statistical analysis, or computational techniques. ✔ PO 5: Enhance written and oral communication skills to effectively convey scientific ideas, research findings, and technical information to both technical and non-technical audiences. ✔ PO 6: Acquire hands-on experience in conducting experiments and using laboratory equipment, techniques, and safety procedures relevant to the field. ✔ PO 7: Develop an understanding of how the chosen field of study interacts with and influences other scientific disciplines or related fields. ✔ PO 8: Recognize the need for continuous learning and adaptability in a rapidly evolving field, and pursue on-going professional development and education. ✔ PO 9: Apply theoretical knowledge and principles to real-world problems, practical applications, and research projects within the discipline. ✔ PO 10: Understand the broader implications and societal relevance of the discipline's knowledge and research, including its impact on global challenges. ✔ PO 11: Be prepared for further academic studies at the graduate level or for careers in fields related to the discipline. ✔ PO 12: Actively engage in nurturing a culture of research, upholding scientific integrity and objectivity in their scholarly pursuits.
B.Com.	✔ PO 1: Foundational Business Knowledge Demonstrate a solid understanding of core business disciplines such as accounting, finance, marketing, management, and economics. ✔ PO 2: Critical Thinking and Problem-Solving Develop critical thinking skills to analyze business problems, make informed decisions, and propose effective solutions. ✔ PO 3: Quantitative and Analytical Skills Acquire proficiency in quantitative analysis, data interpretation, and

	financial analysis. ✔ PO 4: Communication Skills Enhance written and oral communication skills for effective business communication, including reports, presentations, and negotiations. ✔ PO 5: Financial Literacy Understand financial concepts, financial markets, and financial management principles. ✔ PO 6: Ethical and Social Responsibility Recognize the ethical dimensions of business decisions and demonstrate social responsibility in business practices. ✔ PO 7: Entrepreneurial Mind-set Cultivate an entrepreneurial spirit, exploring opportunities for innovation and business creation. ✔ PO 8: Professional Development and Leadership Skills Prepare for career advancement through resume building, interview skills, and job search strategies. ✔ PO 9: Self-directed and Life-long Learning ● Identify career enhancement opportunities and engage in future academic endeavours. ● Display skills sets in pursuit of continuous learning and adapt to the changing professional and social needs.
B.Voc.	✔ PO 1: Technical Proficiency Graduates will demonstrate a high level of technical competency in their chosen field, including hands-on skills, tools, and equipment operation. ✔ PO 2: Industry-Relevant Skills Acquire industry-specific skills and knowledge that are directly applicable to the workplace, ensuring immediate job readiness. ✔ PO 3: Problem-Solving Abilities Develop problem-solving skills to address real-world challenges and troubleshoot issues in the field. ✔ PO 4: Entrepreneurial Mindset Cultivate an entrepreneurial spirit and the ability to identify opportunities for innovation and business development within the field. ✔ PO 5: Project Management Acquire basic project management skills to plan, execute, and monitor projects within the field. ✔ PO 6: Technological Proficiency Stay up-to-date with technological advancements and use relevant tools and software in the field. ✔ PO 7: Research and Innovation Foster a culture of research and innovation, continuously seeking improvements and new solutions. ✔ PO 8: Career Development

	Prepare for career advancement through resume building, interview skills, and job search strategies specific to the industry.
M.Sc.	✓ PO 1: Advanced Knowledge Graduates will have an advanced understanding of the core concepts, theories, and principles relevant to their field of study. ✓ PO 2: Research Skills Graduates will be proficient in conducting independent research, including the ability to design experiments, gather data, and analyze results. ✓ PO 3: Critical Thinking Graduates will demonstrate critical thinking skills by evaluating and synthesizing existing literature and research in their field. ✓ PO 4: Problem-Solving Graduates will have the ability to identify complex problems, propose solutions, and make informed decisions based on evidence and analysis. ✓ PO 5: Interdisciplinary Perspective Graduates will be able to integrate knowledge and methods from different disciplines, fostering interdisciplinary approaches to problem-solving. ✓ PO 6: Technology Proficiency Graduates will be proficient in using relevant technologies and tools required for their field of study, including software and laboratory equipment. ✓ PO 7: Innovation and Creativity Graduates will demonstrate innovation and creativity in their research and problem-solving processes, contributing to advancements in their field. ✓ PO 8: Professional Development Graduates will be committed to lifelong learning and professional development, staying updated with current trends, technologies, and research in their discipline. ✓ PO 9: Application of Knowledge Graduates will apply their advanced knowledge and research skills to address real-world challenge.

PROGRAMME SPECIFIC OUTCOMES

B.Sc. (MPC)	**PSO 1:** Demonstrate a strong foundation in mathematical concepts, including calculus, algebra, and discrete mathematics, to solve complex problems in physics and chemistry. **PSO 2:** Develop a deep comprehension of fundamental principles in physics, including classical mechanics, electromagnetism, quantum mechanics, and thermodynamics. **PSO 3:** Attain a comprehensive understanding of core principles in chemistry, encompassing organic, inorganic, and physical chemistry, and apply this knowledge to chemical problem-solving. **PSO 4:** Recognize and appreciate the interconnectedness of mathematics, physics, and chemistry, and apply this interdisciplinary knowledge to solve real-world problems at the intersection of these disciplines. **PSO 5:** Acquire hands-on experience in laboratory settings, including the ability to conduct experiments, analyze data, and draw meaningful conclusions in both physics and chemistry. **PSO 6:** Apply mathematical modeling techniques to simulate and analyze physical and chemical phenomena, allowing for predictive and quantitative understanding of complex systems. **PSO 7:** Cultivate research skills, including the ability to formulate research questions, design experiments, collect and analyze data, and communicate findings effectively.
B.Sc. (CBZ)	**PSO 1:** Develop a strong foundation in chemistry, including inorganic, organic, and physical chemistry, enabling the understanding of chemical principles and laboratory techniques. **PSO 2:** Acquire comprehensive knowledge of botany, encompassing plant biology, taxonomy, ecology, and plant physiology, and apply this knowledge to plant-related research and applications. **PSO 3:** Gain a deep understanding of zoology, covering animal biology, taxonomy, physiology, and ecology, and apply this knowledge to the study of animals and their ecosystems. **PSO 4:** Recognize and appreciate the connections between chemistry, botany, and zoology, and apply interdisciplinary knowledge to address complex problems in environmental science, conservation, and biotechnology. **PSO 5:** Develop practical laboratory skills and expertise in conducting experiments, and analysis in chemistry, botany, and zoology, and use these skills to investigate various biological and chemical phenomena. **PSO 6:** Apply scientific methods and research techniques to conduct investigations in botany and zoology, including fieldwork, biodiversity assessments, and ecological studies. **PSO 7:** Utilize advanced laboratory instrumentation and techniques for

	chemical analysis, including spectroscopy, chromatography, and microscopy.
B.Sc. (MPCS)	**PSO 1:** Attain a strong foundation in mathematical concepts, including calculus, linear algebra, discrete mathematics, and mathematical logic, for solving complex problems in physics and computer science. **PSO 2:** Develop a deep understanding of fundamental principles in physics, covering classical mechanics, electromagnetism, quantum mechanics, and thermodynamics, and apply this knowledge to solve physical problems and phenomena. **PSO 3:** Acquire proficiency in programming languages, algorithms, data structures, and software development methodologies, enabling the design and implementation of computational solutions to a variety of problems. **PSO 4:** Recognize and appreciate the connections between mathematics, physics, and computer science, and apply interdisciplinary knowledge to address complex problems in scientific computing, simulations, and data analysis. **PSO 5:** Develop the ability to design, code, and test software applications, including scientific simulations, data analysis tools, and computational models. **PSO 6:** Cultivate research skills, including the ability to formulate research questions, design experiments or simulations, collect and analyze data, and communicate research findings effectively. **PSO 7:** Acquire strong problem-solving skills that can be applied to a wide range of challenges in mathematics, physics, and computer science, both in theoretical and practical contexts. **PSO 8:** Develop expertise in data analysis, statistical methods, and data visualization techniques, particularly for applications in physics and computer science.
B.Sc. (MECS)	**PSO 1:** Attain a strong foundation in mathematical concepts, including calculus, discrete mathematics, linear algebra, and numerical methods, to solve complex problems in electronics and computer science. **PSO 2:** Develop a deep understanding of core principles in electronics, including circuit analysis, digital electronics, signal processing, and microelectronics. **PSO 3:** Acquire proficiency in programming languages, algorithms, data structures, software engineering principles, and database systems, enabling the design and development of software applications. **PSO 4:** Recognize and appreciate the connections between mathematics, electronics, and computer science. Apply interdisciplinary knowledge to design and analyze electronic circuits, systems, and computer software. **PSO 5:** Gain hands-on experience in electronics laboratories, including the ability to design, build, and troubleshoot electronic circuits and systems. **PSO 6:** Cultivate research skills, design experiments or simulations, collect and analyze data, and apply computational methods to solve complex problems. **PSO 7:** Gain expertise in embedded systems, IoT (Internet of Things), and their applications, combining electronics and computer science knowledge for

	practical solutions. ⌘ **PSO 8:** - Develop skills in data analysis, digital signal processing, and data visualization, particularly for applications in electronics and computer science.
B.Sc. (MSCS)	⌘ **PSO 1:** Develop a strong foundation in mathematical concepts, including calculus, linear algebra, discrete mathematics, and probability theory, to solve complex problems in statistics and computer science. ⌘ **PSO 2:** Acquire comprehensive knowledge of statistical principles, data analysis techniques, experimental design, and hypothesis testing, and apply this knowledge to analyze and interpret data. ⌘ **PSO 3:** Attain proficiency in programming languages, algorithms, data structures, software engineering, and database systems, enabling the design and development of software applications and data-driven solutions. ⌘ **PSO 4:** Recognize and appreciate the connections between mathematics, statistics, and computer science. Apply interdisciplinary knowledge to tackle complex problems in data analysis, modeling, and software development. ⌘ **PSO 5:** Develop expertise in data analysis, statistical modeling, and data visualization techniques, particularly for applications in computer science and statistical analysis. ⌘ **PSO 6:** Gain the ability to design, code, and test software applications, particularly those related to data analysis, machine learning, and artificial intelligence. ⌘ **PSO 7:** Gain proficiency in machine learning and artificial intelligence techniques, including their application to data analysis, pattern recognition, and decision-making processes. ⌘ **PSO 8:** Develop skills in database design, management, and querying, and apply them to store and retrieve data efficiently for various applications.
B.Sc. (MCCS)	⌘ **PSO 1:** Demonstrate a strong foundation in mathematical concepts, including calculus, linear algebra, discrete mathematics, and probability theory and apply mathematical principles to solve complex problems in computer science and chemistry. ⌘ **PSO 2:** Possess a deep understanding of the fundamental principles of chemistry, including organic, inorganic, physical, and analytical chemistry. ⌘ **PSO 3:** Conduct laboratory experiments, analyze data, and interpret results accurately and safely and apply chemical knowledge to real-world problems and practical applications. ⌘ **PSO 4:** Exhibit proficiency in programming languages, algorithms, and data structures. ⌘ **PSO 5:** Understand the core principles of computer science, including software engineering, databases, and computer architecture. ⌘ **PSO 6:** Integrate mathematical, chemical, and computer science concepts to address interdisciplinary challenges and research problems. ⌘ **PSO 7:** Apply analytical and critical thinking skills to identify, formulate, and solve problems in mathematics, chemistry, and computer science. ⌘ **PSO 8:** Prepare for careers in academia, industry, government, or further education in mathematics, chemistry, computer science, or related fields.

B.Sc. (Data Science)	**PSO 1:** Graduates should be able to collect data from various sources, clean and pre-process it to make it suitable for analysis. **PSO 2:** Students should be proficient in using statistical and machine learning techniques to analyze data. **PSO 3:** Graduates should have strong programming skills, particularly in languages like Python or R. **PSO 4:** Graduates should be capable of creating effective data visualizations using tools like Matplotlib, Seaborn, or Tableau. **PSO 5:** Students should understand the basics of database management systems and be able to work with relational databases and SQL queries for data retrieval and manipulation. **PSO 6:** Graduates should be familiar with big data technologies like Hadoop and Spark and be able to process and analyze large datasets efficiently. **PSO 7:** Students should have a deep understanding of various machine learning algorithms and be able to apply them to real-world problems.
B.Sc. (IoT)	**PSO 1:** Graduates should have a deep understanding of the fundamental components and architecture of IoT systems, including sensors, actuators, communication protocols, and edge devices. **PSO 2:** Graduates should be proficient in selecting, configuring, and integrating various sensors to collect data from the physical world, such as temperature sensors, motion detectors, and environmental sensors. **PSO 3:** Graduates should be capable of acquiring, processing, and managing data generated by IoT devices, including data cleaning, filtering, and aggregation. **PSO 4:** Gaduates should have expertise in wireless communication technologies commonly used in IoT, such as Wi-Fi, Bluetooth, Zigbee, LoRa, and cellular networks. **PSO 5:** Graduates should be familiar with IoT communication protocols and standards like MQTT, CoAP, HTTP, and understand their applications in different IoT scenarios. **PSO 6:** Graduates should be familiar with IoT platforms and cloud services for data storage, processing, and application development, such as AWS IoT, Microsoft Azure IoT, or Google Cloud IoT. **PSO 7:** Graduates should be proficient in developing IoT applications and services using programming languages like Python, C/C++, and JavaScript. **PSO 8:** Graduates should have the skills and mindset to identify opportunities for IoT innovation and entrepreneurship, including product development and business planning.
B.Com. (Gen)	**PSO 1:** Demonstrate a foundational understanding of core business concepts, including accounting, economics, finance, marketing, management, and business law. **PSO 2:** Develop proficiency in financial accounting principles, including the preparation and interpretation of financial statements and apply accounting techniques to record, analyze, and report financial transactions. **PSO 3:** Understand basic economic theories and concepts, including supply

	and demand, market structures, and macroeconomic factors affecting businesses and industries. ✑ **PSO 4:** Analyze financial data to make informed decisions related to budgeting, investment, and financial planning and understand financial markets, instruments, and investment strategies. ✑ **PSO 5:** Gain knowledge of marketing principles, consumer behavior, and market research and develop the ability to create marketing strategies and plans. ✑ **PSO 6:** Learn the fundamentals of management, including leadership, organizational behavior, and human resource management. ✑ **PSO 7:** Acquire basic IT skills necessary for business, including the use of spread sheets, databases, and business software. ✑ **PSO 8:** Cultivate an entrepreneurial spirit by exploring opportunities for innovation and creativity in business.
B.Com. (T.P)	✑ **PSO 1:** Demonstrate a comprehensive understanding of tax laws, regulations, and principles, including income tax, sales tax, value-added tax (VAT), and corporate tax. ✑ **PSO 2:** Develop the ability to prepare and file various tax returns accurately and in compliance with tax laws and regulations. ✑ **PSO 3:** Analyze financial and business situations to develop tax-efficient strategies for individuals and organizations. ✑ **PSO 4:** Apply tax principles to business transactions, including mergers and acquisitions, capital gains, and international taxation. ✑ **PSO 5:** Calculate and advise individuals on their personal tax liabilities, deductions, and credits. ✑ **PSO 6:** Conduct tax research to stay updated on changes in tax laws and regulations. ✑ **PSO 7:** Identify potential tax-related risks and liabilities for individuals and businesses. ✑ **PSO 8:** Understand the principles of international taxation, including transfer pricing, double taxation treaties, and cross-border tax planning.
B.Com. (Logistics)	✑ **PSO 1:** Demonstrate a comprehensive understanding of supply chain management, including procurement, production, distribution, and logistics. ✑ **PSO 2:** Learn effective techniques for managing inventory, including inventory optimization, demand forecasting, and safety stock management. ✑ **PSO 3:** Understand the principles of transportation management, including route planning, carrier selection, and cost optimization. ✑ **PSO 4:** Familiarize oneself with logistics and supply chain management software and technology, such as enterprise resource planning (ERP) systems and warehouse management systems (WMS). ✑ **PSO 5:** Develop the ability to create logistics strategies and plans that align with overall business objectives and evaluate and implement strategies for improving supply chain efficiency and reducing costs. ✑ **PSO 6:** Identify potential risks in logistics and supply chain operations and develop strategies for mitigating those risks.

	PSO 7: Analyze logistics costs and develop cost-effective logistics solutions and understand financial aspects of logistics, including budgeting and cost control. **PSO 8:** Utilize data analytics tools and techniques to analyze logistics data and make data-driven decisions.
B.Com. (Comp)	**PSO 1:** Demonstrate a comprehensive understanding of core business concepts, including accounting, economics, finance, marketing, and management. **PSO 2:** Develop proficiency in using various computer applications and software commonly used in business environments, including Microsoft Office Suite (Word, Excel, PowerPoint, etc.). **PSO 3:** Learn programming languages and principles, such as Java, Python, C++, or others as specified by the program and develop the ability to design and create software applications for business purposes. **PSO 4:** Understand database concepts and gain proficiency in using database management systems (DBMS) for data storage, retrieval, and analysis. **PSO 5:** Learn web development technologies, including HTML, CSS, JavaScript, and web frameworks and develop the ability to create and maintain business websites and web applications. **PSO 6:** Apply analytical skills to assess business needs and propose IT solutions that enhance efficiency and effectiveness and conduct business process analysis and redesign using IT tools and methodologies. **PSO 7:** Utilize data analytics tools and techniques to analyze business data and provide insights for decision-making and create reports and dashboards for monitoring and improving business performance. **PSO 8:** Understand e-commerce principles and strategies for online business transactions and learn digital marketing techniques and tools for promoting products and services online. **PSO 9:** Cultivate an entrepreneurial spirit and explore opportunities for using technology to create and innovate within a business context.
BBA	**PSO 1:** Demonstrate a strong foundation in core business disciplines, including accounting, finance, marketing, management, economics, and business law. **PSO 2:** Develop critical thinking skills to analyze complex business problems and propose effective solutions and apply problem-solving techniques to real-world business scenarios. **PSO 3:** Utilize quantitative tools and analytical methods to analyze business data and make data-driven decisions. **PSO 4:** Develop leadership skills and an understanding of management principles and learn how to manage teams, projects, and resources effectively. **PSO 5:** Cultivate an entrepreneurial spirit and explore opportunities for innovation and creativity in business and understand the processes of business start-up and entrepreneurship. **PSO 6:** Recognize the global nature of business and understand the impact of international markets and cultures and explore international business strategies and global business operations.

	⚗ **PSO 7:** Learn marketing strategies and tactics for product promotion and market penetration. ⚗ **PSO 8:** Understand financial management principles, including budgeting, financial analysis, and financial planning and evaluate investment opportunities and manage financial resources effectively. ⚗ **PSO 9:** Develop skills in strategic thinking and planning and implement strategic plans for businesses and organizations.
BCA	⚗ **PSO 1:** Demonstrate proficiency in programming languages such as Java, C++, Python, or others as specified by the program and develop the ability to design, code, test, and debug software applications. ⚗ **PSO 2:** Create software applications for various platforms, including desktop, web, and mobile and understand software development methodologies and best practices. ⚗ **PSO 3:** Design and implement database systems using database management systems (DBMS) such as MySQL, Oracle, or SQL Server. ⚗ **PSO 4:** Develop dynamic and interactive websites using web technologies like HTML, CSS, JavaScript, and web frameworks and understand front-end and back-end development. ⚗ **PSO 5:** Gain knowledge of operating system principles and concepts and perform system administration tasks on different operating systems. ⚗ **PSO 6:** Understand cybersecurity threats and best practices for securing computer systems and networks and Learn about ethical hacking and security testing. ⚗ **PSO 7:** Develop mobile applications for iOS and Android platforms and Understand mobile app design, user experience (UX), and best practices. ⚗ **PSO 8:** Understand the ethical and legal aspects of software development, including intellectual property rights and data privacy regulations.
B.Voc. (WT&SD)	⚗ **PSO 1:** Demonstrate proficiency in web development technologies, including HTML, CSS, JavaScript, and popular web frameworks and Develop the ability to create responsive and interactive web applications and websites. ⚗ **PSO 2:** Learn server-side programming languages and frameworks and Build server-side applications, RESTful APIs, and integrate them with frontend technologies. ⚗ **PSO 3:** Design, create, and manage databases using database management systems (DBMS) such as MySQL, PostgreSQL, or MongoDB, and Perform database operations, optimization, and administration. ⚗ **PSO 4:** Acquire full-stack development skills, encompassing both frontend and backend development and create end-to-end web applications and deploy them effectively. ⚗ **PSO 5:** Understand web security principles and best practices and Implement security measures to protect web applications from common vulnerabilities. ⚗ **PSO 6:** Develop skills in web design, focusing on creating visually appealing and user-friendly interfaces and Conduct usability testing and improve user experiences. ⚗ **PSO 7:** Learn to use version control systems such as Git for code collaboration

	and management. ✎ **PSO 8:** Develop problem-solving skills to identify, troubleshoot, and debug software issues and analyze and resolve technical problems efficiently.
MBA	✎ **PSO 1:** Develop effective leadership skills to inspire and guide teams in achieving organizational goals and learn management techniques for planning, organizing, and controlling resources and operations. ✎ **PSO 2:** Enhance strategic thinking abilities to analyze complex business situations and make informed decisions and evaluate alternative strategies and their impact on the organization. ✎ **PSO 3:** Gain a solid understanding of core business functions, including finance, marketing, operations, human resources, and information technology. ✎ **PSO 4:** Recognize the global nature of business and understand the implications of international markets, trade, and cultural diversity. ✎ **PSO 5:** Cultivate an entrepreneurial spirit and explore opportunities for innovation and entrepreneurship within organizations or start-ups. ✎ **PSO 6:** Enhance communication skills and public speaking skills to effectively convey ideas, negotiate, and influence others in diverse business contexts. ✎ **PSO 7:** Develop marketing strategies, including product development, pricing, promotion, and distribution, manage and enhance brand equity and customer relationships. ✎ **PSO 8:** Learn human resource management principles, including recruitment, training, compensation, and performance evaluation. ✎ **PSO 9:** Understand corporate governance principles and their importance in ethical decision-making within organizations.
MCA	✎ **PSO 1:** Demonstrate proficiency in programming languages such as Java, C++, Python, or others as specified by the program and Develop the ability to design, code, test, and debug complex software applications. ✎ **PSO 2:** Create software applications for various platforms, including desktop, web, mobile, and cloud-based systems and Understand software development methodologies and best practices. ✎ **PSO 3:** Design and implement advanced database systems using database management systems (DBMS) such as Oracle, MySQL, SQL Server, or NoSQL databases - Perform database optimization, tuning, and administration. ✎ **PSO 4:** Develop web applications and mobile apps for iOS and Android platforms using relevant technologies and frameworks. ✎ **PSO 5:** Gain in-depth knowledge of operating system concepts, kernel architecture, and system software development. ✎ **PSO 6:** Master advanced data structures and algorithms to solve complex computational problems efficiently - Analyze algorithmic complexity and optimization. ✎ **PSO 7:** Understand computer network protocols, architectures, and security principles and design and secure networked systems and applications. ✎ **PSO 8:** learn and Apply AI and ML in various applications, including data analysis and predictive modeling. ✎ **PSO 9:** Explore cloud computing platforms and distributed system

	architectures - Deploy and manage applications in cloud environments.
	✑ **PSO 10:** Conduct research in computer science and contribute to the development of new technologies and solutions and Publish research findings in relevant journals and conferences.
M.Sc. (OCH)	✑ **PSO 1:** Demonstrate a comprehensive understanding of the principles and theories of organic chemistry, including reaction mechanisms, stereochemistry, and chemical synthesis.
	✑ **PSO 2:** Develop advanced laboratory techniques for organic synthesis, purification, and characterization of organic compounds.
	✑ **PSO 3:** Gain proficiency in using advanced analytical instruments such as nuclear magnetic resonance (NMR) spectroscopy, mass spectrometry (MS), and infrared (IR) spectroscopy for compound analysis.
	✑ **PSO 4:** Design and execute complex organic syntheses, including multi-step reactions and the synthesis of natural products.
	✑ **PSO 5:** Interpret spectroscopic data to determine the structure, configuration, and purity of organic compounds - Identify functional groups and analyze chemical spectra.
	✑ **PSO 6:** Understand reaction mechanisms and reaction kinetics for various organic transformations and apply mechanistic understanding to predict and explain chemical reactivity.
	✑ **PSO 7:** Explore specialized areas of organic chemistry, such as organometallic chemistry, heterocyclic chemistry, natural product chemistry, and polymer chemistry.
	✑ **PSO 8:** Develop research skills for planning, executing, and documenting experimental work.
M.Sc. (ACH)	✑ **PSO 1:** Demonstrate a comprehensive understanding of the principles and theories of analytical chemistry, including various analytical techniques and methods.
	✑ **PSO 2:** Develop advanced laboratory techniques for sample preparation, chemical analysis, and data interpretation.
	✑ **PSO 3:** Gain expertise in using a wide range of analytical instruments, such as chromatography (HPLC, GC), mass spectrometry (MS), spectroscopy (NMR, IR, UV-Vis), and electrochemical methods.
	✑ **PSO 4:** Design and optimize analytical methods for the qualitative and quantitative analysis of chemical compounds and materials - Validate methods for accuracy, precision, and reliability.
	✑ **PSO 5:** Interpret spectroscopic data from various instruments to identify chemical species and characterize compounds - Analyze spectra for structural information and quantification.
	✑ **PSO 6:** Apply chromatographic techniques to separate, isolate, and quantify components of complex mixtures - Optimize chromatographic conditions and troubleshoot separations.
	✑ **PSO 7:** Implement quality control procedures to ensure the reliability and accuracy of analytical results - Comply with relevant quality standards and regulations.

| | **PSO 8:** Conduct independent research or participate in research projects under the guidance of faculty members and Present research findings in a thesis or dissertation. |

COURSE OUTCOMES

DEPARTMENT OF BOTANY

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
I B.Sc. CBZ	First semester	Fundamentals of Microbes and Non-vascular Plants	R20BOT101A	2022-2023	✓ Explain origin of life on the earth. ✓ Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and life cycles. ✓ Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi. ✓ Recall and explain the evolutionary trends among amphibians of plant kingdom for their shift to land habitat. ✓ Evaluate the ecological and economic value of microbes, thallophytes and bryophytes.
I B.Sc. CBZ	Second Semester	Basics of Vascular plants and Phytogeography	R20BOT201A	2022-2023	✓ Classify and compare pteridophytes and Gymnosperms based on their morphology, anatomy, reproduction and life cycles. ✓ Demonstrate the process of fossilization and compare the characteristics of extinct and extant plants. ✓ Apply various taxonomical aids for identification of Angiosperms. ✓ Analyze the morphology of the most common Angiosperm plants of their localities and recognize their families. ✓ Identify the different phytogeograhical regions of the world and can analyse their floristic wealth.
II B.Sc. CBZ	Third semester	Anatomy and Embryology of Angiosperms,	R20BOT301	2021-2022	✓ Understand the organization of tissues and tissue systems in plants. ✓ Understand the basic concepts of plant ecology, and

		Plant Ecology and Biodiversity			evaluate the effects of environmental and biotic factors on plant communities. ✓ Correlate the importance of biodiversity and consequences due to its loss. ✓ Illustrate and interpret various aspects of embryology. ✓ Enlist the endemic/endangered flora and fauna from two biodiversity hot spots in India and assess their strategies of conversation.
II B.Sc. CBZ	Fourth Semester	Plant Physiology and Metabolism	R20BOT401	2021-2022	✓ Evaluate the role of minerals in plant nutrition and their deficiency symptoms. ✓ Interpret the role of enzymes in plant metabolism. ✓ Critically understand the light reactions and carbon assimilation processes responsible for synthesis of food in plants. ✓ Analyze the biochemical reactions in relation to Nitrogen and lipid metabolisms. ✓ Evaluate the physiological factors that regulate growth and development in plants.
II B.Sc. CBZ	Fourth Semester	Cell Biology, Genetics and Plant Breeding	R20BOT402	2021-2022	✓ Explain the procedures of selection and hybridization for improvement of crops. ✓ Understand the basics of Mendelian genetics, its variations and interpret inheritance of traits in living beings. ✓ Evaluate the structure, function and regulation of genetic material. ✓ Understand the applications, principles and modern techniques in plant breeding. ✓ Explain the organization of a eukaryotic chromosome

					and the structure of genetic material.
III B.Sc. CBZ	Fifth Semester	Plant Propagation	R20BOTA501	2022-2023	✓ Explain various plant propagation structures and their utilization. ✓ Understand advantages and disadvantages of vegetative, asexual and sexual plantpropagation methods. ✓ Assess the benefits of asexual propagation of certain economically valuable plants using apomictics and adventive polyembryony. ✓ Demonstrate skills related to vegetative plant propagation techniques such as cuttings, layering, grafting and budding. ✓ Apply a specific macro-propagation technique for a given plant species.
III B.Sc. CBZ	Fifth Semester	Seed Technology	R20BOTA502	2022-2023	✓ Explain the causes for seed dormancy and methods to break dormancy. ✓ Understand critical concepts of seed processing and seed storage procedures. ✓ Acquire skills related to various seed testing methods. ✓ Identify seed borne pathogens and prescribe methods to control them. ✓ Understand the legislations on seed production and procedure of seed certification.

DEPARTMENT OF ZOOLOGY

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
I B.Sc. CBZ	I	BIOLOGY OF NON-CHORDATES	R20ZOO101A	2021-22	On completion of this course, students will have the knowledge and skills to: o Describe the variety of invertebrate organisms and explain their evolutionary origin and diversification. o Investigate invertebrates in laboratory and field conditions and identify major taxonomic groups. o Understand and communicate the major evolutionary innovations in invertebrate groups. o Describe the functional significance of associated morphologies and behaviors.
I B.Sc. CBZ	II	BIOLOGY OF CHORDATES	R20ZOO201A	2021-22	o Understand the evolution of chordates including their phylogeny and the modification of key innovations and homologous structures o Identify and describe the defining characteristics of the major vertebrate classes as well as hemi-and proto chordates. o Describe the major architectural features of the integumentary, skeletal, nervous, muscular, digestive, respiratory, circulatory, excretory and reproductive systems. o Develop an understanding of the application of comparative anatomy in current scientific methods.
II B.Sc. CBZ	III	CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND	R20ZOO301A	2021-22	o To understand the basic unit of the living organisms and to differentiate the organisms by their cell structure and to describe fine structure and function of plasma membrane and different cell organelles of eukaryotic cell.

		EVOLUTION			o To understand the history of origin of branch of genetics, gain knowledge on heredity, interaction of genes, various types of inheritance patterns existing in animals o Acquiring in-depth knowledge on various of aspects of genetics involved in sex determination, human karyotyping and mutations of chromosomes resulting in various disorders o Understand the central dogma of molecular biology and flow of genetic information from DNA to proteins. o 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 for the benefit of the society.
II B.Sc. CBZ	IV	ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY	R20ZOO401A	2021-22	o Understand the functions of important animal physiological systems including digestion, cardio-respiratory and renal systems. o Understand the muscular system and the neuro-endocrine regulation of animal growth, development and metabolism with a special knowledge of hormonal control of human reproduction. o Describe the structure, classification and chemistry of biomolecules and enzymes responsible for sustenance of life in living organisms o Develop broad understanding the basic metabolic activities pertaining to the catabolism and anabolism of various biomolecules o Describe the key events in early embryonic development starting from the formation of gametes upto gastrulation and formation of primary germ layers.
II B.Sc.	IV	IMMUNOLOGY	R20ZOO402A	2021-22	o To provide students with a foundation in immunological

CBZ		AND ANIMAL BIOTECHNOLOGY			processes o To be able to compare and contrast the innate versus adaptive immune systems and humoral versus cell-mediated immune responses o Understand the significance of the Major Histocompatibility Complex in terms of immune response and transplantation o To provide knowledge on animal cell and tissue culture and their preservation o To empower students with latest biotechnology techniques like stem cell technology, genetic engineering, hyridoma technology, transgenic technology and their application in medicine and industry for the benefit of living organisms.
III B.Sc. CBZ	V	SUSTAINABLE AQUACULTURE MANAGEMENT	R20ZOO501	2021-22	o Understand why there is a need for fisheries management and regulation. o Be able to understand the various problems to be faced in maintaining water quality. o Be able to analyse and discuss how different types of regulations affect economic behaviour. o Be familiar with the feed formulation and feed storage. o Know the relevant markets for fish and aquaculture products, know how these markets work and how they affect production.
III B.Sc. CBZ	V	POST HARVEST TECHNOLOGY OF FISH AND FISHERIES	R20ZOO502	2021-22	o Learn the importance of proper handling methods and timing of fish crops to obtain maximum benefit from aquaculture. o Use methods to prevent spoilage of fish and its products by preservation and processing. o Realise that no part of fish is waste and most of it can be recovered as useful by product o Know that an integrated approach by the aqua culturist,

| | | | | | harvester and processor of aqua products is essential to obtain superior quality products. |

DEPARTMENT OF COMPUTER SCIENCE

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
I BCA	I	Computer Fundamentals and Office Tools	R20BCA101A	2022-2023	1. Identify categories of programs, system software and applications. Organize and work with files and folders. 2. Compose, format and edit a word document and working with macros. 3. Create work sheets and using various functions. 4. Make presentations and inserting multimedia in them. 5. Describe the usage of computers and why computers are essential components in business and society.
I BCA	I	Programming with 'C'	R20BCA102A	2022-2023	1. To learn about data types and operators. 2. To learn about decision making statements and functions 3. To learn how to work with arrays and strings and structures. 4. To understand character arrays and concept of pointers. 5. To understand the concept of files.
I BCA	II	Data base management	R20BCADBMS201	2022-23	1. An ability to apply Knowledge of computing and mathematics in Computer Science & Engineering.

		system			2. An ability to analyze a problem, identify and define the computing requirements appropriate to its solution. 3. An ability to design, implement and evaluate a computer-based system to meet desired needs with appropriate societal considerations. 4. An ability to conduct investigations, interpret data and provide conclusions in investigating complex problems related to Computer Science & Engineering. 5. An ability to engage in continuing professional development and life-long learning.
I BCA	II	Data structures	R20BCA202A	2022-2023	1. Ability to analyze algorithms and algorithm correctness. 2. Ability to summarize searching and sorting techniques 3. Ability to describe stack, queue and linked list operation. 4. Ability to describe linked list operation. 5. Ability to have knowledge of tree and graphs concepts
I BCA	II	PYTHON PROGRAMMING	R20BCA203A	2022-2023	1. To understand the Basics of python language and Python IDLE. and Install and run python Interpreter. 2. To gain knowledge about different data types and operators. 3. To use and explore control structures and loop constructs in python. 4. To import and create arrays using array module.

					5. To explore the use of Lambdas, List, Tuples.
II BCA	III	Object Oriented Programing through JAVA	R20BCA301	2021-2022	1. Demonstrate good object-oriented programmingskillsinJava 2. Ableto describe,recognize, applyand implementselected design patterns in Java 3. Understand thecapabilities and limitations of Java 4. Be familiarwith common errors inJava and its associated libraries 5. Develop excellent debuggingskills
II BCA	III	Operating Systems	R20BCA302	2021-2022	1.An ability to understand basic concepts of operating system. 2. An ability to understand linux shell and scheduling. 3. An ability to analyze memory management and deadlocks. 4. An ability to describe memory management and concurrency control mechanisms. 5. An ability to compare various file systems
II BCA	IV	Cyber Laws	R20BCA401	2021-2022	1. Critically evaluate ongoing developments in law relating to information technologies. 2. Display an understanding of how these developments relate to one another. 3. Examine areas of doctrinal and political debate surrounding rules and theories; 4. Evaluate those rules and theories in terms of internal coherence

					and practical outcomes.
					5. Draw on the analysis and evaluation contained in primary and secondary sources.
II BCA	IV	DATA MINING AND WAREHOUSING	R20BCA402	2021-2022	1. Examine the types of the data to be mined and present a general classification of tasks and primitives to integrate a data mining system. 2. Apply pre-processing statistical methods for any given raw data 3. Discover interesting patterns from large amounts of data to analyse and extract patterns to solve problems, make predictions of outcomes 4. Comprehend the roles that data mining plays in various fields and manipulate different data mining techniques 5. Select and apply proper data mining algorithms to build analytical applications. 6. Evaluate and implement a wide range of emerging and newly-adopted methodologies and technologies to facilitate the knowledge discovery
II B.C.A	IV	Web Programming	R20BCA403	2021-2022	1. Able to use Building Blocks of PHP, Access array elements. 2. Able to use various functions and handle data using files.. 3. Able to use working with Forms, Sessions, Cookies.

II B.C.A	IV				4. Able to implement Java Script.
					5. Able to implement basic concepts of Angular JS for Web development.
II B.C.A	IV	DESIGN OFOBJECT ORIENTED APPLICATIONS	R20BCA404	2021-2022	1. Have Knowledge in micro and macro process.
					2. Have Knowledge in management planning, quality assurance and metrics along with documentation of object oriented development.
					3. Have Knowledge in system architecture.
					4. Basic knowledge in AI and Data Acquisition.
					5. Knowledge in applications of Object Oriented Design.
II B.C.A	IV	DATA ANALYTICS USING R	R20BCA405	2021-2022	1. Data-Visualization tools and techniques offer executives and other knowledge workers new approaches to dramatically improve their ability to grasp information hiding in their data.
					2. Data visualization is a general term that describes any effort to help people understand the significance of data by placing it in a visual context.
					3. Patterns, trends and correlations that might go undetected in text-based data can be exposed and recognized easier with data visualization software.
					4. It isn't just the attraction of the huge range of statistical analyses afforded by R that attracts data people to R. The language has also developed a rich ecosystem of charts, plots and visualizations

					over the years. 5. ggplot2 is a data visualization package for the statistical programming language R
II B.C.A	IV	Object Oriented Software Engineering	R20BCA406	2021-2022	1. Explain the motivation for and development of object-oriented programming languages. 2. Produce a set of use cases given a problem statement. 3. Produce class diagrams, object interaction diagrams and object state transition diagrams for a given problem. 4. Describe the essential features of an object-oriented programming language. 5. Produce and/or debug code fragments that illustrate principles of object-oriented software development. 6. Describe the principles for testing object-oriented software and derive sets of test data given a specification.
III BCA	V	MACHINE LEARNING USING PYTHON	R20BCA501	2022-2023	1. Identify the characteristics of machine learning.(Understand- L2) 2. Summarize the Model building and evaluation approaches(Understand- L2) 3. Apply Bayesian learning and regression algorithms for real-world Problems.(Apply- L3) 4. Apply supervised learning algorithms to solve the real-world

					Problems. (Apply- L3) 5. Apply unsupervised learning algorithms for the real world data. (Apply- L3)
III BCA	V	DIGITAL IMAGING	R20BCA502	2022-2023	1. Gain knowledge about Types of Graphics, Types of Objects, Types of video editing tools 2. Show their skills in editing and altering photographs for through a 3. Basic understanding of the tool box. 4. Gain knowledge in using the layers. 5. Gain knowledge in using the selection tools, repair tools. 6. Gain knowledge in using selection tools , applying filters and can show their skills.
III BCA	V	CYBER SECURITY AND MALWARE ANALYSIS	R20BCA503	2022-2023	1. Understand the computer networks, networking tools and cyber security 2. Learn about NIST Cyber Security Framework 3. Understand the OWASP Vulnerabilities 4. Implement various Malware analysis tools 5. Understand about Information Technology act 2000
III BCA	V	Selenium	R20BCA504	2022-2023	1. Selenium is a free automation testing tool for web applications. 2. It is able to work with different browsers like Chrome, Firefox, IE, Opera and simulate human like behaviour. 3. Selenium is able to interact with all the different elements in a

					webpage. It can click on them, input text, extract text and much more. By covering all the different functionalities on your website with Selenium tests, you will be able to quickly catch new and reappearing old bugs. This will save your time and money. 4. We can run our test cases on various environments using selenium grid . 5. we can integrate with project management tools for managing the projects
III B.C.A	V	MOBILE APPLICATION DEVELOPMENT	R20BCA505	2022-23	1. Identify basic terms ,tools and software related to android systems 2. Describe components of IDE, understand features of android development tools 3. Describe the layouts and controls 4. Explain the significance of displays using the given view 5. Explain the features of services and able to publish android Application 6. Developing interesting Android applications using MIT App Inventor.
III B.C.A	V	JAVA Full Stack Development	R20BCA506	2022-23	1. Building Strong expertise to develop front end application using HTML5 2. Building Strong expertise to develop front end application using CSS3

					3. To become proficient in Bootstrap concepts and To develop a web pages based on Bootstrap
					4. Implementation of web application employing efficient database access.
					5. Develop a fully functioning website and deploy on a web server.
B.Sc(MPCS, MECS, MSCS, MCCS, DATA SCIENCE , IOT)	I	Programming with 'C'	R20-CSC101A	2022-2023	1. To learn about data types and operators. 2. To learn about decision making statements and functions 3. To learn how to work with arrays and strings and structures. 4. To understand character arrays and concept of pointers. 5. To understand the concept of files.
I B.Sc(MPCS,MECS,MSCS,MCCS)	II	PROGRAMMING with JAVA	R20-CSC201A	2022-2023	1. To learn Object-Oriented programming concepts and techniques using the Java programming language. 2. To learn to write, test, and debug introductory level Object-Oriented programs using Java. In addition, the student will be introduced to the following concepts, which are important workforce activities: 3. Design/Develop Program 4. Design classes ,interfaces, packages 5. Use multithreading concepts to develop inter process communication. 6. Design the applet program

					7. Understanding Inheritance.
II BSc(MPCs, MECs, MSCs, MCCs)	III	DATABASE MANAGEMENT SYSTEMS	R20BSC301	2021-2022	1. Gain knowledge of Database and DBMS. 2. Understand the fundamental concepts of DBMS with special emphasis on relational data model. 3. Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database 4. Model database using ER Diagrams and design database schemas based on the model. 5. Create a small database using SQL. 6. Store, Retrieve data in database.
II BSc(MPCs. MECs, MSCs, MCCs)	IV	DATA STRUCTURES USING C	R20BSC401	2021-2022	1. Understand available Data Structures for data storage and processing. 2. Comprehend Data Structure and their real-time applications - Stack, Queue, LinkedList, Trees and Graph 3. Choose a suitable Data Structures for an application 4. Develop ability to implement different Sorting and Search methods 5. Have knowledge onData Structures basic operations like insert, delete, search,updateand traversal

					6. Design and develop programs using various data structures
					Implement the applications of algorithms for sorting, pattern matching etc
II BSc(MPCs. MECs, MSCs, MCCs)	IV	Operating Systems	R20BSC402	2021-2022	1. Know Computer system resources and the role of operating system in resource management with algorithms
					2. Understand Operating System Architectural design and its services.
					3. Gain knowledge of various types of operating systems including Unix and Android.
					4. Understand various process management concepts including scheduling, synchronization, and deadlocks.
					5. Have a basic knowledge about multithreading.
					6. Comprehenddifferent approaches for memory management.
					7. Understand and identify potential threats to operating systems and the security features design to guard against them.
					8. Specify objectives of modern operating systems and describe how operating systems have evolved over time.
					9. Describe the functions of a contemporary operating system
III	V	Web Interface	R20ABSC501	2022-23	1. Understand and appreciate the web architecture and services.

B.Sc(MPCS,MECS,MSCS,MCCS)		Designing Technologies			2. Gain knowledge about various components of a website. 3. Demonstrate skills regarding creation of a static website 4. Interface to dynamic website. 5. Learn how to install word press and gain the knowledge of installing various plugins to use in their websites.
III B.Sc (MPCS,MECS, MSCS,MCCS)	V	Web Applications Development using PHP & MYSQL	R20ABSC502	2022-2023	1. Write simple programs in PHP. 2. Understand how to use regular expressions, handle exceptions, and validate data using PHP. 3. Apply In-Built functions and Create User defined functions in PHP programming. 4. Write PHP scripts to handle HTML forms. 5. Write programs to create dynamic and interactive web based applications using PHP and MYSQL. 6. Know how to use PHP with a MySQL database and can write database driven web pages
B.Sc (DATA SCIENCE , IOT)	I	Programming with 'C'	R20-CSC101A	2022-2023	1. To learn about data types and operators. 2. To learn about decision making statements and functions 3. To learn how to work with arrays and strings and structures. 4. To understand character arrays and concept of pointers. 5. To understand the concept of files.

B.Sc(DATA SCIENCE,IOT)	II	Data structures	R20-DSIOT201A	2022-2023	1. Ability to analyze algorithms and algorithm correctness. 2. Ability to summarize searching and sorting techniques 3. Ability to describe stack, queue and linked list operation. 4. Ability to describe linked list operation. 5. Ability to have knowledge of tree and graphs concepts
DATA SCIENCE	II	Intro.to R programming	R20DSRP201A	2022-23	1. Recognize the various disciplines that contribute to a successful data science effort. and Understand the processes of data science identifying the problem to be solved, data collection, preparation, modeling, evaluation and visualization. 2. Be aware of the challenges that arise in data sciences. 3. Develop an appreciation of the many techniques for data modeling and mining. 4. Be cognizant of ethical issues in many data science tasks. 5. Be comfortable using commercial and open source tools such as the R language and its associated libraries for data analytics and visualization.
II DATA SCIENCE	III	OOPs with JAVA	DSOJ301	2019-20	1. To learn Object-Oriented programming concepts and techniques using the Java programming language. 2. To learn to write, test, and debug introductory level Object-Oriented programs using Java. In addition, the student will be introduced to the following concepts, which are important

					workforce activities: **3.** Design/Develop Program **4.** Design classes ,interfaces, packages **5.** Design the applet programs **6.** Understanding Inheritance.
II B.Sc. (DATA SCIENCE)	III	DATA MINING AND DATA ANALYSIS	DSDMD301	2019-20	1. Compare various conceptions of data mining as evidenced in both research and application. 2. Characterize the various kinds of patterns that can be discovered by association rule mining. 3. Evaluate mathematical methods underlying the effective application of data mining.
II IOT	III	PROGRAMING WITH PYTHON	IOTOP301	2019-20	1. To understand the Basics of python language and Python IDLE. 2. To gain problem solving capability. 3. To Install and run python Interpreter. 4. To gain knowledge about different data types and operators. 5. To use and explore control structures and loop constructs in python. 6. To understand and create built in and user defined datatypes. 7. To identify the various form of input and output statements and its purposes 8. To import and create arrays using array module.

					9. To insert predefined functions and operations on array.
					10. To understand the basics of numpy module and importing the functions from numpy module.
					11. To gain knowledge about multidimensional array and its link with numpy module.
					12. To understand and use the concept declaring functions and returning results from a function.
					13. To explore the use of Lambdas, List, Tuples.
II Data Science	IV	Advanced Java	DSAJ401	2019-20	1. To understand the meaning and basic components of servlets and JSP 2. To know the required software to run Java programs 3. Understanding the use of servers 4. Understanding the use of Jsp 5. Understanding the use of Databases
II DATA SCIENCE	IV	DATA PROCESSING & VISUALIZAT ION	DS-CSC402	2020-2021	1. proficiently navigate Tableau using a full suite of commands 2. analyse data and calculate with tables using Tableau commands 3. generate the most meaningful visualisations 4. develop interactive dashboards deliver insightful stories visually in addressing a business problem.
II BSc(Data	IV	DATABASE	DSDBMS403	2021-2022	1. Gain knowledge of Database and DBMS.

Science)		MANAGEMENT SYSTEMS			2. Understand the fundamental concepts of DBMS with special emphasis on relational data model. 3. Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database 4. Model databaseusing ER Diagrams and design database schemas based on the model. 5. Create a small database using SQL. 6. Store, Retrieve data in database.
B.Sc (Data Science)	IV	ARTIFICIAL INTELLIGENCE	DSAI404	2021-2022	1. Find appropriate idealizations for converting real world problems into AI search problems formulated using the appropriate search algorithm. . 2. Implement CNN 3. Implement RNN. 4. It is expected that the students to apply techniques to design expert systems. 5. Understand the Basic Concepts
II IOT	IV	PROGRMING WITH 'R'	IOTPR401	2019-20	1. List motivation for learning a programming language 2. Access online resources for R and import new function packages into the R workspace 3. Import, review, manipulate and summarize data-sets in R 4. Explore data-sets to create testable hypotheses and identify

					appropriate statistical tests 5. Perform appropriate statistical tests using R Create and edit visualizations with
II BSc(IoT)	IV	DATABASE MANAGEMENT SYSTEMS	IOTDBMS402	2021-2022	1. Gain knowledge of Database and DBMS. 2. Understand the fundamental concepts of DBMS with special emphasis on relational data model. 3. Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database 4. Model databaseusing ER Diagrams and design database schemas based on the model. 5. Create a small database using SQL. 6. Store, Retrieve data in database.
III DATA SCIENCE / III IOT	V	Machine Learning	R20DSML501 / R20IOTML 501	2022-2023	1. Domain Knowledge for Productive use of Machine Learning and Diversity of Data. 2. Demonstrate on Supervised and Computational Learning 3. Analyze on Statistics in learning techniques and Logistic Regression 4. Illustrate on Support Vector Machines and Perceptron Algorithm 5. Design a Multilayer Perceptron Networks and classification of decision tree
III Data	V	PHP & MySQL	R20DSPHP	2022-2023	1. To understand the meaning and basic components of PHP

Science/ III IoT			502/ R20IOTPH P502		2. To know the required software to run PHP programs 3. Understanding the use of servers and predefine databases 4. To design front end applications 5. To design web applications
B.Sc (Data Science)	V	Big Data Technology	R20DSBT503	2022- 2023	1. Learn tips and tricks for Big Data use cases and solutions. 2. Learn to build and maintain reliable, scalable, distributed systems with Apache Hadoop. 3. Able to apply Hadoop ecosystem components. 4. Understand dabase concept 5. Maintain website data.
B.Sc (Data Science)	V	PYTH ON PROGRA MING	R20DSPP5 04	2022- 2023	1. To understand the Basics of python language and Python IDLE. 2. To gain problem solving capability. 3. To Install and run python Interpreter. 4. To gain knowledge about different data types and operators. 5. To use and explore control structures and loop constructs in python. 6. To understand and create built in and user defined datatypes. 7. To identify the various form of input and output statements and its purposes 8. To import and create arrays using array module.

					9. To insert predefined functions and operations on array.
					10. To understand the basics of numpy module and importing the functions from numpy module.
					11. To gain knowledge about multidimensional array and its link with numpy module.
					12. To understand and use the concept declaring functions and returning results from a function.
					13. To explore the use of Lambdas, List, Tuples.
B.Voc [Web Technology & Software Development]	I	Computer Fundamentals& MS Office	R20WSCSC101A	2022-2023	1. To understand the fundamentals of computers. 2. To learn about memory and its types. 3. To learn different number systems and their conversions. 4. To learn about operating system, its functions and its types. 5. To understand the concepts of MS Word, Excel, PowerPoint concepts.
B.Voc [Web Technology & Software Development]	I	Computer Organization	R20WSCO101A	2022-2023	1. Understand the basics of computer hardware and how software interacts with computer hardware and Analyze and evaluate computer performance 2. Understand how computers represent and manipulate data and Understand computer arithmetic and convert between different number systems 3. Assemble a simple computer with hardware design including

					data format, instruction format, instruction set, addressing modes, bus structure, input/output, memory, arithmetic/logic unit, control unit, and data, instruction and address flow
					4. Use Boolean algebra as related to designing computer logic, through simple combinational and sequential logic circuits
					5. The course emphasizes performance and cost analysis, memory technology, memory hierarchy, virtual memory management, and i/o systems.
B.VOC[IT&IT eS]	I	Introduction to 'C' Language	R20ITCP101A	2022-2023	1. To learn about data types and operators. 2. To learn about decision making statements and functions 3. To learn how to work with arrays and strings and structures. 4. To understand character arrays and concept of pointers. 5. To understand the concept of files.
I B.VOC WT &SD	I	HTML & CSS	R20WSHC101 A	2022-2023	1. Analyze a web page and identify its elements and attributes. 2. Create web pages using XHTML and Cascading Style Sheets. 3. Build dynamic web pages using JavaScript (Client side programming). 4. Create XML documents and Schemas. Develop web pages using the HTML and CSS features with different layouts as per need of applications and Students are

					able to develop a dynamic webpage by the use of java script and DHTML.
B.Voc(Web Technologies & Software Development)	II	ANGULAR-JS	R20WSAJS201 A	2022-23	1. To create web applications. 2. To Angular JS to facilitate development of single-page web applications that use the Model-View-Controller (MVC) design pattern. 3. Reduce the amount of code you write to build rich user interface applications. 4. Retrieve data from back-end server, manipulate it and display it with ease. 5. Modularise your code with the custom services and directives.
B.VOC [WEB TECHNOLOGY]	II	'C' Programming	R20WSCP201 A	2022-23	1. To learn about data types and operators. 2. To learn about decision making statements and functions. 3. To learn how to work with arrays and strings. 4. To learn about structures. 5. To understand the concept of pointers.
B.VOC [WEB TECHNOLOGY]	II	Data Communications	R20WSDC201 A	2022-23	1. Introduce students to the evolution of computer networks and the concepts data communication 2. introduce students the general principles of network design and compare the different network topologies; 3. introduce students to the digital and analogue representations

					and channels; • describe the mechanism and techniques of encoding; 4. introduce students to the general principles of circuit and packet switching; 5. introduce students to the wireless Local Area Networks;
BVoc(IT & ITeS)	III	PYTHO N PROGR AMING	ITPP301	2020-21	1. To understand the Basics of python language and Python IDLE. 2. To gain problem solving capability. 3. To Install and run python Interpreter. 4. To gain knowledge about different data types and operators. 5. To use and explore control structures and loop constructs in python. 6. To understand and create built in and user defined datatypes. 7. To identify the various form of input and output statements and its purposes 8. To import and create arrays using array module. 9. To insert predefined functions and operations on array. 10. To understand the basics of numpy module and importing the functions from numpy module. 11. To gain knowledge about multidimensional array and its link with numpy module.

					12. To understand and use the concept declaring functions and returning results from a function.
					13. To explore the use of Lambdas, List, Tuples.
BVoc(IT &ITeS) BVoc(WT & SD)	III	E-Commerce	ITCSCEC302 / WSCSCEC302	2020-21	1. Analyze the impact of E-commerce on business models and strategy. 2. Describe the major types of E-commerce. 3. Explain the process that should be followed in building an E-commerce presence. 4. Identify the key security threats in the E-commerce environment. 5. Describe how procurement and supply chains relate to B2B E-commerce.
B.Voc(IT &ITeS)	III	HTML & ANGULAR -JS	ITCSCHAJ303	2020-21	1. To create web applications .AngularJS to facilitate development of single-page web applications that use the Model- View-Controller (MVC) design pattern. 2. Referencing AngularJS in a Web page 3. Building Single Page Applications using AngularJS 4. Integrating forms with AngularJS 5. Extending AngularJS with custom directives, filters and service
B.VOC [WT &	III	PROGRAMING IN JAVA	WSCSCPJ301	2020-21	1. To learn Object-Oriented programming concepts and techniques using the Java programming language. To learn to write, test,

SD]					and debug introductory level Object-Oriented programs using Java. In addition, the student will be introduced to the following concepts, which are important workforce activities: 2. Design/Develop Program 3. Design classes 4. Design interfaces, packages 5. Design the applet programs 6. Understanding Inheritance.
B.Voc (WT&SD)	III	Advanced Angular-JS	WSCSC A JS303	2020-2021	1. Using directives and components to define UI elements, routes and screens 2. Working effectively with component lifecycle events 3. Injecting dependencies to lessen coupling and increase testability 4. Building Single Page Applications using Angular 5. Integrating forms with Angular 6. Organizing code using modules
II BVoC WT/ II IT&ITeS	IV	Advanced Java	WTSD-CSC401/ ITES-CSC401	2020-21	1. To understand the meaning and basic components of servlets and JSP 2. To know the required software to run Java programs 3. Understanding the use of servers 4. Understanding the use of Databases

					5. Design website
II BVoC WT	IV	R-LANGUAGE	WTSD-CSC402	2020-21	1. List motivation for learning a programming language 2. Access online resources for R and import new function packages into the R workspace 3. Import, review, manipulate and summarize data-sets in R 4. Explore data-sets to create testable hypotheses and identify appropriate statistical tests 5. Perform appropriate statistical tests using R Create and edit visualizations with
II BVoC IT & II BVoC WT	IV	Software Engineering	WTSD-CSC403/ ITES-CSC403	2020-21	1. The ability to analyse, design, verify, validate, implement, apply and maintain software systems. 2. The ability to work in one or more significant application domains 3. The ability to manage the development, measuring using Size & Function Oriented Metrics 4. The ability to understand the analysis model with its elements and designing with its models The ability to understand the concepts of Quality and Testability
II B.Voc IT&ITeS	IV	Advanced Angular-JS	ITES-CSC402	2020-2021	1. Using directives and components to define UI elements, routes and screens 2. Working effectively with component lifecycle events

III B.VOC(WT&SD)	V	CONTENT MANAGEMENT SYSTEM	R20WT501	2021-22	
					3. Injecting dependencies to lessen coupling and increase testability
					4. Building Single Page Applications using Angular
					5. Integrating forms with Angular
					6. Organizing code using modules
					1. Define the purpose of using CMS for digital content development and publication management
					2. Evaluate the functional roles in a CMS
					3. Evaluate the considerations to be taken into account in the acquisition of a CMS
					4. Evaluate the considerations to be taken into account in content modelling
					5. Evaluate the considerations to be taken into account in content aggregation
					6. A content management system helps you create, manage, and publish content on the web.
					7. It also helps keep content organized and accessible so it can be used and repurposed effectively.
					8. There are various kinds of content management systems

III B.VOC(WT&SD)	V				available—from cloud-based to a headless CMS—to meet every audience need.
III B.VOC(WT&SD)	V	PHP	R20WT502	2021-2022	1. To understand the meaning and basic components of PHP 2. To know the required software to run PHP programs 3. Understanding the use of servers and predefine databases 4. Understanding the database 5. Creating web site.
III B.VOC(WT&SD)	V	DATABASE MANAGEMENT SYSTEMS	R20WT503	2021-2022	1. Gain knowledge of Database and DBMS. 2. Understand the fundamental concepts of DBMS with special emphasis on relational data model. 3. Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database 4. Model database using ER Diagrams and design database schemas based on the model. 5. Create a small database using SQL. 6. Store, Retrieve data in database.
III B.VOC(WT&SD)	V	React JS	R20WT504	2021-2022	1. Components. Gain insights into components, building blocks of a React app; build and compose reusable components. 2. JSX. ... 3. State. ...

					4. Network requests. ...
					5. Isomorphic applications. ...
					6. Master Redux. ...
					7. Test-driven development. ...
					8. Build efficient forms.
III B.VOC(WT&SD)	VI	DATA STRUCTURES	R20WT601	2021-2022	1. Ability to analyze algorithms and algorithm correctness. 2. Ability to summarize searching and sorting techniques 3. Ability to describe stack, queue and linked list operation. 4. Ability to have knowledge of tree and graphs concepts
III B.VOC(WT&SD)	VI	.Net Programming	R20WT602	2021-2022	1. Create, compile and run object-oriented C# programs using Visual Studio 2. Write and understand C# language constructs, syntax and semantics 3. Develop reusable .NET components via interface realization and standard design patterns. 4. Develop a web based application with all validations. 5. Leverage the major namespaces and classes of the .NET Framework 6. Access databases using Language Integrated Query (LINQ)
III	VI	Django	R20WT603	2021-2022	1. How to create routes (or views) with Django .

B.VOC(WT&SD)					2. How to serve static content and files using Django . 3. How to connect templates with models to serve data dynamically. 4. How to create Models and how to connect them with Templates and Views. 5. How to work with databases using SQLite.
III B.VOC(WT&SD)	VI	Mobile Development Application	R20WT604	2021-2022	1. Identify various concepts of mobile programming that make it unique from programming for other platforms, 2. Critique mobile applications on their design pros and cons, 3. Utilize rapid prototyping techniques to design and develop sophisticated mobile interfaces, 4. Program mobile applications for the Android operating system that use basic and advanced phone features, and 5. Deploy applications to the Android marketplace for distribution.
I BCom(comp)	I	INFORMATION TECHNOLOGY	R20COMC103 A	2022-23	1. Recognize when to use each of the Microsoft Office programs to create professional documents 2. Recognize when to use each of the Microsoft Office programs to create academic documents 3. Use Microsoft Office programs to create personal, academic and business documents following current professional and/or

					industry standards.
					4. Apply skills and concepts for basic use of computer hardware, software, networks, and the Internet in the workplace
					5. in future coursework as identified by the internationally accepted Internet and Computing Core (IC3) standards.
I BCOM COMP	II	E-COMMERCE&WEB DESIGNING	R20COMC203A	2022-23	1. Insert a graphic, table, form, links within a web page. 2. Use cascading style sheets. 3. Create and validate a web page and Ability to build a website. 4. Use operators, variables, arrays, control structures, functions and objects in JavaScript. 5. Use regular expressions for form validation.
II B.Com (Computers):	III	Programming with C & C++	R20BCOMP301	2021-2022	1. Develop programming skills 2. Declaration of variables and constants use of operators and expressions 3. learn the syntax and semantics of programming language 4. Be familiar with programming environment of C and C++ 5. Ability to work with textual information (characters and strings) & arrays 6. Understanding a functional hierarchical code organization 7. Understanding a concept of object thinking within the framework of functional model

					8. Write program on a computer, edit, compile, debug, correct, recompile and run it
					9. Choose the right data representation formats based on the requirements of the problem
					10. Analyze how C++ improves C with object-oriented features
					11. Evaluate comparisons and limitations of the various programming constructs and choose correct one for the task in hand.
					12. Exploring C programming and Design C++ classes for code reuse (Practical skills***)
II B.COM(COMPUTERS)	IV	Data Base Management System	R20BCOMP401	2021-2022	1. Understand the role of a database management system in an organization. 2. Understand basic database concepts, including the structure and operation of the relational data model. 3. Understand and successfully apply logical database design principles, including E-R diagrams and database normalization 4. Understand Functional Dependency and Functional Decomposition 5. *Explains (Understanding*)* 6. To design and build a simple database system and demonstrate

					competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.
					7. Perform PL/SQL programming using concept of Cursor Management, Error
					Handling, Packages
					8. *Critically examines, using data and figures (Analysis and Evaluation**)*
					9. Apply various Normalization techniques
					10. Model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model
II B.Com(computers)	IV	Object Oriented Programming with Java	R20BCOMP402	2021-2022	1. Understanding the meaning and necessity of audit in modern era 2. Comprehend the role of auditor in avoiding the corporate frauds 3. Identify the steps involved in performing audit process 4. Determine the appropriate audit report for a given audit situation 5. Apply auditing practices to different types of business entities 6. Plan an audit by considering concepts of evidence, risk and materiality
III B.Com(Computers)	V	MOBILE APPLICATION DEVELOPMENT	R20BBCOMP501	2022-23	1. Identify basic terms, tools and software related to android systems 2. Describe components of IDE, understand features of android development tools

					3. Describe the layouts and controls
					4. Explain the significance of displays using the given view
					5. Explain the features of services and able to publish android Application
					6. Developing interesting Android applications using MIT App Inventor.
III BCOM(COMPUTERS)	V	CYBER SECURITY AND MALWARE ANALYSIS	R20BBCOMP502	2022-2023	1. Understand the computer networks, networking tools and cyber security 2. Learn about NIST Cyber Security Framework 3. Understand the OWASP Vulnerabilities 4. Implement various Malware analysis tools 5. Understand about Information Technology act 2000
I.BCOM(GEN, LOG), BBA, B.Sc (MPC,CBZ)	I	COMPUTER APPLICATIONS	R20LSC 101CS	2020-2021	1. Demonstrate basic understanding of computer hardware and software. 2. Apply skills and concepts for basic use of a computer. 3. Identify appropriate tool of MS office to prepare basic documents, charts, spreadsheets and presentations. 4. Create personal, academic and business documents using MS office. 5. Create spreadsheets, charts and presentations. And Analyze data using charts and spread sheets.

Class	Semester	Title	Course Code	W.E.F	Course Outcomes
I.BCOM(GEN,TP,LOG), BBA, B.Sc(MPC,CBZ)	II	INFORMATION& COMMUNICATION TECHNOLOGY	R20LSC201CS	2020-2021	1. Understand the literature of social networks and their properties and Explain which network is suitable for whom. 2. Develop skills to use various social networking sites like twitter, flickr, etc. 3. Learn few GOI digital initiatives in higher education. 4. Apply skills to use online forums, docs, spreadsheets, etc for communication, collaboration and research. 5. Get acquainted with internet threats and security mechanisms.

DEPARTMENT OF TELUGU

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
1 B.Com Gen,TP,Log,Comp BBA,BCA B.Sc MPCS,CBZ, MECS,MCCS DS,MSCS	1	General Telugu	R20TEL101A	2020-2021	✓ ప్రాచీన సాహిత్యం యొక్క ప్రాచీనత గుర్తిస్తారు,నన్నయ కాలమం నాటి భాషా సంస్కృతులను రాజనీతి పట్ల పరిజ్ఞానాన్ని సంపాదించగలరు. ✓ శివ కవుల నాటి మత పరిస్థితులను సామెతలను లోకోక్తులపై పరిజ్ఞానం పొందగలరు. ✓ తిక్కన నాటి మత ధార్మిక పరిస్థితులు రచనా రీతులపై అవగాహన

					చేసుకోగలరు.
					✓ పోతన సహజ లక్షణ రీతులు భాగవతం పై భక్తి భావన పొందగలుగుతారు.
					✓ మొల్ల రామాయణం రచన రీతి వ్యాకరణం పై అవగాహన పొందగలుగుతారు.
B.Com Gen,TP,Log,Comp, BBA,BCA B.Sc MPCS,CBZ,MECS, MCCS,MSCS,DS	2	General Telugu	R20TEL201A	2020-2021	✓ ఆధునిక కవిత్వంపై అవగాహన, దువ్వూరి, అలిశెట్టి కవిత రీతులను అవగాహన చేసుకోగలరు. ✓ కథానిక ప్రక్రియ పై పరిచయం, కాళీపట్నం,రెంటాల రచనలపై అవగాహన చేసుకోగలరు. ✓ నవల ప్రక్రియ పై పరిచయం,రథచక్రాలు నవల స్థితిగతులపై అవగాహన చేసుకోగలరు. ✓ నాటక ప్రక్రియపై పరిచయం, యక్షగానం లో కళాకారుల స్థితిగతులపై అవగాహన చేసుకోగలరు. ✓ విమర్శ ప్రక్రియ పై అవగాహన,ఉత్తమ విమర్శకుడికి ఉండవలసిన లక్షణాలు తెలుసుకోగలరు.
B.Com Gen,TP,LOG,COMP, BBA,BCA B.Sc MPCS,CBZ,MECS,MCCS, MSCS,DS	3	General Telugu	R20TEL301	2021-2022	✓ వ్యక్తీకరణ నైపుణ్యాలపై పరిచయం,భాషా వర్ణము,వాక్య నిర్మాణాలపై అవగాహన పొందగలరు. ✓ సృజనాత్మక రచనా పరిచయం, కవిత,కథ,వ్యాస రచనలపై అవగాహన పొందగలరు.

					✔ అనువాద రచన పై అవగాహన, అనువాదకుడికి ఉండే అవరోధాలపై అవగాహన పొందగలరు. ✔ మాధ్యమాలకు రచనపై పరిచయం,వివిధ మాధ్యమాల రచనాపై అవగాహన పొందగలరు. ✔ ప్రసార మాధ్యమాలు రేడియో,టెలివిజన్ రంగాలపై అవగాహన పొందగలరు.

<p style="text-align:center"><u style="color:blue">DEPARTMENT OF HINDI</u></p>

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
1 B.Com Gen,TP,Log,Comp BBA,BCA B.Sc MPCS,CBZ, MECS,MCCS DS,MSCS	1	GENERAL HINDI-1	R20HIN101A`	2022-2023	✔ Understanding the vision of premchand about farmer. ✔ Students gained knowledge of the concept meaning and importance of Hindi. ✔ Enrich Hindi vocabulary. ✔ Student is able to speak & write grammatically correct language. ✔ Exploring analysing and enriching the self-knowledge.
B.Com Gen,TP,Log,Comp, BBA,BCA B.Sc MPCS,CBZ,MECS, MCCS,MSCS,DS	2	GENERAL HINDI-2	R20HIN201A	2022-2023	✔ Students are able to understand the values of our country patriotism. ✔ Students are able to appreciate the courage shown by Prudhvi Raj as deputed in the play. ✔ Strengths the quality of Hindi language of students

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
					by mean of Grammar. ✓ Install's a critical approach to Hindi. ✓ Developing skill of writing official letters.
B.Com Gen,TP,LOG,COMP, BBA,BCA B.Sc MPCS,CBZ,MECS,MCCS, MSCS,DS	3	GENERAL HINDI-3	R20HIN301	2021-2022	✓ Students understood different stages and relevance of Hindi Literature. ✓ Describing the progressive nature of Sant Kabir and his Writing. ✓ Evaluate Hindi Literature from past to present. ✓ Gaining socio culture consciousness. ✓ Understanding the importance of translation.

DEPARTMENT OF ENGLISH

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
B.Com Gen, TP, LOG, COMP, BBA,BCA B.Sc. MPCS,CBZ,MECS,MCCS, MSCS,DS	I	A Course in Communication and soft skills	R20ENG 101A	2022-2023	⊕ Exhibit various aspects of communication by way of active listening. ⊕ Learn to communicate and give presentation at a gathering. ⊕ Understand and practice different techniques of communication. ⊕ Develop good leadership skills and increase productivity, thereby creating a positive environment. ⊕ Develop all-round personalities to function effectively in different circumstances and can take part in various selection procedures adopted by the

					recruiters.
B.Com Gen, TP, LOG, COMP, BBA,BCA B.Sc. MPCS,CBZ,MECS,MCCS, MSCS,DS	II	A Course in Reading and Writing skills	R20ENG 201A	2022-2023	⊕ Develop academic vocabulary, reading and writing skills through a variety of reading and writing assignments. ⊕ Demonstrate improved oral language fluency and listening comprehension skills ⊕ Students can become as critical thinkers, readers and writers ⊕ Reading and writing skills by improving the ability to construct and structure sentences. ⊕ Synthesize information from a minimum of two sources and present both verbally and in writing.
B.Com Gen, TP, LOG, COMP, BBA,BCA B.Sc. MPCS,CBZ,MECS,MCCS, MSCS,DS	III	A Course in Conversation skills	R20ENG 301	2022-2023	⊕ Students become confident of speaking in English impeccably and with utmost enthusiasm. ⊕ Develop knowledge, skills, and judgment around human communication that facilitate their ability to work collaboratively with others. ⊕ Students can become extroverts with improved confidence. ⊕ Understand and practice Interview Etiquettes. ⊕ Become more self-confident and develop strong determination.

DEPARTMENT OF MATHEMATICS & STATISTICS

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
B.Sc.(MPC, MPCS,MECS, MCCS,MSCS)	I	DIFFERENTIAL EQUATIONS	R20MAT101A	2022-23	• Gain knowledge on the concept of first order & first degree differential equations • Gain knowledge about the concept of Orthogonal Trajectories. • Gain knowledge on the concept of higher order differential equations. • Evaluate higher order linear Differential equations. • Evaluate basic application problems described by second order linear differential equations with constant coefficients.
B.Sc(DS)	I	MATHS FOR DATA SCIENCE	R20DSMAT101A	2022-23	• Gain knowledge on the concept of Determinants, Inverse & Rank of matrices • Apply Cayley-Hamilton Theorem on problems of linear equations. • To implement the concept of eigen values and vectors. • Learn how to solve Homogeneous and Non-Homogeneous equations Linear programming problems • Learn the concepts of limits ,continuity and their Applications • Understand Mean value theorems & their

					Applications.
BCA	I	NUMERICAL AND STATISTICAL METHODS	R20CMAT101A	2022-23	• Apply an appropriate numerical method to solve algebraic or transcendental equations • Learn how to solve system of linear equations, eigen values & eigen vectors of a square matrix. • Gain knowledge on the concept of Interpolation. • Apply various statistical techniques such as Measures of Central Tendency and Dispersion. & Understanding of relationship between variables using the method of Correlation and Fit Analysis. • Understand the concept of Probability & their Applications
B.Voc(WT/SD)	I	DISCRETE MATHEMATICS – I	R20WSMAT101A & R20ITMAT101A	2022-23	• Gain knowledge related to the conce Algebra. • Find solutions in Special products, facto HCF & LCM of algebraic expressions. • Understand about fractions, exponen Fundamental operations. • Understand Radical form, similar ra addition, multiplication & division of radi conjugates. • Learn to solve Simple operations with complex nos.

Course	Sem	Subject	Code	Year	Course Outcomes
B.Sc.(MPC, MPCS,MECS, MCCS,MSCS)	II	SOLID GEOMETRY	R20MAT201A	2022-23	• Understand the concept of three dimensional geometry • Measure the volumes of various solid shapes • Find numerical solutions in the fields of construction, defence .etc. • Define Skew lines and calculate the shortest distance between skew lines. • Inculcate knowledge in solving problems on Analytical Geometry.
B.VOC(IT)& B.VOC(WT	II	DISCRETE MATHEMATICS-II	R20WSMAT201A	2022-23	• Understand the concept of Algebra • Finding solutions in Special products, exponents, Fundamental operations. • Understand applications in classical mechanics. • Determine properties of relations • Identity functions and their properties.
B.Sc.(MPC, MPCS,MECS, MCCS,MSCS)	III	ABSTRACT ALGEBRA	R20MAT301	2021-22	• Understand the concept of abstract algebra • Express complex problems in algebraic form and to solve them. • Understand the concept of Groups. • Define algebraic structures. • Understand the concept of binary operations by definitions and examples.
B.VOC (IT) &	III	ALGEBRAIC SOLUTIONS AND NUMERICAL	WSMAT301/ ITMAT301	2021-22	• Acquire the basic knowledge and structure of Progressions. • Understand the significance of the

BVOC(WT)		ANALYSIS			notation of a Interpolation. • Understand the behavior of permutations and operations on them. • Understand the forward, backward & central differences with applications. • Understand Numerical Solution Techniques
ALL II YEAR GROUPS	III	ANALYTICAL SKILLS	R20LSC301	2021-22	• Understand the basic concepts of arithmetic ability, quantitative ability, logical reasoning, business computations and data interpretation and obtain the associated skills. • Acquire competency in the use of verbal reasoning. • Apply the skills and competencies acquired in the related areas • Solve problems pertaining to quantitative ability, logical reasoning and verbal ability inside and outside the campus. • Apply Skill development in quantitative techniques.
B.Sc (MPC,MPCs,MECs, MCCs,MSCs)	IV	REAL ANALYSIS	R20MAT401	2021-22	• Get a clear idea about the real numbers and real valued functions. • Obtain the skills of analyzing the concepts and applying appropriate methods for testing convergence of a

					• sequence/ series • Test the continuity and differentiability and Riemann integration of a function. • Know the Geometrical interpretation of mean value theorems. • Understand the theory of Sequences and Series.
B.Sc (MPC,MPCs,MECs, MCCs,MSCs)	IV	LINEAR ALGEBRA	R20MAT402	2021-22	• Understand the concepts of vector spaces, subspaces, bases, dimension and their properties. • Understand the concept of Linear Transformation and their properties. • Apply Cayley-Hamilton Theorem for finding Inverse of Matrix and high powers of matrices without using routine methods. • Learn the properties of inner product spaces and determine orthogonality in inner product spaces. • Understand Orthogonalisation Process.
B.Sc IOT	IV	ADVANCED NUMERICAL ANALYSIS	R20IOTMAT401	2021-22	• Find solutions for algebraic equations, ordinary differential equations • Calculate the errors and approximations in numerical methods. • Analyse finite differences. • Apply Knowledge in Statistics through Curve Fitting.

					• Gain knowledge on Numerical Differentiation and Integration Concepts.
B.VOC(IT &ITS) & B.VOC(WT)	IV	NUMERICAL AND STATISTICAL METHODS	ITMAT401 & WSMAT401	2021-22	• Develop Skill to choose and apply appropriate numerical methods to obtain appropriate solutions to different mathematical problems. • Apply various statistical technique such as measures of central tendency and dispersion • Understand the relation between variables using the method of correlation and fit analysis. • Develop Skills to execute programs of various numerical methods and statistical techniques for solving mathematical problems. • Understand and implement various concepts of Statistics in real life.
					• Understand the Beta and Gamma functions, their properties and relation between these two functions, understand the orthogonal properties of Chebyshev polynomials and recurrence relations. • Find power series solutions of ordinary differential equations. • Solve Hermite equation and write the

B.Sc (MPC,MPCs,MCCs ,MECs,MSCs)	V/VI	SPECIAL FUNCTIONS	R20MATA502/R20MATA602	2022-23	Hermite Polynomial of order (degree) n, also find the generating function for Hermite Polynomials, study the orthogonal properties of Hermite Polynomials and recurrence relations. • Solve Legendre equation and write the Legendre equation of first kind, also find the generating function for Legendre Polynomials, understand the orthogonal properties of Legendre Polynomials. • Solve Bessel equation and write the Bessel equation of first kind of order n, also find the generating function for Bessel function understand the orthogonal properties of Bessel function.
B.Sc (MPC,MPCs,MCCs ,MECs,MSCs)	V/VI	NUMERICAL METHODS	R20MATA501/ R20MATA601	2022-23	• Understand the subject of various nume methods that are used to o approximate solutions • Understand various finite difference cond and interpolation methods. • Work out numerical differentiation integration whenever and wherever ro methods are not applicable. • Find numerical solutions of ord differential equations by using va

					• numerical methods. • Analyze and evaluate the accuracy numerical methods.
B.Sc.(MPC, MPCS,MECS, MCCS,MSCS)	II	SOLID GEOMETRY	R20MAT201A	2022-23	• Understand the concept of three dimensional geometry • Measure the volumes of various solid shapes • Find numerical solutions in the fields of construction, defence .etc. • Define Skew lines and calculate the shortest distance between skew lines. • Inculcate knowledge in solving problems on Analytical Geometry.
B.VOC(IT)& B.VOC(WT	II	DISCRETE MATHEMATICS-II	R20WSMAT201A	2022-23	• Understand the concept of Algebra • Finding solutions in Special products, exponents, Fundamental operations. • Understand applications in classical mechanics. • Determine properties of relations • Identity functions and their properties.
B.Sc.(MPC, MPCS,MECS, MCCS,MSCS)	III	ABSTRACT ALGEBRA	R20MAT301	2021-22	• Understand the concept of abstract algebra • Express complex problems in algebraic form and to solve them. • Understand the concept of Groups. • Define algebraic structures. • Understand the concept of binary

					operations by definitions and examples.
B.VOC (IT) & BVOC(WT)	III	ALGEBRAIC SOLUTIONS AND NUMERICAL ANALYSIS	WSMAT301/ ITMAT301	2021-22	• Acquire the basic knowledge and structure of Progressions. • Understand the significance of the notation of an Interpolation. • Understand the behavior of permutations and operations on them. • Understand the forward, backward & central differences with applications. • Understand Numerical Solution Techniques
ALL II YEAR GROUPS	III	ANALYTICAL SKILLS	R20LSC301	2021-22	• Understand the basic concepts of arithmetic ability, quantitative ability, logical reasoning, business computations and data interpretation and obtain the associated skills. • Acquire competency in the use of verbal reasoning. • Apply the skills and competencies acquired in the related areas • Solve problems pertaining to quantitative ability, logical reasoning and verbal ability inside and outside the campus. • Apply Skill development in quantitative techniques.

Program	Semester	Course Name	Course Code	Year	Course Outcomes
B.Sc (MPC,MPCs,MECs, MCCs,MSCs)	IV	REAL ANALYSIS	R20MAT401	2021-22	• Get a clear idea about the real numbers and real valued functions. • Obtain the skills of analyzing the concepts and applying appropriate methods for testing convergence of a sequence/ series • Test the continuity and differentiability and Riemann integration of a function. • Know the Geometrical interpretation of mean value theorems. • Understand the theory of Sequences and Series.
B.Sc (MPC,MPCs,MECs, MCCs,MSCs)	IV	LINEAR ALGEBRA	R20MAT402	2021-22	• Understand the concepts of vector spaces, subspaces, bases, dimension and their properties. • Understand the concept of Linear Transformation and their properties. • Apply Cayley-Hamilton Theorem for finding Inverse of Matrix and highpowers of matrices without using routine methods. • Learn the properties of inner product spaces and determine orthogonality in inner product spaces. • Understand Orthogonalisation Process.
B.Sc IOT	IV	ADVANCED NUMERICAL	R20IOTMAT401	2021-22	• Find solutions for algebraic equations, ordinary differential equations

		ANALYSIS			• Calculate the errors and approximations in numerical methods. • Analyse finite differences. • Apply Knowledge in Statistics through Curve Fitting. • Gain knowledge on Numerical Differentiation and Integration Concepts.
B.VOC(IT &ITS) & B.VOC(WT)	IV	NUMERICAL AND STATISTICAL METHODS	ITMAT401 & WSMAT401	2021-22	• Develop Skill to choose and apply appropriate numerical methods to obtain appropriate solutions to different mathematical problems. • Apply various statistical technique such as measures of central tendency and dispersion • Understand the relation between variables using the method of correlation and fit analysis. • Develop Skills to execute programs of various numerical methods and statistical techniques for solving mathematical problems. • Understand and implement various concepts of Statistics in real life.
					• Understand the Beta and Gamma functions, their properties and relation between these two functions, understand the orthogonal properties

B.Sc (MPC,MPCs,MCCs ,MECs,MSCs)	V/VI	SPECIAL FUNCTIONS	R20MATA502/R20MATA602	2022-23	of Chebyshev polynomials and recurrence relations. • Find power series solutions of ordinary differential equations. • Solve Hermite equation and write the Hermite Polynomial of order (degree) n, also find the generating function for Hermite Polynomials, study the orthogonal properties of Hermite Polynomials and recurrence relations. • Solve Legendre equation and write the Legendre equation of first kind, also find the generating function for Legendre Polynomials, understand the orthogonal properties of Legendre Polynomials. • Solve Bessel equation and write the Bessel equation of first kind of order n, also find the generating function for Bessel function understand the orthogonal properties of Bessel function.
B.Sc (MPC,MPCs,MCCs ,MECs,MSCs)	V/VI	NUMERICAL METHODS	R20MATA501/ R20MATA601	2022-23	• Understand the subject of various nume methods that are used to o approximate solutions • Understand various finite difference con and interpolation methods.

					• Work out numerical differentiation integration whenever and wherever rou methods are not applicable. • Find numerical solutions of ordi differential equations by using va numerical methods. • Analyze and evaluate the accuracy numerical methods.

<p align="center"><u>STATISTICS</u></p>

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
MSCs, DS	I	Descriptive Statistics	R20STAT101A R20DSSTAT101A	2021-2022	➤ Tabulate and represent the data in Diagrams and Graphs. ➤ Apply the formula and calculate descriptive measures of statistics. ➤ Calculate and interpret the correlation between two variables and analyse the data and predict the future value using curve fitting. ➤ Calculate the simple linear regression equation for a set of data and significance of the correlation coefficient. ➤ Examine the association between the attributes.
MSCs, DS	II	Probability Theory and Distributions	R20STAT201A R20DSSTAT201A	2021-2022	➤ Compute probabilities using classical, statistical and axiomatic approach. Translate real-world problems into probability models. ➤ Examine the given variable is either discrete or continuous and also to calculate joint, marginal and

					conditional distributions in bi-variate random variables.
					➢ Solve the problems in mathematical expectations and also apply the concept of chebychev's inequality.
					➢ Derive the characteristics of discrete univariate distributions.
					➢ Derive the characteristics of continuous univariate distributions.
MSCs, DS	III	Statistical Inference	R20STAT301	2020-2021	➢ Construct the point and interval estimators. Evaluate the properties of estimators. Demonstrate understanding of the theory of maximum likelihood estimation.
					➢ Understand testing of statistical hypothesis, Neymann Pearson Lemma.
					➢ Distinguish various large sample tests used in sampling theory.
					➢ Distinguish various small sample tests used in sampling theory.
					➢ Understand the concept of non- parametric tests.
MSCs, DS	IV	Sampling Techniques and Design of Experiments	R20STAT401 R20DSSAT401	2020-2021	➢ Gain knowledge about simple random sampling with and without replacement and estimation of variances.
					➢ Analyse various sampling techniques and make interpretations for further studies.
					➢ Able to analyse one-way and two-way classification without interactions
					➢ Can design CRD, RBD and LSD Layouts and their

					Statistical analysis- and can estimate the efficiencies of LSD over RBD and CRD ➤ Can do the statistical analysis of 2^2, 2^3 and 3^2 Factorial Experiment designs.
MSCs, DS	IV	Applied Statistics	R20STAT402 R20DSSTAT402	2000-2021	➤ Identify the components of time series and the method of measuring trend. ➤ Apply the different measures of variations to forecast the data. ➤ Construct, evaluate and interpret the index numbers. ➤ Can estimate measures of vital events basic aspects, viz. the fertility, mortality and migration. ➤ Construction and implication of life tables.
MSCs, DS	V	Operations Research - I	R20STATA501/601 R20DSSTATA501/601	2021-2022	➤ Able to formulate a given simplified description of a suitable real-world problem as a linear programming model in general, standard and canonical forms ➤ Can draw a graphical representation of a two-dimensional linear programming model given in general, standard or canonical forms. ➤ Use the simplex method to solve small linear programming models by hand, given a basic feasible point. ➤ Solve linear programming problems using appropriate techniques and optimization solvers, interpret the results obtained. ➤ Solve Post optimal linear programming problems.
MSCs, DS	VI	Operations Research - II	R20STATA502/602 R20DSSTATA502/602	2021-2022	➤ Interpret minimum cost of transporting item from Source and estimation.

					➢ Analyze the optimum schedule and assignment schedule. ➢ Evaluate Total Elapsed time, Idle time for processing of jobs. ➢ Get Knowledge about network construction and to find critical path and total project duration. ➢ The intention of game theory is to produce optimal decision-making of independent and competing actors in a strategic setting.
IOT	III	R20IOTSTAT301	Descriptive Statistics	2021-2022	➢ Apply the formula and calculate descriptive measures of statistics. ➢ Calculate and interpret the correlation between two variables. Analyse the data and predict the future value using curve fitting. ➢ Calculate the simple linear regression equation for a set of data and significance of the correlation coefficient. ➢ Derive the characteristics of discrete univariate distributions. ➢ Derive the characteristics of continuous univariate distributions.
IOT	IV	R20IOTSTAT401	Statistical Inference	2021-2022	• Construct the point and interval estimators, evaluate the properties of estimators and demonstrate the theory of maximum likelihood estimation. ➢ Understand testing of statistical hypothesis, Neymann Pearson Lemma. ➢ Distinguish various large sample tests used in

					sampling theory.
					➢ Distinguish various small sample tests used in sampling theory.
					➢ Analyze various sampling techniques and make interpretations for further studies.

DEPARTMENT OF CHEMISTRY

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
I B.Sc (MPC, CBZ and MCCS)	I	Inorganic and Physical Chemistry	R20CHE101A	2022-23	➢ Understand the structure and preparation of boron, silicon, nitrogen, phosphorous, sulphur and halogen compounds. ➢ The students could able to know the electronic configuration of d-block elements and its effect on colour and magnetic properties. Catalytic properties of d-block elements its industrial applications. ¬ The students could able to know the conductors and semiconductors. ➢ The students could able to know the conductors and semiconductors. ➢ Recognises the difference between d- block elements and f-block elements, Lanthanide contraction and its consequences, Colour properties, Lanthanides separation. ➢ Students will be in a position to apply the concepts of the topic in various scientific

					• situations, say, conductivity of crystals due to crystal defects etc. • Ability to differentiate between real and ideal gases. Also, they will be in a position to explain why only real gases show Joule- Thomson effect and why only real gases can be liquefied. Learning 'Liquid state' makes them aware of classification of liquid crystals and will be in a position to explain the functioning of LCD. • Make the students aware of all the fundamental concepts of Solutions, and its applications such as isotonic solutions, azeotropic mixtures etc.
I B.Sc (MPC, CBZ and MCCS)	II	Organic and General Chemistry	R20Che201A	2022-23	• Students are expected to know the differences between alkaes, methods of synthesis, chemical properties, various types of strains involved in the cyclic hydrocarbons and their effect on their geometry and chemical properties, theories of strain such as Bayer's theory. • The student will demonstrate the chemical behavior of alkenes and alkynes by identifying properties of alkenes and alkynes, drawing the mechanism for alkene addition reactions, using Markovnikov's rule to predict the region specificity of several alkene addition reactions and Identifying and illustrating reactions of alkynes • Students are to be in a position to apply the concept of resonance in explaining different

					phenomena such as acidity, basicity of acids, phenols and amines. Also, they are expected to be in a position to explain the preference of electrophilic and nucleophilic substitutions for ortho, para or meta positions. ➢ Students will have clear idea of all the concepts and will be in a position to apply the concepts in explaining water purification methods, colloidal medicines etc. ➢ Student can explain most of the chemical phenomena in daily life. ➢ This will make the students to understand how the three dimensional structure of molecules effect their chemical and physical properties. Also, they are in a position to explain the importance of stereochemistry in medicine.
II B.Sc (MPC, CBZ and MCCS)	III	Organic Chemistry and Spectroscopy	R20CHE301	2021-22	➢ Acquires knowledge on halogen derivatives of organic compounds, Types of organic reactions, Importance of stereochemistry in the organic reactions especially in substitution reactions. ➢ Able to differentiate alcohols and phenols, able to write preparative methods for alcohols and phenols. ➢ Distinguishes between different carbonyl compounds, able to write preparation methods of carbonyl compounds, Synthetic importance of base catalysed reactions.

					- Able to describe the importance of carbanion in the organic synthesis, write the synthetic applications of malonic ester and acetoacetic ester. - Names the carboxylic acids according to IUPAC, describes the acidity, write the methods of preparation and reactivity. - Students will able to apply Beer- Lambert law for quantitative determinations. Able to know the modes of vibrations in organic molecules. ¬ Able to identify type of functional group present in the organic molecules. ¬ Able to learn the magnetic behaviour of ^{1}H and elucidation of structures of organic compounds by using ^{1}H-NMR data. - Able to identify the type of conjugation in organic molecules and effect of conjugation on colour of the compounds.
II B.Sc (MPC, CBZ and MCCS)	IV	Inorganic, Organic and Physical Chemistry	R20CHE401	2021-22	- Students should be able to realize the potential applications of Organometallic compounds in the synthesis of various chemicals and polymers of day today use both in micro scale macro scale. - Describe and recognize the basic and ring structures of glucose and fructose and their conversions. - Predict the different type of amino acids and recognize the basic properties of amino acids.

					- The student will learn nomenclature, structure, properties, syntheses, and reactions of the simple 5 and 6-membered ring heterocyclics. - Able to understand the nomenclature of nitro hydrocarbons, tautomerism in nitro hydrocarbons. - Students understand the nomenclature of amines, Basicity of amines, comparison of basicity, separation of amines. Chemical properties of amines. - Understand difference between thermal and photochemical reactions, laws of photochemistry, quantum yield and types of photochemical reactions. - Able to learn the different types of thermodynamic systems, reaction energies, feasibility of the chemical reactions, entropy and its significance.
II B.Sc (MPC, CBZ and MCCS)	IV	Inorganic and Physical Chemistry	R20CHE402	2021-22	- Students able to learn the bonding in the coordinate compounds, stability, colour and magnetic properties, Learn the CFSE calculations, Isomerism in complex compounds. - Able to know the stability and reactivity of the complexes, labile and inert complexes, methods for determination of composition of the complexes and calculation of magnetic moment. - Students could able to learn the applications of

					phase rule in metallurgy, desilvarisation of lead.
					➢ Student could able differentiate strong electrolytes and weak electrolytes, determine the transport numbers able to calculate the EMF of the given cell.
					➢ Apply experimental techniques to the determination of rate laws and rate constants.
III B.Sc (MPC, CBZ and MCCS)	V/VI	Synthetic Organic Chemistry	R20CHEA501/ R20CHEA601	2022-23	➢ Able to analyse the mode of activation of a pericyclic reaction. ➢ Understand the concept of organic photochemistry with different processes and terminologies and know about the photochemical reactions of carbonyl compounds. ➢ Know about the synthesis of some simple molecules using disconnection approach. ➢ Understand the formation of C-C bonds through coupling reactions. ➢ Able to understand the different types of reagents used for oxidation and reduction reactions.
III B.Sc (MPC, CBZ and MCCS)	V/VI	Synthetic Organic Chemistry	R20CHEA502/ R20CHEA602	2022-23	➢ Do fragmentation pattern (analysis) of organic molecules by using mass spectrometry. ➢ Analysis of organic molecules by IR, NMR and Mass spectroscopic techniques. ➢ Student could able to acquire some basic knowledge of Chromatographic techniques like TLC, Paper, Column and HPLC.

					➢ Can apply these techniques for the separation of mixture of organic or inorganic compounds.
					➢ Develops the extraction techniques for organic molecules from plant materials

DEPARTMENT OF PHYSICS & ELECTRONICS

PHYSICS:

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
B.Sc. MPCS	I	Mechanics, Waves & Oscillations	R20PHY101A	2022-2023	✓ Understand Newton's laws of motion and motion of variable mass system and its application to rocket motion and the concepts of impact parameter, scattering cross section. ✓ Apply the rotational kinematic relations, the principle and working of gyroscope and its applications and the processional motion of a freely rotating symmetric top. ✓ Comprehend the general characteristics of central forces and the application of Kepler's laws to describe the motion of planets and satellite in circular orbit through the study of law of Gravitation. ✓ Understand postulates of Special theory of relativity and its consequences such as length contraction, time dilation, relativistic mass and mass-energy equivalence. ✓ Figure out the formation of harmonics and overtones in a stretched string and acquire the

					knowledge on Ultrasonic waves, their production and detection and their applications in different fields.
B.Sc. MPCS	II	Wave Optics	R20PHY201A	2022-2023	✓ Understand the phenomenon of interference of light and its formation in (i) Lloyd's single mirror due to division of wave front and (ii) Thin films, Newton's rings and Michelson interferometer due to division of amplitude. ✓ Distinguish between Fresnel's diffraction and Fraunhoffer diffraction and observe the diffraction patterns in the case of single slit and the diffraction grating. ✓ Understand the various methods of production of plane, circularly and polarized light and their detection and the concept of optical activity. ✓ Comprehend the basic principle of laser, the working of He-Ne laser and Ruby lasers and their applications in different fields. ✓ Understand the basic principles of fibre optic communication and explore the field of Holography and Nonlinear optics and their applications.
B.Sc. MPC & MPCS	III	HEAT & THERMODYNAMICS	R20PHY301	2021-22	✓ Understand the basic aspects of kinetic theory of gases, Maxwell-Boltzman distribution law,equipartition of energies, mean free path of molecular collisions and the transport phenomenon in ideal gases. 2. Gain knowledge on the basic concepts of

					thermodynamics, the first and the second law
					✓ of thermodynamics, the basic principles of refrigeration, the concept of entropy ,the Thermodynamic potentials and their physical interpretations.
					✓ Understand the working of Carnot's ideal heat engine, Carnot cycle and its efficiency.
					✓ Develop critical understanding of concept of Thermodynamic potentials, the formulation of Maxwell's equations and its applications.
					✓ Examine the nature of black body radiations and the basic theories.
B.Sc. MPC & MPCS	IV	Electricity, Electromagnetism & Electronics	R20PHY401	2021-22	✓ Understand the Gauss law and its application to obtain electric field in different cases and formulate the relationship between electric displacement vector, electric polarization, Susceptibility, Permittivity and Dielectric constant. ✓ Apply the knowledge of Gauss's law to derive relations connecting dielectric Parameters and their applications. ✓ Understand Biot and Savart's law and Ampere's circuital law to describe and explain the generation of magnetic fields by electrical currents. ✓ Develop an understanding on the unification of electric and magnetic fields and Maxwell's equations governing electromagnetic waves.

					✓ Understand the operation of basic logic gates and universal gates and their truth tables.
B.Sc. MPC & MPCS	IV	MODERN PHYSICS	R20PHY402	2021-22	✓ Develop an understanding on the concepts of Atomic and Modern Physics, basic elementary quantum mechanics and nuclear physics. ✓ Develop critical understanding of concept of Matter waves and Uncertainty principle. ✓ Get familiarized with the principles of quantum mechanics and the formulation of Schrodinger wave equation and its applications. ✓ Examine the basic properties of nuclei, characteristics of Nuclear forces, salient features of nuclear models and different nuclear radiation detectors. ✓ Get familiarized with the Nano materials, their unique properties and applications.
B.Sc. MPC & MPCS	V & VI	APPLICATIONS OF ELECTRICITY & ELECTRONICS	R20PHYC501/ R20PHYC601	2022-23	✓ Identify various components present in Electricity& Electronics Laboratory. ✓ Acquire a critical knowledge of each component and its utility (like resistors, capacitors, inductors, power sources etc.). ✓ Demonstrate skills of constructing simple electronic circuits consisting of basic circuit elements. ✓ Understand the need & Functionality of various DC & AC Power sources. ✓ Comprehend the design, applications and practices of various electrical & Electronic

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
					devices and also their trouble shooting.
B.Sc. MPC & MPCS	V & VI	ELECTRONIC INSTRUMENTATION	R20PHYC502 / R20PHYC602	2022-23	✓ Identify various facilities required to set up a basic Instrumentation Laboratory. ✓ Acquire a critical knowledge of various Electrical Instruments used in the Laboratory. ✓ Demonstrate skills of using instruments like CRO, Function Generator, Multimeter etc. through hands on experience. ✓ Understand the Principle and operation of different display devices used in the display systems and different transducers. ✓ Comprehend the applications of various biomedical instruments in daily life like B.P. meter, ECG, Pulse oxymeter etc. and know the handling procedures with safety and security.

ELECTRONICS & IoT:

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
I B.SC MECS	I	CIRCUIT THEORY AND ELECTRONIC DEVICES	R20ELE101A	2022-23	At the end of the course, the student will be able to CO1: Remember the concept of current & voltage in circuits. CO2: Understand various Electrical networks by using principles of network theorems. CO3: Understand the behaviour of R, C network with DC & sinusoidal excitation. CO4: Understand the behaviour of Inductor and it various states.

					CO5: Apply the concept of Resonance & R, L, C network with variation of any one of it.
I B.SC MECS	II	DIGITAL ELECTRONICS	R20ELE201A	2022-23	CO1: Understand the binary number theory of digital circuits. CO2: Remember the concepts of Boolean algebra and have knowledge to analyse and design Combinational systems using standard gates and minimization methods (such as karnaugh maps). CO3: Remember various logical inputs of different IC- logic families. CO4: Apply and design flip-flops and latches for sequential systems composed of standard Sequential modules, such as counters and registers. CO5: Analyse design combinational systems composed of standard combinational modules, such as multiplexers and decoders and understand various data manipulation circuits.
II B.SC MECS	III	ANALOG CIRCUITS AND COMMUNICATION	R20ELE301	2021-22	CO1: Analyse important types of integrated circuits. CO2: Demonstrate the ability to design practical circuits that perform the desired operation. CO3: Use of different modulation and demodulation techniques used in analog communication. CO4: Identify and solve basic communication problems. CO5: Analyse transmitters and receiver circuits.
					CO1: Gain good knowledge on microprocessor and implement in practical

					applications
II B.SC MECS	IV	MICROPROCESSOR SYSTEMS	R20ELE401	2021-22	CO2: Design system using memory chips and peripheral chips for 16 bit 8086 microprocessor. CO3: Understand and devise techniques for faster execution of instructions, CO4: Learn to understand speed of operations and performance of microprocessors. CO5: Understand multi core processor and its advantages.
II B.SC MECS	IV	MICRO CONTROLLER AND INTERFACING	R20ELE402	2021-22	CO1: Acquire knowledge about microcontrollers embedded processors and their applications. CO2: Understand the internal architecture and interfacing of different peripheral devices With Microcontrollers. CO3: Write the programs for microcontroller. CO4: Understand the role of embedded systems in industry. CO5: Understand the design concept of embedded systems.
III BSC MECS	VI	INDUSTRIAL ELECTRONICS	R20ELEA601	2022-23	Students after successful completion of the course will be able to: CO1: Identify various facilities required to set up a basic Instrumentation Laboratory. CO2: Acquire a critical knowledge of various Electrical Instruments used in the Laboratory. CO3:Demonstrate skills in using instruments like Rectifiers, Multimeters, Power supplies, Voltage Regulators etc. through

					hands-on experience.
					CO4: Understand the Principle and operation of different Electronic Heating devices.
					CO5: Design and analyse circuits containing digital components and microprocessors.
III BSC MECS	VI	ELECTRONIC INSTRUMENTATION	R20ELEA602	2022-23	Students after successful completion of the course will be able to: CO1: Identify various facilities required to set up a basic Instrumentation Laboratory. CO2: Acquire a critical knowledge of various Electrical Instruments used in the Laboratory. CO3: Demonstrate skills of using instruments like CRO, Function Generator, and Multimeter etc. through hands on experience. CO4: Understand the Principle and operation of different display devices used in the display systems and different transducers CO5: Comprehend the applications of various biomedical instruments in daily life like B.P.meter, ECG, Pulse oximeter etc. and know the handling procedures with safety and Security.
I B.SC IOT	I	BASIC ELECTRICTY AND DEVICES	R20IOTELE101A	2022-23	CO1: Analyses basic DC and AC electric circuits. CO2: Verify KCL, KVL, and maximum power transfer theorem (MPTT) and analyze the effects of open and short circuits in DC circuits. CO3: To apply the concept of Resonance & R, L, C network with variation of any one of it.

					CO4: To understand the operation and V-I characteristics of FET MOSFET, SCR & biasing of FET. CO5: Ability to understand operation and design aspects of rectifiers and regulators.
I B.SC IOT	II	ANALOG ELECTRONICS & DATA ACQUISITION	R20IOTELE201A	2022-23	CO1: Design & Develop signal conditioning/sensing circuits for sensor interfaces CO2:Test different data loggers for their features CO3: Understand the basic building blocks of linear integrated circuits and its characteristics. CO4: Analyse the linear- non-linear and specialized applications of operational amplifiers. CO5: Understand the theory of ADC and DAC.
II B.SC IOT	III	DIGITAL ELECTRONICS	R20IOTELE301	2021-22	CO1: Create the appropriate truth table from a description of a combinational logic Function. CO2: Create a gate-level implementation of a combinational logic function described by a truth table using and/or/inverter gates, MUX'S or ROMs, and analyse its timing behaviour. CO3: Create a state transition diagram from a description of a sequential logic function and then convert the diagram into an implementation of a finite-state machine with the appropriate Combinational and sequential components. CO4: Evaluate combinational and sequential logic designs using various metrics: switching speed, throughput/latency, gate count and area, energy dissipation and power.

					CO5: Properly incorporate synchronous and asynchronous memories into a circuit Design.
II B.SC IOT	IV	INTRODUCTION TO MICROPROCESSOR AND MICROCONTROLLER	R20IOTELE401	2021-22	CO1: Apply knowledge and demonstrate programming proficiency using the various addressing modes and data transfer instructions of the target microprocessor and microcontroller. CO2: Compare accepted standards and guidelines to select appropriate Microprocessor (8085 & 8086) and Microcontroller to meet specified performance requirements. CO3: Analyze assembly language programs; select appropriate assemble into machine a cross assembler utility of a microprocessor and microcontroller. CO4: Design electrical circuitry to the Microprocessor I/O ports in order to interface the processor to external devices. CO5: Evaluate assembly language programs and download the machine code that will provide solutions real-world control problems.
II B.SC IOT	IV	INTRODUCTION TO ARM MICROCONTROLLER	R20IOTELE402	2021-22	CO1: Understand the features of embedded systems, architecture of ARM7 and applications. CO2: Analyse and understand the instruction set and development tools of ARM. CO3: Analyse and understand the THUMB state and achieving competency in assembly programming of ARM. CO4: Understand the exception, interrupts and

					interrupt handling schemes. CO5: Understand the hardware and interfacing peripheral devices to LPC2148.
III B.SC IOT	V	Embedded Systems Design With Stm-32	R20IOTELEA501	2022-23	CO1: Understand the concept of embedded system, microcontroller, different components of microcontroller and their interactions. CO2: Get familiarized with programming environment to develop embedded solutions. CO3: Program ARM microcontroller to perform various tasks. CO4: Understand the key concepts of embedded systems such as I/O, timers, interrupts and interaction with peripheral devices. CO5: Understand the basic hardware components and their selection method based on the characteristics and attributes of an Embedded System.
III B.SC IOT	V	INTRODUCTION TO ARDUINO PROGRAMMING	R20IOTELEA502	2022-23	CO1: Familiar with Arduino environment and its applications. CO2: Able to understand Arduino programming with C++. CO3: Able to Design Smart systems applications. CO4: Able to understand about any new IDE, compiler, and MCU chip in Arduino compatible boards or similar types. CO5: Able to Understand the communication between smart phones and home appliances.
					CO1: Analyses the function of sensor in robot and

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
III B.SC IOT	V	Robotics And Its Applications	R20IOTA501	2022-23	design the robotic arm with various tools CO2: Demonstrate knowledge of industrial robots, characteristics, end effectors and actuators. CO3:Apply spatial transformation to obtain forward and inverse kinematics CO4: Describe working principle of various sensors and program different operations CO5: Appreciate applications of robots in industry.
III B.SC IOT	V	IOT Sensors & Communication protocols	R20IOTA502	2022-23	CO1: Design and develop IoT based sensor systems. CO2: Select IoT protocols and software. CO3: Evaluate the wireless technologies for IoT. CO4: Appreciate the need for IoT Trust and variants of IoT. CO5: Evaluate performance characteristics of different types of sensors.

DEPARTMENT OF COMMERCE & MANAGEMENT

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
B.Com. General TP Computers Logistics	I	Fundamentals of Accounting	R20COM101A	2022-23	o Develop the ability to use accounting concepts and principles o Demonstrate the ability to use a basic accounting system to create (record, classify and summarize) the business transactions. o To understand the entry of transactions in Double entry book keeping system and various

Course	Semester	Subject	Code	Year	Course Outcomes
					books of accounts.
					o Apply the use of the fundamental accounting equation to analyze the effect of business transactions in an organization
					o Understand the nature and purpose of financial statement.
B.Com. General TP Computers Logistics	II	Business Organisation and Management	R20COM102A	2022-23	o Understand the basic concepts of business organizations
					o Identify the factors involved in determining the formation of business units
					o Apply the ethics of business in the ordinary trade
					o Gain the knowledge on the applicability of the recent trends involved in various supporting institutions and secondary market
					o To propagate awareness on the role of supporting institutions for business
B.Com. General TP Computers Logistics BBA BCA	I	Insurance Promotion	R20SDC102B	2022-23	o Understand the field level structure and functioning of insurance sector and it's role in protecting the risks
					o Comprehend pertaining skills and their application for promoting insurance coverage
					o Plan 'promoting insurance coverage practice' as one of the career options.
					o To know about various types of insurance available.
					o Prepare better for the Insurance Agent

					examination conducted by IRDA.
B.Com. General	I	Business Environment	R20COMG103A	2022-23	o Identify and evaluate the complexities of business environment and their impact on the business. o Analyze the relationships between Government and business and understand the political, economic, legal and social policies of the country. o Analyze current economic conditions in developing emerging markets, and evaluate present and future opportunities. o Gain knowledge about the operation of different institutions in international business environment. o To have a critical study of liberalization, privatization and globalization.
B.Com. TP	I	Income Tax-I	R20COMT103A	2022-23	o To identify the technical terms related to Income Tax. o To determine the residential status of an individual and scope of total income. o To enable the students to compute income under various heads namely income from salaries, house property o To enable the students to discuss the various exemptions under section 10 the Income tax act, 1961. o To comprehend the basic knowledge of the

					laws governing to Income Tax.
B.Com. Logistics	I	Economies of Transport	R20COML103A	2022-23	o Understanding the issues & challenges in the Transportation Sector o To develop skills required for Transport planning & formulation o To learn the basic information about the integration of transportation types. o To understand the legal regulations related to land, air, sea and railway. o To know about the basic concepts of transportation and the importance of transportation
BBA	I	Principles of Management	R20BBA101A	2022-23	o Recognize opportunities and challenges associated with strategy-making o Identify how environments, strategy, structure, culture, tasks, people, and outputs, inform managerial decisions o Understand and analyze how managers can formulate and implement strategies effectively o Understand how the managerial tasks of planning, organizing, and controlling can be executed in a variety of circumstances. o To learn how good managers make organizations successful by building competitive advantages in the forms of cost competitiveness, quality, speed and innovation.

BBA	I	Managerial Economics	R20BBA102A	2022-23	o Apply the knowledge of the mechanics of supply and demand to explain working of markets o Describe how changes in demand and supply affect markets o Understand the choices made by a rational consumer o Explain relationships between production and costs o Define key characteristics and consequences of different forms of markets
BBA	I	Quantitative Methods for Managers	R20BBA103A	2022-23	o Engage in independent and reflective learning. Analyse problems, apply critical thinking, and draw conclusions based on business data. o Be familiar with relevant mathematical and statistical terminology. o Understand various quantitative & statistical methods o Understand data and draw inference from data o Identify ethical issues in business practice and statistical reporting.
B.Com. General TP Computers Logistics BBA BCA	II	Agriculture Marketing	R20SDC201B	2022-23	o Understand and appreciate the structure and working of the agricultural marketing system in India. o Learn how the agriculture marketing system affects the farmers, consumers, and intermediaries.

					o Develop strategies through which the dynamic marketing system will respond to create a win-win situation o Appreciate the possible changes in the agriculture input, output, and food market o Impart knowledge of the marketing efficiency and agricultural prices.
B.Com. General TP Computers Logistics BBA BCA	II	Advertising	R20SDC203B	2022-23	o To examine the economic and social aspects of advertising o To explain the concept of IMC o To evaluate brand building in advertising, special purpose advertising and trends in advertising o To identify aspects related to advertising agency and careers in advertising o To examine the fundamentals of creativity in advertising and the concept of creativity through endorsements
B.Com. General TP Computers Logistics	II	Financial Accounting	R20COM201	2022-23	o Exemplify to prepare and analyse the consignment accounts. o Acquire the basic concept of accounting terms. o Journalize the ability to rectify the errors in bank reconciliation statement. o Exposed to various methods of depreciation o Demonstrate insight into single and double

					entry system of accounting.
B.Com. General TP Computers Logistics	II	Business Economics	R20COM202	2022-23	o Paraphrase the importance of business economics and its terms. o Articulate the basic knowledge of the demand functions o Diagnose the factors of consumer behavior o Enumerate and identify the types of market and product pricing. o Identify and develop the in depth knowledge of business economics.
B.Com. General	II	Banking Theory and Practice	R20COMG203	2022-23	o Get familiarize with the basic concepts and practice of banking and the principles o To understand about recent trends and innovations in the banking sector. o To elucidate the bank lending policies and procedures o To know about electronic banking o To understand functions of different types of bank
B.Com. TP	II	Income Tax - II	R20COMT203	2022-23	o Ascertain the provisions of capital gains. o Articulate the basic concept related to income from other sources. o Familiars with the concept of clubbing of income.

Program	Year/Semester	Course Title	Course Code	Academic Year	Course Outcomes
					o Determine the concept related to deduction of gross income. o Integrate the concept of income tax authorizes.
B.Com. Logistics	II	Marketing and Sales Management	R20COML203	2022-23	o Articulate the fundamental concepts and functions of marketing. o Extrapolate the knowledge on market segmentation and consumer behavior. o Optimize the basic concept of market mix and product policy. o Expose the knowledge towards channel of distribution in the market. o Interpret the role and importance of modern trend in marketing.
BBA	II	Accounting for Managers	R20BBA201	2022-23	o Understanding the nature and purpose of financial statement o Journalize the ability to rectify the errors in bank reconciliation statement. o Develop the ability to use accounting concepts and principles o Applying the use of the fundamental accounting equation to analyze the effect of business transactions in an organization o To provide knowledge about procedure of

					issue of shares
BBA	II	Fundamentals of Marketing	R20BBA202	2022-23	o Articulate the fundamental concepts and functions of marketing. o Extrapolate the knowledge on product life cycle. o Optimize the basic concept of pricing strategies o Optimize the basic concept of promotion mix and product policy o Implement financial initiatives based on consumer behavior and fixation of the price.
BBA	II	e-Commerce	R20BBA203	2022-23	o To gain strong knowledge on basic commerce courses. o To understand the unique features of e-Commerce environment. o To impart entrepreneurial capabilities required for e-businesses o To encourage overall academic development of students to pursue higher studies or to take up employment. o To gain knowledge on ethical values of e-business environment.
B.Com. General TP	III	Advanced Accounting	R20COM301	2022-23	o To develop the skill of preparing income and expenditure account and balance sheet of an

Computers Logistics					organization with the help of given receipts and payments account and additional information. o To understand the difference between Single Entry and Double Entry System. o To gain basic knowledge of hire purchase transactions and its applicability in practical life. o To develop the skill of valuation of goodwill using different methods. o To develop the application skills to apply Garner Vs. Murray rule at the time of insolvency of a partner.
B.Com. General TP Computers Logistics	III	Business Statistics	R20COM302	2022-23	o To describe and discuss the key terminology, concepts tools and techniques used in business statistical analysis. o To apply discrete and continuous probability distributions to some business problems. o To calculate and apply some measures of location and measures of dispersion for grouped and ungrouped data. o To know the complementary relationship of skewness with measures of central tendency and dispersion in describing a set of data. o To describe how correlation is used to identify relationships between variables and describe how regression analysis is used to predict outcomes.

B.Com. General	III	Marketing	R20COMG303	2022-23	o To describe a range of common strategies for use with each of the various Marketing mix tools: product, pricing, promotion and distribution. o To understand the role of psychology and the study of consumer behavior and understand the market segmentation, needs, motivation and measurement of motives. o Make product marketing decisions based on product life cycle and Explain key strategies for developing brands including brand ownership, brand and line extensions. o Understand pricing strategies to enhance marketing of products and services and identify how price affects the value of the organization's products or services. o Learn how to develop effective messaging for marketing communications and understand how channels affect the marketing of products and services
B.Com. TP	III	Indian Banking System	R20COMT303	2022-23	o Get enriched with the knowledge of functioning of banks and helps them realize the role of banks. o Apply the imparted knowledge about functions, role and monitory policy of Reserve Bank of India. o Understand the Payment Systems and Electronic Banking like ATMs, HWAK; PIN;

					Electromagnetic Cards Recent Developments in India
					o Gain knowledge regarding different types of banks in India.
					o Understand the general and special relationship between banker and customer in various capacities.
B.Com. Logistics	III	Material Management	R20COML303	2022-23	o Develop a sound understanding of the important role of logistics and supply chain management in today's business environment. o Understand the categorization of inventories using various techniques and optimize the efficiency of warehouse operations. o Understand the usage of different material handling equipment in Industry. o To devise purchase procedures, inspection methods, storing and issuing procedures, common to all materials in a class. o Describe the need and role of codification, standardisation and simplification of materials from the viewpoint of the functions of planning, control, o purchases, inventory, stores, etc.
BBA	III	Organisation Behaviour	R20BBA301	2022-23	o Explain the concept of Organisation Design and determine the factors that affect Organisation Design. o Identify the components of Individual Behaviour and apply the concept of Learning,

					Perception, Attitudes and values.
					o Analyse the behaviour of individuals and groups in organisations in terms of the key factors that influence organisational behaviour and demonstrate skills required for working in groups.
					o Justify how organizational change and conflict affect working relationships within organizations and demonstrate how to apply relevant theories to solve problems of change and conflict within organizations.
BBA	III	Human Resource Management	R20BBA302	2022-23	o To study the objectives and functions of Human resource management.
					o To understand the concept of Human resource planning and HRP process and job analysis.
					o Lime lighting the selection process, recruitment and training development.
					o Develop Employability skills and contribute to employee performance management and organizational effectiveness
					o Identify and evaluate social, cultural, ethical and environmental responsibilities and issues in global contexts.
BBA	III	Financial Management	R20BBA303	2022-23	o Recognize the importance of financial management from a strategic perspective.
					o Enable the students to evaluate the capital budgets through capital budgeting techniques.
					o Impart deeper understanding in working

					capital management to avail the adequate working capital for business functions. ○ Analyze the capital structure decisions through relevant models. ○ Discuss the dividend policy of a firm.
BCA	III	Accounting and Financial Management	R20BCA301	2022-23	○ Acquire the knowledge in accounting, system of maintenance of accounts, journal, ledger, and understand the basic accounting concepts and conventions, preparation of subsidiary books and final accounts. ○ Exemplify to prepare and analyse the financial statements. ○ Students would calculate the various ratios and would be able to discuss the significance and use of the various ratios and be able to prepare cash flow statements using indirect method. ○ To understand t the preparation of cost sheet and classification of costs. ○ Learn the process of preparing various types of budgets and understand the break-even analysis, working capital management, capital budgeting techniques.
B.Com. General TP Computers Logistics BBA	III	Environmental Education	R20LSC304	2022-23	○ Give information about the environment and the resources to act at our own level to protect them. ○ Analyse the roles of organisms as part of interconnected food webs, populations,

BCA					communities, and ecosystems. ○ Understand the scale dependence of biodiversity and its measurement. ○ Learn how to assess pollution sources, study exposure pathways and fate, and evaluate consequences of human exposure to pollution and its impacts to environmental quality. ○ Balance our economic, environmental and social needs, allowing prosperity for now and future generations.
B.Com. General TP Computers Logistics	IV	Corporate Accounting	R20COM401	2022-23	○ Familiarise with the rules relating to issues of shares and debentures. ○ Familiarise with the rules relating to underwriting of shares ○ Make aware of computation of the financial results of companies ○ Prepare Investments account ○ Become familiar with computation of Insurance claims
B.Com. General TP Computers Logistics	IV	Cost and Management Accounting	R20COM402	2022-23	○ Understand various costing systems and management systems ○ Analyse and provide recommendations to improve the operations of organisations through the application of Cost and Management accounting techniques ○ Evaluate the costs and benefits of different conventional and contemporary costing systems

					o Differentiate methods of schedule costs as per unit of production o Differentiate methods of calculating stock consumption
B.Com. General TP Computers Logistics	IV	Business Laws	R20COM403	2022-23	o Demonstrate an understanding of the Legal Environment of Business. o Communicate effectively using standard business and legal terminology. o Demonstrate recognition of the requirements of the contract agreement o Demonstrate understanding of contract consideration and capacity o Demonstrate recognition of the genuineness of assent in contract formation.
B.Com. General TP Logistics	IV	Auditing	R20COM404	2022-23	o Understand the environment and types relating to the auditing function o Identify the steps needed to prepare for an audit o Understand general audit terminology o Plan an audit taking into account concepts of evidence, risk and materiality o Know the steps for performing an audit
B.Com. General TP Logistics	IV	Goods and Services Tax	R20COM405	2022-23	o Provide knowledge about goods service tax o Create employability to the students in the commercial tax practices o Understand the procedure for registration, payment and refund of GST o Know tax procedures for movement of goods

Program	Year	Course	Code	A.Y.	Course Outcomes
					o Understand the appeals, offences and penalties with respect to GST
B.Com. General TP Logistics	IV	Income Tax	R20COM406	2022-23	o Collect the basic concepts and definitions of Income Tax Act 1961 o Know the residential status of assesse and incomes exempted from tax o Become familiar with the computations of income from salary, income from house property ,income from business and profession
B.Com. TP	IV	Assessment of Individual, HUF & Partnership	R20COMT406	2022-23	o Acquire the complete knowledge of the tax evasion, tax avoidance and tax planning o Understand the provisions and compute income tax for various sources o Grasp amendments made from time to time in Finance Act o Compute total income and define tax complicacies and structure o Prepare and File IT returns of individual at his own.
B.Com. Logistics	IV	Distribution Management	R20COML406	2022-23	o Understand the roles and responsibilities of sales function o Manage the channel efficiency and effectiveness o Manage and enhance the sales force productivity and performance o Plan and implement an effective sales strategy for their organizations o Frame socially, legally and ethically acceptable

					policies and plans for Marketing channels
BBA	IV	Training and Development	R20BBA401	2022-23	o Develop an understanding of the evolution of training & development from a tactical to a strategic function . o Provide an insight into what motivates adults to learn and the most appropriate methodologies to impart training o Understand the concept of training audit & training evaluation o Learn to design a training module and execute it o Understand the need to learn the concept of Performance Management
BBA	IV	Business Laws	R20BBA402	2022-23	o Demonstrate an understanding of the Legal Environment of Business. o Communicate effectively using standard business and legal terminology. o Demonstrate recognition of the requirements of the contract agreement o Demonstrate understanding of contract consideration and capacity o Demonstrate recognition of the genuineness of assent in contract formation.
BBA	IV	Micro, Small and Medium Enterprises Management	R20BBA403	2022-23	o Explain basic concepts of SME and challenges of MSMEs. o Outline the opportunities to Set-Up SSI/SME Units and role of rural & women entrepreneurship.

					- Illustrate roles of various institutions supporting MSMEs. - Manage MSME, NPA & sickness units. - Evaluate role of Government in Promoting Entrepreneurship
BBA	IV	International Business	R20BBA404	2022-23	- Understand various concepts and terminologies involved in International Business and importance of international trade - Evaluate various modes of entry in to International business and should be able to select the best mode of entry given a situation. - Relate and discuss the presence of macro factors (PESTEL) on international business environment - Examine and elaborate the role of various Government institutions in India which support International trade. - Perceive the concepts in recent EXIM policy of India and relate it to the flow of FDI as well as direction of Indian foreign trade.
BBA	IV	Cost and Management Accounting	R20BBA405	2022-23	- Understand various costing systems and management systems - Analyse and provide recommendations to improve the operations of organisations through the application of Cost and Management accounting techniques - Evaluate the costs and benefits of different conventional and contemporary costing

Program	Semester	Course Name	Course Code	Year	Course Outcomes
					systems o Differentiate methods of schedule costs as per unit of production o Differentiate methods of calculating stock consumption
BBA	IV	Financial Services	R20BBA406	2022-23	o Competence in Oral, Written and visual Communication. o Demonstrate critical and innovative thinking. o Communicate ethically. o Understand the process of communication and its effect on giving and receiving information. o Apply effective communication skills in a variety of public and interpersonal settings.
B.COM COMPUTERS	V	Management Accounting	R20COMC501	2022-23	o Understand the basic concepts of management accounting o 2 - Understand the analysis of financial statements by using various methods o 3- Understand different ratios used for analysing financial Statements o 4- Prepare fund flow statement for the business organization o 5- Prepare the cash flow statement required for the business
B.COM COMPUTERS	V	Cost Control Techniques	R20COMC502	2022-23	o Differentiate cost control, cost reduction concepts and identify effective techniques. o Allocate overheads on the basis of Activity Based Costing. o Evaluate techniques of cost audit and rules for

					cost record.
					o Examine about the Standard Costing and Variance analysis
					o To analyse about the various new techniques available for cost control.
B.COM COMPUTERS	V	Advertising and Media Planning	R20COMC503	2022-23	o Identify misleading and false advertisements and will also get a general idea about framing advertisements. o Acquire copy writing skills and will also be equipped with the ability to choose a particular medium for advertisement. o Decide an appropriate test for measuring the effectiveness of advertisement as they become aware of various tests for measuring the effectiveness of advertisements. o Prepare sales promotion budget and the knowledge about various sales promotion strategies may benefit those students who dream of a career in salesmanship. o Formulate their own strategies to manage sales force in their client organization
B.COM COMPUTERS	V	Sales Promotion and Practice	R20COMC504	2022-23	o Analyse various sales promotion activities o Get exposed to new trends in sales Promotion o Understand the concepts of creativity in sales promotion o Enhance skills to motivate the salesperson to reach their targets o Develop the skills of designing of sales

					promotion events
BBA	V	Stress Management	R20BBA501	2022-23	o Describe the relationship between stress, human health, behavior's, and perceptions. o Recognize signs and symptoms of stress. o Summarize the physiological response to stress and how it impacts human health. o Identify stressors and possible root causes using health models. o Evaluate the effectiveness of stress management strategies and relaxation techniques on a personal level.
BBA	V	Performance Management	R20BBA502	2022-23	o Understand the Theory, Concept & Good practices in the area of PMS. Also understand & appreciate the "Strategic Importance" of PMS in any Organisation. o Design an organization's performance management process that is compliant with law and supports organizational mission and strategy. o Compare and contrast various organizational performance management programs and best practices and define attributes of effective performance management systems. o Employ job-related performance standards and performance indicators that reflect the employee's range of responsibilities. o Assess how increased employee involvement can contribute to effective performance and

					coach employees to identify career paths and resources available to support individual development.
BBA	V	Sale Promotion and Practice	R20BBA503	2022-23	o Analyse various sales promotion activities o Get exposed to new trends in sales Promotion o Understand the concepts of creativity in sales promotion o Enhance skills to motivate the salesperson to reach their targets o Develop the skills of designing of sales promotion events
BBA	V	E-Business	R20BBA504	2022-23	o Recognize the e-business concepts and how it is different from e-commerce. o Recognize the e-business models and infrastructure and learn to apply these e-business concepts in different fields. o Analyze the potential impacts of different e-Business strategies; the ability to evaluate the effects of business issues in relation to various e-Business models. o Have awareness of the e-Business environment, the identification of contemporary e-Business issues, and the evaluation of their implications for organizations.
BBA	V	Foreign Exchange Management	R20BBA505	2022-23	o Prepare to understand with foreign exchange market structure, market dealings. o Understand the functions and players in the

Program	Semester	Course	Code	Year	Course Outcomes
					foreign exchange market.
					o Understand the various forex exposures
					o Gain knowledge to manage the exchange exposures
					o Learn the forward and spot market operations
BBA	V	E-Payment System	R20BBA506	2022-23	o Understand the basic concepts and technologies used in the field of management information systems;
					o Have the knowledge of the different types of management information systems;
					o Understand the processes of developing and implementing information systems;
					o Be aware of the ethical, social, and security issues of information systems;
					o Describe the risks, mediations, and controls related to various payment types, payment channels, and systems.
B.Com. General Logistics	VI	Advanced Corporate Accounting	R20COMG601/R20COML601	2022-23	o Construct the financial statements of company within the frame work
					o Develop a process for redemption of Preference shares
					o Construct the Restructuring of capital structure in the financial statement of Joint stock company ltd.
					o Calibrate the procedure involved in Amalgamation of companies
					o Calibrate the procedure involved in Absorption of companies

B.Com. General Logistics	VI	Software Solutions to Accounting	R20COMG602/R20COML602	2022-23	o Understand the technical environment of accounting softwares. o Highlight the major accounting softwares in India. o Apply basics of accounting softwares into business firms for accounting transactions o Understand about the Tally and Stock markets in practical. o Examine about the Tally voucher Entry.
B.Com.TP	VI	Management Accounting	R20COMT601	2022-23	o Provide a basic knowledge about management accounting concepts o Understand use the different types of ratios o Describe the method of preparing the cash flow statement as per AS-7 and fundflow statement o Understand the basic concept of budget and its type o Understand the basic concept of marginal cost
B.Com.TP	VI	Cost Control Techniques	R20COMT602	2022-23	o Differentiate cost control, cost reduction concepts and identify effective techniques. o Allocate overheads on the basis of Activity Based Costing. o 3: Evaluate techniques of cost audit and rules for cost record. o Examine about the Standard Costing and Variance analysis o Analyse about the various new techniques

					available for cost control.
B.Com.TP	VI	Corporate Tax Planning	R20COMT603	2022-23	o Introduce the basic concept of income tax and exempted incomes. o Familiarise the provisions of salary income and house property income. o Discuss about income from business and profession also know the concept of capital gains. o Understand the concept of income from other sources, set off and carry forward losses. o Know deductions form GTI, Clubbing of income & Assessment of Individual
B.Com.TP	VI	Customs Procedures & Practice	R20COMT604	2022-23	o Compute the tax liability and understand the various provisions relating to interest, TDS, TCS and refunds. o Describe and discuss of various types of returns and various provisions related to filing of the same. o Evaluate the practical aspects related to maintenance of accounts, conducting audit, assessment under GST. o Get Acquaint with the various provisions of the Customs Act. o Discuss various import and export procedures related to baggage, provisions relating to coastal goods, warehousing and duty drawback.
B.Com.	VI	Logistic	R20COML603	2022-	o Appraise the Principles of Logistics and its

Logistics		Services and Practice		23	informatics.
					o Examine the Financial Issues in Logistics sector performance.
					o Describe basic EOQ model and ABC analysis.
					o Understand about the Ware housing and distribution Operations in the in the logistics industry.
					o Define about retail sector and supply chain management.
B.Com. Logistics	VI	EXIM Procedure and Practice	R20COML604	2022-23	o Understand the significance of Export and Import Management and its role in Economy
					o Acquire knowledge on Procedures of export and import
					o Involve in pre and post EXIM activities
					o Determine the factors for payment and methods for recovering amounts.
					o Create awareness on Insurance and Shipment of goods.
B.Com. General	VI	Life Insurance with Practice	R20COMG603	2022-23	o Understand the Features of Life Insurance, schemes and policies and insurance companies
					o Analyze various schemes and policies related to Life Insurance sector
					o Choose suitable insurance policy for given situation and respective persons
					o Create awareness on Consumer protection on Claim and its settlements.
					o To understand about the regulatory

					framework and identifying various middlemen's available in the Insurance Sector.
B.Com. General	VI	General Insurance with Practice	R20COMG604	2022-23	o Understand the Features of General Insurance and Insurance Companies in India o Analyse various schemes and policies related to General Insurance sector o Choose suitable insurance policy under Health, Fire, Motor, and Marine Insurances o Understand about the crop insurance and Livestock Insurance. o Create awareness on different Health and Medical Insurance policies.
B.Com. General TP	VI	Income Tax Procedure and Practice	R20COMG605/R20COMT605	2022-23	o Know the Income Tax Act 1961 and important terms in income tax o Provide knowledge about Residential status o Understand the concept of income from Salary and its provisions. o Gain knowledge about income from house property. o Build an idea about income from Business or Profession.
B.Com. General TP	VI	GST Procedure and Practice	R20COMG606/R20COMT606	2022-23	o Enable the students to learn the concepts indirect tax and GST from the pre-GST period to post- GST period. o Understand the importance of indirect taxes (GST) in the Indian and global economy and its contribution to the economic development. o Comprehend the principles of taxations,

					objectives of taxes and its impact, shifting and incidence process of indirect taxes in the market orientated economy. o Understand the implications of GST on the taxable capacity consumers, dealers and of the society at large and its changes. o Make them to be a tax consultant in preparing the tax planning, tax management. Payment of tax and filing of tax returns.
B.Com. Logistics	VI	E-Commerce	R20COML605	2022-23	o Recognizes the impact of Information and Communication Technologies, on the Internet in business Operations. o Acquire knowledge in identifying the main business and marketplace models for electronic Communications and Trading o Understand Electronic Payment System and its environment. o Make ethical decisions related to ecommerce based on laws, privacy, and security. o Analyse the steps, tools, and security considerations needed create an E- commerce websites
B.Com. Logistics	VI	E-Filing	R20COML606	2022-23	o Define the procedure of direct tax assessment. o File IT return on individual basis. o Compute total income and define tax compliances and structure online. o Understand amendments made from time to time in Finance Act.

					o Differentiate between direct and indirect tax assessment online.

DEPARTMENT OF MBA

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
I MBA	I	MANAGEMENT ORGANIZATIONAL BEHAVIOUR	R22MBA101	2022-2023	- Analyse the importance & role of management in the business organizations - Evaluate the different aspects related to decision making - Identify various leadership styles and their suitability to the situation - Understand how various elements help in shape organisational culture - To Give analysis of different - Organizational Dynamics
I MBA	I	MANAGERIAL ECONOMICS	R22MBA102	2022-2023	- Develop an understanding of the applications of managerial economics. - Develop an understanding of theories and principles in microeconomics including price Theory, firm theory, and market structure - Describe how changes in demand and supply affect markets - Give brief discussion about National Income & per capita income

					▪ Develop analytical skills related to economi theories in business contexts
I MBA	I	BUSINESS ENVIROMENT & BUSINESS LAW	R22MBA103	2022-2023	▪ Identify and evaluate the complexities of business environment and their impact on the business. ▪ Give brief Description about Govt. policies & other economic policies in the country ▪ Analyzing the different economic opportunities and consumer rights available in the country ▪ Acquire the knowledge of business laws related to incorporating a company ▪ Understand different business laws in India
I MBA	I	FINANCIAL REPORTING& ANALYSIS	R22MBA104	2022-2023	▪ Demonstrate various concepts & steps that organizations follow in financial accounting so that the organization can deliver the fair position of business to the interested parties and the measures that can be taken for economic development too. ▪ Break down the accounting process and system through accounting equations so as to analyze the classifications of revenues and expenses. ▪ 3.Understand the financial statement analysis, and use tools and techniques to analyse and interpret the key parameters of

					financial performance
					▪ 4.Discover how balance sheets, income statements, and cash flow statements are developed and how each one is interpreted
					▪ 5.Prepare and evaluate financial forecasts to make strategic decisions
I MBA	I	BUSINESS ANALYTICS FOR DECISION MAKING	R22MBA105	2022-2023	▪ Define statistics, become aware of wide range of applications in statistics, types of data, tabulation of data and construct a histogram, frequency polygon, an ogive, pie chart.
					▪ Apply various measures of central tendency –mean, median, mode, GM and H.M for grouped and ungrouped data. Apply various measures of variability-range, MD, QD and standard deviation.
					▪ Understand the concepts of probability and its applications in business
					▪ 4.Understand the various discrete and continuous probability distributions
					▪ Apply the concepts of various decisions making environments and its uses in solving business decision making process.
I MBA	I	MANAGERIAL COMMUNICATIONS	R22MBA106	2022-2023	▪ Understand communication skills and sensitize them to their potential to become successful managers
					▪ Explain the various types of communication

					in Business Organizations.
					▪ Help them acquire some of the necessary skills to handle day-to-day managerial responsibilities, such as making speeches, controlling one-to-one communication, enriching group activities and processes, giving effective presentations, writing letters, memos, minutes, reports and advertising, and maintaining one's poise in private and in public
					▪ Identify the role of communication conflict in intercultural relationships.
					▪ Analyzing the communication styles of successful managers in India
I MBA	I	PERSONALITY DEVELOPMENT THROUGH LIFE ENHANCEMENT SKILLS	R22MBA107	2022-2023	▪ Develop their personality and achieve their highest goals of life. ▪ Lead the nation and mankind to peace and prosperity ▪ Practice emotional self-regulation. ▪ Develop a positive approach to work and duties ▪ Develop a versatile personality
I MBA	I	MS EXCEL & ACCOUNTING TALLY	R22MBA108	2022-2023	▪ Use different options in MS- Excel ▪ Acquire Hands on experience on Ms – Excel Utilities ▪ Create Solutions for data management & reporting ▪ Enter financial data in Tally, and interpret

					the financial results obtained from Tally
					▪ Know how to use Tally & GST Applications for various business purposes.
I MBA	II	MARKETING MANAGEMENT	R22MBA201	2022-2023	▪ Formulate a Marketing plan for meeting the needs of the customer in the society ▪ Relate Marketing Mix as a frame work for marketing Decision - Making ▪ Formulate Marketing Communication to convince the customers ▪ Understand the marketing channel system for promoting products in the market ▪ Understand the need, importance and process of marketing planning & control.
I MBA	II	HUMAN RESOURCES MANAGEMENT	R22MBA202	2022-2023	▪ Understand the role of HRM in an organization ▪ Familiar with different Recruitment & Selection process in the organization ▪ Develop & Design Training methods for the organization ▪ Understand the performance appraisal methods of organizations ▪ Gain Knowledge about Grievance procedures in the organization ▪ Understand the different dimensions in Quality of work life ▪ Understand different payment systems in different organizations. ▪ Know the different elements in HR Audit.

I MBA	II	FINANCIAL MANAGEMENT	R22MBA203	2022-2023	▪ Students can understand the different concepts relates to financial management ▪ Develop & Design Training methods for the organization ▪ Use finance theory/ concepts, techniques and models for qualitative and quantitative analysis. ▪ Communicate complex financial information and analysis effectively both in speaking and writing. ▪ Apply financial knowledge/skills and an ethical compass to guide business decisions in academic simulations or real-world professional environments. ▪ Formulate financial management solutions based on qualitative and quantitate analysis.
I MBA	II	ENTREPRENEUR SHIP & SMALL BUSINESS	R22MBA204	2022-2023	▪ Develop an understanding of entrepreneurship and small business and appreciate their role in an economy, particularly in the Indian economy ▪ Analyze the entrepreneurial process through which business ideas are evaluated; ▪ Distinguish between business ideas and opportunities; and ▪ Examine entrepreneurial potential

					- Learn Preparation of detailed Project report for starting new business - Understand the different Business challenges faced in society.
I MBA	II	RESEARCH METHODOLOGY & IPR	R22MBA205	2022-2023	- Understand some basic concepts of research and its methodologies - Demonstrate the ability to choose methods appropriate to research aims and objectives - Have basic awareness of data analysis and hypothesis testing procedures - File Patents, Trademarks and Copy Rights - Have adequate knowledge on measurement & scaling techniques .
I MBA	II	OPERATION RESEARCH	R22MBA206	2022-2023	- Solve linear programming problems using appropriate techniques and optimization solvers, interpret the results obtained. - Determine optimal strategy for Minimization of Cost of shipping of products from source to Destination/ Maximization of profits of shipping products using various methods, Finding initial basic feasible and optimal solution of the Transportation problems - Optimize the allocation of resources to Demand points in the best possible way using various techniques and minimize the cost or time of completion of number of jobs by number of persons.

					- Model competitive real-world phenomena using concepts from game theory. Analyse pure and mixed strategy games - Formulate Network models for service and manufacturing systems, and apply operations research techniques and algorithms to solve these Network problems
I MBA	II	LEADERSHIP & CHANGE MANAGEMENT	R22MBA207	2022-2023	- Gain knowledge and leadership skills to help organizations chart a successful course through change - Understand the link between effective leadership strategies and successful implementation of change; - Plan and implement organizational changes by applying effective methodologies - Understand to effectively lead others through change - Describe the role of leadership in anticipating and planning readiness and navigating organizational change.
I MBA	II	CONSUMER BEHAVIOUR	R22MBA207(ii)	2022-2023	- Understand the consumer behaviour in the market. - Apply consumer behaviour concepts to real world marketing problems and develop better marketing programs and strategies to influence those behaviours - Understand how consumer behaviour affected by the family & other trends.

					- Get awareness about different models of consumer behaviour in the market. - Different approaches for convincing the customer in the market. - Pricing Strategies for meeting the consumer needs in the market. - Distribution channels of Consumer behaviour in the present market scenario.
I MBA	II	COST & MANAGEMENT ACCOUNTING	R22MBA207(iii)	2022-2023	- Understand the basic concepts in management accounting - Apply various methods and techniques of management and cost accounting to optimize the utilization of the resources - Formulate the budgets and interpret the results produced by the applied models. - Application of Marginal costing to managerial decision making. - Preparation of Functional budget for operational & non operational Functions.
I MBA	II	SELLING & NEGOTIATION SKILLS	R22MBA208	2022-2023	- Understand the appreciation skills and competencies required to be an effective sales person - Learn negotiation skills in the market - Perform different selling techniques for convincing the customers - Develop the Problem solving skills for negotiation - Prepare sales Demonstration.

II MBA	III	STRATEGIC MANAGEMENT	R20MBA301	2021-2022	▪ Understand the different strategies applied for business. ▪ Applications of Different strategies in the business scenario ▪ Learn how to convince the customers in marketing ▪ Develop different strategies for the development of business ▪ Understand issues faced by managers and top management in the process of strategy implementation.
II MBA	III	PROJECT MANAGEMENT	R20MBA302	2021-2022	▪ Prepare Project report for business proposals ▪ Provide with a holistic, integrative view of Project Management ▪ Analyse Different Project Models for development of business. ▪ Prepare Project cost estimation and budget for various business proposals. ▪ Learn the project evaluation and other techniques for completion of different project. ▪ 6. Sensitize the complexities of project management.
		CONSUMER BEHAVIOUR AND MARKETING	R20MBA303 MKT		▪ Define the conception of consumer behaviour and reveal its importance in the context of marketing. ▪ Identify factors that influence consumer

II MBA	III	RESEARCH		2021-2022	behaviour. ▪ Understand Applications of Individual determinants of consumer behaviour ▪ Understand marketing research and its process. ▪ Explore applications of marketing research.
II MBA	III	SERVICES MARKETING	R20MBA304 MKT	2021-2022	▪ Understand the different concepts in services marketing ▪ Analyse various factors influencing consumer behaviour ▪ Analyse the various expectations customer towards services of different companies ▪ Apply different services models for satisfying the customer needs in the market. ▪ Maintain the customer relationship management in services marketing ▪ Analyse services marketing Mix for every service provided by the company. ▪ Understand the maintaining service quality in services.
II MBA	III	PRODUCT AND BRAND MANAGEMENT	R20MBA305 MKT	2021-2022	▪ Understand the product and product concepts ▪ Develop the product planning process for business. ▪ Making product decisions for selling various products in the market ▪ Learn of using the Product Mix Decisions

					- according to conditions of market - Understand the various concepts of brand in the market. - Know the importance of brand value with respect to the product - Analyse the brand values for various products - Understand the methods of measuring the brand performance in the market.
II MBA	III	INTEGRATED MARKETING COMMUNICATIONS	R20MBA306MKT	2021-2022	- Understand concept of Integrated marketing Communication and process of communication - Explore planning for marketing communication. - Explain measuring the effectiveness of all Promotional tools and IMC. - Explain media and digital advertising - Understand the various models of communication.
II MBA	III	HUMAN RESOURCES PLANNING	R20MBA303HRM	2021-2022	- Learn about the importance of HR planning in the organization - Study of this course makes the student learn about HR information system - Design career prospectus for human resources planning. - Learn to retain talented pool of employees in the organization.

					- Understand the various models of HRP.
II MBA	III	PERFORMANCE REWARD MANAGEMENT	R20MBA304HRM	2021-2022	- Understand the performance reward management system s in the organization - Evaluate various Performance methods to describe employees performances in the organization - Learn to prepare the HR Score card for employee performance - Understand the different performance criteria to evaluate employee performances - Understand various performances incentives and schemes provided by the organization.
II MBA	III	TRAINING & DEVELOPMENT	R20MBA305HRM	2021-2022	- Understand the need and importance of training in the organization - Evaluate the different training methods available in the organization - Understand the significance of development programmes in the organization - Emphasis on different training methods evaluation - Learn to prepare the training programme schedules in the organization.
		ORGANIZATIONAL CHANGE &	R20MBA306HRM		- Learn about managing change in organizations - Get acquainted with OD interventions,

II MBA	III	DEVELOPMENT		2021-2022	techniques and approaches involved in OD. ▪ Understand the organizational dynamics ▪ acquire knowledge about different organizations perspectives ▪ Understand the different factors affecting the organization development.
II MBA	III	FINANCIAL INSTITUTIONS & MARKETS	R20MBA303FIN	2021-2022	▪ Understand the different financial concepts in the financial markets ▪ The students acquire knowledge about different financial markets and its importance ▪ Understand the role of different international financial institutions in the world. ▪ Acquiring knowledge about different financial institutions in financial markets. ▪ 5. Getting knowledge about all other financial & stock exchanges in the market.
II MBA	III	SECURITY ANALYSIS & PORTFOLIO MANAGEMENT	R20MBA304FIN	2021-2022	▪ The students will get acquainted with the fundamental analysis and technical analysis and their role in predicting share price movements ▪ The students will get to know about the process of portfolio management, the process of selection of portfolios, their evaluation and revision to minimize risk and maximize return

					- Evaluating the valuation of bonds - Acquiring knowledge about various securities market elements - Understand the different issues and problems in dealing with securities market.
II MBA	III	BEHVAIOURAL FINANCE	R20MBA305FIN	2021-2022	- Understand the behavioural finance - analysing how behavioural finance helps in the organzation - Defining the theories about behavioural finance - Different sources avalibale for behavioural finance - Learn to solve the problem solving ability in behavioural finance.
II MBA	III	FINANCIAL ENGINEERING	R20MBA306FIN	2021-2022	- The students learn about the need for developing innovative financial instruments - The students also learn about hybrid financial instruments, - The significance of hedging in reducing risk, techniques of hedging. - Different sources available for financial engineering - Getting significance of financial engineering.
		SUPPLY CHAIN MANAGEMENT	R20MBA304OPS		- Understand the supply chain management - Learn to apply of supply chain management models

II MBA	III			2021-2022	- Analyse the decision making of supply chain management - Different sources available for supply chain management - Learn and understand the role of supply chain management in modern business.
II MBA	III	Start-up & New Venture Management	R20MBA304ENT	2021-2022	- The students will be able to know about the process to start and manage new venture - Able to understand the capital resources available in the society - Analyse decision making towards the start - ups - Learn the problem solving techniques in the new venture management - Understand the challenges and issues in the new venture management.
II MBA	III	BUSINESS FUNDEMANTALS FOR IT PROFESSIONALS	R20MBA308 OE	2021-2022	- Students can understand the Management related terminologies such as Planning, Organizing, Staffing, Directing and Controlling - Students aware of how the Communication (CRM) helps the Individuals to excel in their Profession - Students understand about the different HR Concepts with reference to Software Industry. - Students will be able to know about the basic concepts in Marketing including the

					- elements of product, price, place, promotion, processes, physical evidence, and people - Students can enhance awareness on the concepts related to Banking and Finance viz., meaning, functions and instruments.
II MBA	III	Life Skills for IT Professionals	R20MBA309OE	2021-2022	- Understand the different life skills in the management - Students aware about different concepts related to life skills - Students understand about the role of life skills in the society.. - Students ability to learn the applications of different life skills - Students can understand the different moral values relates to the life skills.
II MBA	III	PERSONALITY DEVELOPMENT	20MBA310OE	2021-2022	- Understand the different personality concepts - Students aware about application of different personality concepts - Students understand about the role of personality in the management 4 students will be able to learn and apply business etiquette, impression management, interpersonal relations - How to resolve conflicts in an organization.
		INTERNATIONAL BUSINESS	R20MBA401		Understand how political, economic, and legal systems collectively influence a

II MBA	III			2021-2022	country's ability to achieve meaningful economic progress ▪ Demonstrate how currency exchange rates are determined. ▪ Interpret the three basic decisions that a firm contemplating in international business expansion must make: which markets to enter, when to enter, and on what scale. ▪ Discuss how culture is different because of differences in social structure, religion, language, education, economic philosophy, and political philosophy ▪ Assess the role played by the International Monetary Fund and the World Bank in the global monetary system.
II MBA	III	E-Business	R20MBA402	2021-2022	▪ Understand e-Commerce and e-Business and their types ▪ Understand the e-Marketplaces. ▪ Understand the main e-Business Models ▪ Understand some innovative e-Business systems: e-Leaning, e-Government, e-Tourism. ▪ Understand the requirements for starting an online business.
II MBA	III	Sales & Distribution Management	R20MBA403 MKT	2021-	▪ Understand the concept of sales and distribution management and their interrelationship.

				2022	- Understand the concept and effect of sales organization and sales effort - Understand the Management of Marketing Channels. - Understand the process of marketing logistics - Ability to develop the skills and methods required for sales force management.
II MBA	III	Retail Management t	R20MBA404 MKT	2021-2022	- Understand the retailing marketing concepts - Explore the retailing the process for the development of products in the market - The students will learn about cross buying behaviour - Ability to preparation of retailing strategies in the market - Student can understand e- tailing, retail market strategy, retail merchandising, pricing policies, and Customer Life Time Value and Customer Equity.
II MBA	III	Strategic Marketing	R20MBA405 MKT	2021-2022	- Understand key principles of marketing strategy and explain marketing and strategy concepts and ideas in their own words. - Think strategically about marketing issues and provide recommendations - Critically evaluate an organization's strategic approach.

					▪ Apply key learning to a company's strategic (marketing) efforts through detailed exploration. ▪ Use key frameworks to analyze situations and make strategic marketing decisions.
II MBA	III	Digital & Social Media Marketing	R20MBA406 MKT	2021-2022	▪ The students will be able to understand concepts of digital marketing ▪ Analyse the Role of social media in marketing of products and services, and ethics in social media marketing.. ▪ learn the different trends in digital marketing ▪ Making different strategies for making promotions in the company ▪ Learn & create different modules for digital marketing.
II MBA	III	Human Resource Development	R20MBA403 HRM	2021-2022	▪ Understand the HRD concepts ▪ Evaluate the role of HRD in the organization ▪ Implementing the HRD in the organzation ▪ The students will be able to learn behavioural factors in HRD ▪ Understand the Global development and research on HRD.
		STRESS MANAGEMENT	R20MBA404HRM		▪ Understand the overview of stress. ▪ Learn about strategies for coping stress ▪ Understand about types of conflict and

II MBA	III			2021-2022	conflict management. • Learn about stress related disorders and treatment methods. • Understand about stress management techniques.
II MBA	III	Strategic HRM	R20MBA405HRM	2021-2022	• The students will learn about SHRM Framework. • Managerial issues in strategic planning, strategy implementation in HR, and cross cultural training • learn to prepare different strategies for HRD • Analyse Recruitment & Retention strategies for HRD • Learn to evaluate the HR strategy evaluation.
II MBA	III	INTERNATIONAL HRM	R20MBA406HRM	2021-2022	• Learn the basics of IHRM • Understand the different applications in the IHRM • Analyse the recruitment of process of IHRM • Students will be able to know the concepts of training in international arena, IHRM practices, IT and IHRM. • Understand the different challenges of IHRM.
		Financial Derivatives	R20MBA403FIN		• Students will be able to analyze the risks in different financial markets.

II MBA	III			2021-2022	• Acquire ability to selection of various options and then can apply them to specific markets • Student will be able to strategically manage the financial derivatives. • Understand the different market participants in the stock exchange.. • Learn & Understand the different Currencies values its fluctuations.
II MBA	III	International Financial Management	R20MBA404FIN	2021-2022	• Students will be able to analyze the risks in different financial markets. • Acquire ability to selection of various options and then can apply them to specific markets • Student will be able to strategically manage the financial derivatives. • Understand the different market participants in the stock exchange.. • Learn & Understand the different Currencies values its fluctuations.
II MBA	III	Financial Services & Risk Management	R20MBA405FIN	2021-2022	• The students will be able to learn about various Financial Services • Credit Rating and its methods, and integrated risk management • Student will be able to understand the Financial Risk • 4..Students learn about different financial agencies in the country

					▪ Students able to learn how handle the Financial Risk situations.
II MBA	III	Corporate Taxation	R20MBA406FIN	2021-2022	▪ The students will be able to learn about Capital Gains ▪ Computation of Taxable income, minimum alternative tax, e-filing of returns, search cases, and refund of tax. ▪ Analyse the different taxation procedures ▪ Learn to finalize the Taxation Filling process ▪ Understand the role of different Taxes in the country.
II MBA	III	Total Quality Management	R20MBA403OPS	2021-2022	▪ Know the importance of Quality in products and services ▪ Able to understand the importance of quality in marketing ▪ Able to understand the maintaining the role of Quality. ▪ They can analyse the Different quality models. ▪ TQM Techniques that are practising in organisations, quality certification and their significance.
		Research & Development	R20MBA405 OPS	2021-	▪ The students will be able to study about effective, efficient and sustainable R & D practices in various organisations ▪ Able to understand the importance of Research in the management

II MBA	III			2022	- knowing the different research methods applying in organization development - they came to know that how to conduct research - learn to develop the research process.
II MBA	III	Supply Chain Analytics	R20MBA406 OPS	2021-2022	- Explain the importance of supply analytics and applications - Handle the available business information/data more efficiently. - Use analytical tools like R,SAS and MS excel efficiently in order to take managerial decisions more effectively - Understand the different supply chain models to make production ore effective. - Know the latest trends in the supply chain management.
II MBA	III	Corporate Entrepreneurship	R20MBA404 ENT	2021-2022	- Develop a basic knowledge of what is corporate entrepreneurship and how entrepreneurship within a corporation is similar to or different from start-up entrepreneurship. - Be able to assess the degree to which the environment within an established company supports or constrains entrepreneurship . - Develop an appreciation for how to apply the entrepreneurial process to the operations of a department or a functional

					area within a large established organization. • Be able to find creative ways to overcome barriers to entrepreneurship in established companies • Gain an appreciation for how to formulate corporate objectives and strategies that support entrepreneurial behaviour.
II MBA	III	Social Entrepreneurship	R20MBA405 ENT	2021-2022	• Know about, critique and appreciate the global context in which Social Entrepreneurship continues to emerge as a vital part of the development agenda, especially in the developing countries; • Diligently observe, understand, model/represent, communicate about, and constructively engage with Social Entrepreneurs and their Enterprises for making valuable contributions to the respective ecosystems in their work contexts; • Identify markets and target groups related to various Social Enterprises, and characterize their ecosystem in terms of Sectors, Stakeholders, Policy-makers and Regulators, Benefactors/Donors, Venture Capitalists, Institutions, Media, etc.; • Conceive of, design, plan, establish and operate or work for Social Enterprises in

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
					their respective national/regional contexts; and ▪ Manage the applicable lifecycle of the Social Enterprises with respect to product/service development and the related organizational functions, viz., marketing, resource mobilization in the human resources, financial, material and technological contexts, and operations and projects.
II MBA	III	Global Entrepreneurial Ecosystem	R20MBA406 ENT	2021-2022	▪ Appreciate the importance of global entrepreneurship in 21st century ▪ Describe opportunities available to small business in a global environment ▪ Identify the important strategic issues in global entrepreneurship ▪ Understand the advantages and disadvantages of different modes of entering international markets ▪ Understand the importance of cross-cultural customs, communication, and institutions in affecting the implementation of global entrepreneurial ventures.

DEPARTMENT OF MCA

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes

MCA	I	Programming and Problem Solving Using Python	R22MCA101	2022-23	• Understand computer architecture and data representations (variables, representation of numbers and character strings). • Learn basic algorithmic problem, solving techniques (decision structures, loops, functions). • Use and understand objects used in programming. • Design, document, implement and test solutions to programming problems. • Identify and repair coding errors in a program.
MCA	I	Data Structures	R22MCA102	2022-23	• Ability to select the data structures that efficiently model the information in a problem. • Ability to assess efficiency trade offs among different data structure implementations or combinations. • Implement and know the application of algorithms for sorting and pattern matching. • Design programs using a variety of data structures, including hash tables • Binary and general tree structures, search trees, , graphs, and AVL trees
MCA	I	Mathematical and Statistical	R22MCA103	2022-23	• Apply the basic rules and theorems of probability theory such as Baye's Theorem

		Foundations			- Determine probabilities that help to solve engineering problems and to determine the expectation and variance of a random variable from its distribution. - Able to perform and analyze of sampling, means, proportions, variances and estimates the maximum likelihood based on population parameters. - Learn how to formulate and test hypotheses about sample means, variances and proportions andto draw conclusions based on the results of statistical tests. - Design various ciphers using number theory
MCA	I	Operating Systems	R22MCA104	2022-23	- Understand fundamental operating system abstractions such as processes, threads, files, semaphores, - IPC abstractions, shared memory regions, etc., - Analyze important algorithms eg. Process scheduling and memory management algorithms. - Categorize the operating system's resource management techniques, dead lock management techniques, - memory management techniques
MCA	I	Personality Development	R22MCA105	2022-23	At the end of this course the students should be able to:

		through Life Enlightenment Skills			▪ Develop their personality and achieve their highest goals of life. ▪ Lead the nation and mankind to peace and prosperity ▪ Practice emotional self-regulation. ▪ Develop a positive approach to work and duties ▪ Develop a versatile personality
MCA	II	Software Engineering and Design Patterns	R22MCA201	2022-23	▪ Gain knowledge on the concepts of Software Engineering requirements, analysis and design. ▪ Understand different life cycle models. ▪ Known the concept of object oriented paradigm . ▪ Understand the working of software Architecture ▪ Understand their design patterns
MCA	II	Database Management Systems	R22MCA202	2022-23	▪ Learn the concepts of databases and database users. ▪ Learn the basics of normalization. ▪ Learn entity relationship models. ▪ To understand the relational algebra and relational calculus. ▪ To know Querying, Creating, Updating & Deleting documents in SQL
MCA	II	Computer Networks	R22MCA203	2022-23	▪ Understand and describe the layered protocol model.

					- Describe, analyse and evaluate a number of data link, network, and transport layer protocols. - Program network communication services for client/server and other application layouts. - Describe, analyse and evaluate various related technical, administrative and social aspects of specific computer network protocols from standards documents and other primary materials found through research. - Design, analyse, and evaluate networks and services for homes, data centres, IoT/IoE, LANs and WANs
MCA	II	Research Methodology & Intellectual Property Rights (IPR)	R22MCA204	2022-23	- Understand some basic concepts of research and its methodologies - Identify appropriate research topics - Select and define appropriate research problem and parameters - Demonstrate the ability to choose methods appropriate to research aims and objectives - Have adequate knowledge on measurement & scaling techniques - Have basic awareness of data analysis-and hypothesis testing procedure - Prepare a project proposal (to undertake a project)

					▪ Write a research report and thesis ▪ File Patents, Trademarks and Copy Rights
MCA	II	Design and Analysis of Algorithms	R22MCA205E1	2022-23	▪ Understand the basic notation for analyzing the performance of the algorithms. ▪ Use divide-and-conquer techniques for solving suitable problems ▪ Use greedy approach to solve an appropriate problem for optimal solution. ▪ Apply dynamic programming approach to solve suitable problems ▪ Understand the limitations of algorithm power and study how to cope with the limitations of algorithm power
MCA	II	Data Warehousing and Data Mining	R22MCA205E2	2022-23	▪ Understand the basics of types of data, quality of data, suitable techniques required for preprocessing and measures required to perform data analysis ▪ Describe the need of classification, identify suitable technique(s) to perform classification, model building and evaluation ▪ Identify the requirements and usage of association rule mining on categorical and continuous data. ▪ Compare and Identify suitable clustering algorithm(s) (apply with open source tools), interpret, evaluate and report the result ▪ Describe the requirements and the need of

					web mining
MCA	II	Cloud Computing	R22MCA205E3	2022-23	• core concepts of the cloud computing paradigm: how and why this paradigm shift came about, the characteristics. • advantages and challenges brought about by the various models and services in cloud computing. • Apply the fundamental concepts in data centers to understand the trade offs in power, Efficiency and cost. • Identify resource management fundamentals, i.e. resource abstraction, sharing and Sandboxing and outline their role in managing infrastructure in cloud computing. • Analyze various cloud programming models and apply them to solve problems on the cloud
MCA	III	BIG DATA ANALYTICS	R20MCA301	2020-21	• Ability to identify the characteristics of datasets and compare the trivial data and bigdata for various applications. • Ability to select and implement machine learning techniques and computing environment that are suitable for the applications under consideration. • Ability to solve problems associated with batch learning and online learning, • Big data characteristics such as high

					dimensionality, dynamically growing data and in particular scalability issues ▪ Ability to understand and apply scaling up machine learning techniques and associated computing techniques and technologies.
MCA	III	MOBILE COMPUTING	R20MCA302	2020-21	▪ Students will be able to analyse modelling and simulation of various communication networks. ▪ Students will be able to generate test and estimate parameters. ▪ Students will apply this knowledge for detection estimation ▪ Simulation of various communication networks. ▪ Gain the knowledge about various types of Wireless Data Networks and wireless Voice Networks
MCA	III	ARTIFICIAL INTELLIGENCE	R20MCA303	2020-21	▪ Find appropriate idealizations for converting real world problems into AI search problems formulated using the appropriate search algorithm. ▪ Implement A* and iterative deepening search. ▪ Derive Heuristic functions for A* search that are appropriate for a given problem. ▪ It is expected that the learners select and apply a variety of graph search algorithms

					• underpinning AI applications. • It is expected that the students to apply techniques to design expert systems.
MCA	III	CLOUD COMPUTING	R20MCA304a	2020-21	• Articulate the main concepts, key technologies, strengths, and limitations of cloud computing and • Possible applications for state-of-the-art cloud computing • Identify the architecture and infrastructure of cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc. • Explain the core issues of cloud computing such as security, privacy, and interoperability. • Choose the appropriate technologies, algorithms, and approaches for the related issues.
MCA	III	INTERNET OF THINGS	R20MCA304b	2020-21	• Evaluate the appropriate protocol for communication between IoT • Analyse the communication protocols for IoT • Able to understand the application areas of IOT • Able to realize the revolution of Internet in Mobile Devices • Able to realize the revolution of Internet in Cloud & Sensor Networks

MCA	III	MACHINE LEARNING	R20MCA304c	2020-21	- Have a good understanding of the fundamental issues and challenges of machine learning: data, model Selection, model complexity, etc. - Have an understanding of the strengths and weaknesses of many popular machine learning approaches. - Appreciate the underlying mathematical relationships within and across Machine Learning algorithms - Paradigms of supervised and un-supervised learning. - Be able to design and implement various machine learning algorithms in a range of real-world applications
MCA	III	DISTRIBUTED COMPUTING	R20MCA304d	2020-21	- Able to provide hardware and software issues in modern distributed systems. - Get knowledge in distributed architecture, naming, synchronization, consistency and replication, fault tolerance, security, and distributed file systems. - Analyse the current popular distributed systems such as peer-to-peer (P2P) systems will also be analyzed. - Know about Shared Memory Techniques. - Able to research and commercial distributed systems.
MCA	III	SOFTWARE	R20MCA305a	2020-	List a range of different software testing

		TESTING AND FAULT ANALYSIS		21	techniques and statergies ▪ Able to apply specific(automated) unit testing method to the projects. ▪ Distinguish characterstics of structural testing methods. ▪ Demonstrate the integration testing which aims to uncover interaction ▪ Compatibility problems as early as possible 1.
MCA	III	DNA COMPUTING	R20MCA305b	2020-21	▪ Able to provide hardware and software issues in modern distributed systems. ▪ Get knowledge in DNA,RNA, naming, synchronization, consistency and replication, fault tolerance, security, and distributed file systems. ▪ Analyse the current popular distributed systems such as peer-to-peer (P2P) systems will also be analyzed. ▪ Know about Shared Cryptography Techniques. ▪ Able to research and commercial distributed systems. 2.
MCA	III	SOFTWARE PROJECT MANAGEMENT	R20MCA305c	2020-21	▪ Identify the different project contexts and suggest an appropriate management strategy. ▪ Practice the role of professional ethics in successful software development.

					- Identify and describe the key phases of project management. - Determine an appropriate project management approach through an evaluation of the business context - Determine scope of the project. 3.
MCA	IV	Java Full Stack Development	R20MCA405	2022-23	- The Student will be able to design Web Application using Data base - The Student will able to understand the installation of MongoDB - Able to understand the connection using Python - Able to create web applications - Able to set the connections
MCA	IV	DATA SCIENCE USING PYTHON	R20MCA403	2020-21	- The Student will understand the objects - Understand Data Interpretation using Numpy - The Student will understand the objects and Data Interpretation using Pandas - The Student will understand Graphs using Matplotlib - The Student will understand the Machine learning models using sklearn
MCA	IV	CRYPTOGRAPHY& NETWORK SECURITY	R20MCA406	2022-23	- The student will be able to Understand Message Authentication - To make the students understand the basics of Pretty good Privacy

					- To make the students understand the Integration of Digital Signature - To make the students understand the Kerberos - To make the students understand the concepts of privacy

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
I M.Sc (OCH/ACH)	I	General Chemistry	R22OCH/ACH101	2022-23	1. Could able to process the analytical Data and could learn how to minimise errors in chemical experiments. 2.Acquire skill on different titrations for quantitative determinations and on choice of indicators in titrations. 3.Could aware on the Batch extraction, continuous extraction and counter current extraction and their applications. 4. Understand the process of natural product isolation. 5. Understand the concept of chromatography and develops the separation techniques for a mixture of organic molecules and drug materials through chromatographic technique.
I M.Sc (OCH/ACH)	I	Organic Chemistry	R22OCH/ACH102	2022-23	1. Apply the concepts of bonding, resonance, aromaticity, hyperconjugation and tautomerism to higher organic compounds. 2. Predict the products, identify reaction intermediates and propose suitable mechanism for organic reactions. 3. Identify stereogenic centres, recognize enantiomers, diastereomers, meso compounds, draw stereochemical structures, and provide R/S designations of stereocenters. 4. Apply the concepts of substitution, addition and elimination reactions to some synthetic organic reactions. 5. Design reactions with the help of name reactions and rearrangements and use of suitable reagents.

I M.Sc (OCH/ACH)	I	Inorganic Chemistry-1	R22OCH/ACH103	2022-23	1. Understand the d-orbital splitting pattern in different geometries like octahedral, tetrahedral. 2. Calculate magnetic moment & crystal field stabilization energy of metal complexes. 3. Explain high spin and low spin complexes & formation of metal complexes in solution. 4. Understand HSAB rule, chelation, macro cyclic, cryptate effect. 5. Determine stability constant of particular complex through pH metry , polagraphic methods etc •
I M.Sc (OCH/ACH)	I	Physical Chemistry-1	R22OCH/ACH104	2022-23	1. The basic principles of quantum mechanics. Introduction to new operators such as Hermitian and Hamiltonian and their use in the solution of Hydrogen and Hydrogen like atoms. 2. Account for the physical interpretation of distribution functions and discuss and show how these can be used in calculations of basic thermodynamic properties. 3. Define and explain surface and interfacial phenomenon. 4. Correlate electrochemistry with thermodynamics that will enable to get best output from industrial perspective. 5. Understand the concept of activation energy and its calculation from kinetic data.
I M.Sc (OCH/ACH)	I	Personality Development through life Enlightenmen	R22OCH/ACH105	2022-23	1. Develop their personality and achieve their highest goals of life. 2. Lead the nation and mankind to peace and prosperity 3. Practice emotional self regulation. 4. Develop a positive approach to work and duties 5. Develop a versatile personality.

		t Skills			
I M.Sc (OCH/ACH)	II	ORGANIC SPECTROSCOPY	R22OCH/ACH201	2022-23	1. Understand basic concepts of organic spectroscopy. 2. Calculate the λmax value of organic molecules by Wood ward rules. 3. Learn the fundamentals of instrumentation of UV, IR, NMR and mass. 4. Analysis of organic molecules by different spectroscopic techniques. 5. Do fragmentation pattern (analysis) of organic molecules by using mass spectrometry.
I M.Sc (OCH/ACH)	II	Physical Chemistry-II	R22OCH/ACH202	2022-23	1. Recognize symmetry elements, identify point groups of molecules, construct and explain character table for simple molecules. 2. Categorize molecules based on their symmetry properties and predict their molecular properties. 3. Combine, evaluate and interpret information from the various spectroscopic techniques in determination of molecular structures. 4. Account for the physical interpretation of partition functions and be able to calculate thermodynamic properties of model systems with using Boltzmann -, Fermi-Dirac and Bose-Einstein statistics. 5. Account for the physical interpretation of distribution functions and discuss and show how these can be used in calculations of basic thermodynamic properties. 6. Explain fundamental aspects of electrochemical reaction in terms of thermodynamics, and kinetics.
I M.Sc (OCH/ACH)	II	Inorganic Chemistry-II	R22OCH/ACH203	2022-23	1. Understand the classification of clusters and different structural patterns of metal clusters. 2. Discuss how ligand substitution reaction takes place in octahedral and square- planar, trans effect and trans influence and how trans effect is applicable in synthesis of different metal complexes. 3. Interpret the magnetic properties of transition metal complexes based on magnetic measurements.

					4. Discuss terms, state & microstate & orgel diagram and calculate microstate & terms of different configurations. 5. Explain how metal ions take part in biological system and their concentration effect and physiological effect on biological system.
I M.Sc (OCH/ACH)	II	Research Methodology	R22OCH/ACH204	2022-23	1. Understand the formulation of Research problems. 2. Collect and prepare suitable data for research. 3. Design experiments for different statistical Concepts. 4. Write research proposals and reports. 5. Apply their research work for patent through IPR.
I M.Sc (OCH/ACH)	II	Chemistry of Bioorganic compounds	R22OCH/ACH206	2022-23	1. Understand the stereochemistry of carbohydrates and their reactions. 2. Learn the molecular structures of 20 amino acids, differentiating essential and non-essential amino acids, biologically important modified amino acids and their functions. 3. Understand the difference between the water soluble and fat soluble vitamins and their key role in the metabolism as coenzymes. 4. Relate the structure of DNA with its function in Replication and gene expression that include both transcription and translation. 5. Describe what happens: - when lipids are metabolized, cholesterol, prostaglandins etc. are synthesized, emphasizing the genetic defects of lipid metabolism.
II M.Sc (ACH)	III	Separation methods	R20ACH301	2020-21	1. Classify separation methods based on the underlying principles, such as differences in physical properties or chemical interactions. 2. Explore the principles of adsorption and partitioning as separation mechanisms. 3. Study chromatographic techniques, including gas chromatography (GC), liquid chromatography (LC), and thin-layer chromatography (TLC).

					4. Learn the principles and applications of column chromatography for the separation of compounds. 5. Explore the use of HPLC for the separation and quantification of analytes in complex mixtures. 6. Study gel electrophoresis and capillary electrophoresis as techniques for separating biomolecules based on charge and size. 7. Become familiar with the instrumentation used in separation methods, including detectors and data acquisition systems.
II M.Sc (ACH)	III	Spectroscopic Methods	R20ACH302	2020-21	1. Advanced knowledge about the interactions of electromagnetic radiation and matter and their applications in organic spectroscopy to elucidate the structure of the organic compounds. 2. Learn the factors affecting 13C NMR chemical shifts 3. Identify functional groups using IR, λmax for polyenes and α, β-unsaturated carbonyl compounds. 4. Interpret Cotton effect curves for obtaining absolute configuration of chiral molecules with chromophores. 5. Determine chemical structure by UV-Vis, IR, ^{1}HNMR, ^{13}CNMR and mass spectral data.
II M.Sc (ACH)	III	Applied Analysis	R20ACH303	2020-21	1. Understand chemical analysis methods, such as titration, gravimetric analysis, and spectrophotometry, used to quantify metal content in Fe, Mn and Al ores. 2. Learn methods for quantifying nutrient content in fertilizers, including nitrogen, phosphorus, and potassium analysis. 3. Understand calorimetry and combustion analysis methods to determine the energy content and composition of fuels. 4. Learn methods for analyzing the chemical composition of cement, including the determination of major and minor components..

					5. Study analytical methods to determine the composition of paints, including pigments, binders, solvents, and additives. 6. Integrate knowledge from various areas of chemistry and materials science to perform accurate and reliable analyses.
II M.Sc (ACH)	III	Instrumental methods of Analysis	R20ACH304	2020-21	1. Understand the principles and applications of amperometry for monitoring current at a constant applied potential. 2. Explore techniques such as cyclic voltammetry, square wave voltammetry, and differential pulse voltammetry for qualitative and quantitative analysis. 3. Understand the basic principles of coulometric analysis, including Faraday's laws of electrolysis and Perform coulometric titrations and calculate analyte concentrations using Faraday's laws. 4. Identify the types of analytes suitable for polarographic analysis and their electrochemical behaviour and learn various polarographic techniques, such as direct current (DC), differential pulse (DP), and square wave (SW) polarography. 5. Explore the application of thermal analysis in characterizing polymers, pharmaceuticals, ceramics, and other materials. 6. Learn how to atomize samples in a flame and convert them into free atoms for analysis. 7. Apply flame photometry for the quantitative determination of specific elements, such as sodium, potassium, and calcium.
II M.Sc (ACH)	IV	Green Chemistry	R20ACH402.2	2020-21	1. Define the principles and concepts of green chemistry, including the 12 principles of green chemistry outlined by Anastas and Warner. 2. Evaluate the environmental and health impacts of chemical processes and products, and identify ways to reduce or eliminate these impacts. 3. Demonstrate knowledge of safer and more sustainable methods for

Class	Sem	Course Name	Course Code	Year	Course Outcomes
					chemical synthesis, including solvent selection, reaction conditions, and waste reduction. 4. Compare and contrast the use of alternative solvents and reaction media (e.g., ionic liquids, supercritical fluids) for green chemistry applications. 5. Describe the importance of catalysis in green chemistry and identify green catalytic processes. 6. Develop strategies for waste minimization and recycling in chemical processes.
II M.Sc (ACH)	IV	Traditional and Environmental Methods of Analysis	R20ACH403.1	2020-21	1. Understand the fundamental principles of decomposition techniques in chemical analysis and recognize the importance of decomposition in breaking down complex samples into analytically manageable components. 2. Master acid digestion methods for decomposing samples and solubilizing analytes and Study alkaline hydrolysis techniques for breaking down complex organic molecules. 3. Understand the fundamental principles of organic functional group analysis and its importance in organic chemistry and Understand how knowledge of functional groups contributes to the determination of molecular structure and compound identification. 4. Understand the fundamental principles of drug analysis and its significance in pharmaceutical science. 5. Study chromatographic techniques, including high-performance liquid chromatography (HPLC) and gas chromatography (GC), used for drug analysis. 6. Explore techniques for measuring electrical conductivity and pH as

II M.Sc (ACH)	IV	Quality Control and Standard Methods of Analysis	R20ACH404	2020-21	indicators of water chemistry and Explore techniques for measuring electrical conductivity and pH as indicators of water chemistry.
					1. Familiarize yourself with the ISO (International Organization for Standardization) standards relevant to your industry. 2. Learn the importance of accurate record keeping and documentation in quality control, including laboratory notebooks, standard operating procedures (SOPs), and batch records. 3. Understand the principles of QA and its role in maintaining consistent product quality. 4. Study the chemistry behind the formation of precipitates and the conditions that favor their formation. . 5. Master techniques for isolating and collecting precipitates from solution. . 6. Learn about various filtration methods, including gravity filtration, vacuum filtration, and microfiltration. 7. Understand sample digestion techniques for converting analytes into a suitable form for precipitation.

Class	Semester	Title of the Course	Course Code	W.E.F	Course Outcomes
I M.Sc (OCH/ACH)	I	General Chemistry	R22OCH/ACH101	2022-23	1. Could able to process the analytical Data and could learn how to minimise errors in chemical experiments. 2.Acquire skill on different titrations for quantitative determinations and on choice of indicators in titrations. 3.Could aware on the Batch extraction, continuous extraction and counter current extraction and their applications. 4. Understand the process of natural product isolation. 5. Understand the concept of chromatography and develops the separation techniques for a mixture of organic molecules and drug materials through chromatographic technique.
I M.Sc (OCH/ACH)	I	Organic Chemistry	R22OCH/ACH102	2022-23	1. Apply the concepts of bonding, resonance, aromaticity, hyperconjugation and tautomerism to higher organic compounds. 2. Predict the products, identify reaction intermediates and propose suitable mechanism for organic reactions. 3. Identify stereogenic centres, recognize enantiomers, diastereomers, meso compounds, draw stereochemical structures, and provide R/S designations of stereocenters. 4. Apply the concepts of substitution, addition and elimination reactions to some synthetic organic reactions. 5. Design reactions with the help of name reactions and rearrangements and use of suitable reagents.

I M.Sc (OCH/ACH)	I	Inorganic Chemistry-1	R22OCH/ACH103	2022-23	1. Understand the d-orbital splitting pattern in different geometries like octahedral, tetrahedral. 2. Calculate magnetic moment & crystal field stabilization energy of metal complexes. 3. Explain high spin and low spin complexes & formation of metal complexes in solution. 4. Understand HSAB rule, chelation, macro cyclic, cryptate effect. 5. Determine stability constant of particular complex through pH metry , polagraphic methods etc •
I M.Sc (OCH/ACH)	I	Physical Chemistry-1	R22OCH/ACH104	2022-23	1. The basic principles of quantum mechanics. Introduction to new operators such as Hermitian and Hamiltonian and their use in the solution of Hydrogen and Hydrogen like atoms. 2. Account for the physical interpretation of distribution functions and discuss and show how these can be used in calculations of basic thermodynamic properties. 3. Define and explain surface and interfacial phenomenon. 4. Correlate electrochemistry with thermodynamics that will enable to get best output from industrial perspective. 5. Understand the concept of activation energy and its calculation from kinetic data.
I M.Sc (OCH/ACH)	I	Personality Development through life Enlightenmen	R22OCH/ACH105	2022-23	. Develop their personality and achieve their highest goals of life. . Lead the nation and mankind to peace and prosperity . Practice emotional self regulation. . Develop a positive approach to work and duties 0. Develop a versatile personality.

		t Skills			
I M.Sc (OCH/ACH)	II	ORGANIC SPECTROSCOPY	R22OCH/ACH201	2022-23	1. Understand basic concepts of organic spectroscopy. 2. Calculate the λmax value of organic molecules by Wood ward rules. 3. Learn the fundamentals of instrumentation of UV, IR, NMR and mass. 4. Analysis of organic molecules by different spectroscopic techniques. 5. Do fragmentation pattern (analysis) of organic molecules by using mass spectrometry.
I M.Sc (OCH/ACH)	II	Physical Chemistry-II	R22OCH/ACH202	2022-23	1. Recognize symmetry elements, identify point groups of molecules, construct and explain character table for simple molecules. 2. Categorize molecules based on their symmetry properties and predict their molecular properties. 3. Combine, evaluate and interpret information from the various spectroscopic techniques in determination of molecular structures. 4. Account for the physical interpretation of partition functions and be able to calculate thermodynamic properties of model systems with using Boltzmann -, Fermi-Dirac and Bose-Einstein statistics. 5. Account for the physical interpretation of distribution functions and discuss and show how these can be used in calculations of basic thermodynamic properties. 6. Explain fundamental aspects of electrochemical reaction in terms of thermodynamics, and kinetics.
I M.Sc (OCH/ACH)	II	Inorganic Chemistry-II	R22OCH/ACH203	2022-23	1. Understand the classification of clusters and different structural patterns of metal clusters. 2. Discuss how ligand substitution reaction takes place in octahedral and square- planar, trans effect and trans influence and how trans effect is applicable in synthesis of different metal complexes. 3. Interpret the magnetic properties of transition metal complexes based on magnetic measurements.

					4. Discuss terms, state & microstate & orgel diagram and calculate microstate & terms of different configurations. 5. Explain how metal ions take part in biological system and their concentration effect and physiological effect on biological system.
I M.Sc (OCH/ACH)	II	Research Methodology	R22OCH/ACH204	2022-23	1. Understand the formulation of Research problems. 2. Collect and prepare suitable data for research. 3. Design experiments for different statistical Concepts. 4. Write research proposals and reports. 5. Apply their research work for patent through IPR.
I M.Sc (OCH/ACH)	II	Chemistry of Bioorganic compounds	R22OCH/ACH206	2022-23	Understand the stereochemistry of carbohydrates and their reactions. Learn the molecular structures of 20 amino acids, differentiating essential and non-essential amino acids, biologically important modified amino acids and their functions. Understand the difference between the water soluble and fat soluble vitamins and their key role in the metabolism as coenzymes. Relate the structure of DNA with its function in Replication and gene expression that include both transcription and translation. 0. Describe what happens: - when lipids are metabolized, cholesterol, prostaglandins etc. are synthesized, emphasizing the genetic defects of lipid metabolism.
II M.Sc (ACH)	III	Separation methods	R20ACH301	2020-21	Classify separation methods based on the underlying principles, such as differences in physical properties or chemical interactions. Explore the principles of adsorption and partitioning as separation mechanisms. 0. Study chromatographic techniques, including gas chromatography (GC), liquid chromatography (LC), and thin-layer chromatography (TLC). 1. Learn the principles and applications of column chromatography for the

Program	Sem	Course	Code	Year	Course Outcomes
					separation of compounds. 2. Explore the use of HPLC for the separation and quantification of analytes in complex mixtures. 3. Study gel electrophoresis and capillary electrophoresis as techniques for separating biomolecules based on charge and size. 4. Become familiar with the instrumentation used in separation methods, including detectors and data acquisition systems.
II M.Sc (ACH)	III	Spectroscopic Methods	R20ACH302	2020-21	Advanced knowledge about the interactions of electromagnetic radiation and matter and their applications in organic spectroscopy to elucidate the structure of the organic compounds. Learn the factors affecting 13C NMR chemical shifts Identify functional groups using IR, λmax for polyenes and α, β-unsaturated carbonyl compounds. Interpret Cotton effect curves for obtaining absolute configuration of chiral molecules with chromophores. 0. Determine chemical structure by UV-Vis, IR, ^{1}HNMR, ^{13}CNMR and mass spectral data.
II M.Sc (ACH)	III	Applied Analysis	R20ACH303	2020-21	Understand chemical analysis methods, such as titration, gravimetric analysis, and spectrophotometry, used to quantify metal content in Fe, Mn and Al ores. Learn methods for quantifying nutrient content in fertilizers, including nitrogen, phosphorus, and potassium analysis. Understand calorimetry and combustion analysis methods to determine the energy content and composition of fuels. 0. Learn methods for analyzing the chemical composition of cement, including the determination of major and minor components.. 1. Study analytical methods to determine the composition of paints, including

					pigments, binders, solvents, and additives.
					2. Integrate knowledge from various areas of chemistry and materials science to perform accurate and reliable analyses.
II M.Sc (ACH)	III	Instrumental methods of Analysis	R20ACH304	2020-21	8. Understand the principles and applications of amperometry for monitoring current at a constant applied potential. 9. Explore techniques such as cyclic voltammetry, square wave voltammetry, and differential pulse voltammetry for qualitative and quantitative analysis. 10. Understand the basic principles of coulometric analysis, including Faraday's laws of electrolysis and Perform coulometric titrations and calculate analyte concentrations using Faraday's laws. 11. Identify the types of analytes suitable for polarographic analysis and their electrochemical behaviour and learn various polarographic techniques, such as direct current (DC), differential pulse (DP), and square wave (SW) polarography. 12. Explore the application of thermal analysis in characterizing polymers, pharmaceuticals, ceramics, and other materials. 13. Learn how to atomize samples in a flame and convert them into free atoms for analysis. 14. Apply flame photometry for the quantitative determination of specific elements, such as sodium, potassium, and calcium.
II M.Sc (ACH)	IV	Green Chemistry	R20ACH402.2	2020-21	1. Define the principles and concepts of green chemistry, including the 12 principles of green chemistry outlined by Anastas and Warner. 2. Evaluate the environmental and health impacts of chemical processes and products, and identify ways to reduce or eliminate these impacts. 3. Demonstrate knowledge of safer and more sustainable methods for chemical synthesis, including solvent selection, reaction conditions, and waste reduction.

					0. Compare and contrast the use of alternative solvents and reaction media (e.g., ionic liquids, supercritical fluids) for green chemistry applications. 1. Describe the importance of catalysis in green chemistry and identify green catalytic processes. 2. Develop strategies for waste minimization and recycling in chemical processes.
II M.Sc (ACH)	IV	Traditional and Environmental Methods of Analysis	R20ACH403.1	2020-21	. Understand the fundamental principles of decomposition techniques in chemical analysis and recognize the importance of decomposition in breaking down complex samples into analytically manageable components. . Master acid digestion methods for decomposing samples and solubilizing analytes and Study alkaline hydrolysis techniques for breaking down complex organic molecules. . Understand the fundamental principles of organic functional group analysis and its importance in organic chemistry and Understand how knowledge of functional groups contributes to the determination of molecular structure and compound identification. 0. Understand the fundamental principles of drug analysis and its significance in pharmaceutical science. 1. Study chromatographic techniques, including high-performance liquid chromatography (HPLC) and gas chromatography (GC), used for drug analysis. 2. Explore techniques for measuring electrical conductivity and pH as indicators of water chemistry and Explore techniques for measuring electrical conductivity and pH as indicators of water chemistry.
II M.Sc (ACH)	IV	Quality Control and	R20ACH404	2020-21	. Familiarize yourself with the ISO (International Organization for Standardization) standards relevant to your industry.

| | | Standard Methods of Analysis | | | 9. Learn the importance of accurate record keeping and documentation in quality control, including laboratory notebooks, standard operating procedures (SOPs), and batch records.
10. Understand the principles of QA and its role in maintaining consistent product quality.
11. Study the chemistry behind the formation of precipitates and the conditions that favor their formation. .
12. Master techniques for isolating and collecting precipitates from solution. .
13. Learn about various filtration methods, including gravity filtration, vacuum filtration, and microfiltration.
14. Understand sample digestion techniques for converting analytes into a suitable form for precipitation. |

STAKEHOLDER FEEDBACK ANALYSIS - HEI LINKS

2022-23:

https://kbncollege.ac.in/attachments/2022-23%20FEEDBACK%20ANALYSIS.pdf

2021-22:

https://u.pcloud.link/publink/show?code=XZOSETVZex4AiVAKVyHnRTSDC09PRkkdLlHV

2020-21:

https://www.kbncollege.ac.in/attachments/ALL%20FEEDBACK%20ANALYSIS.pdf

2019-20:

https://www.kbncollege.ac.in/attachments/fba2019-20.pdf

2018-19:

https://www.kbncollege.ac.in/attachments/fba2018-19.pdf

COURSE STRUCTURE

K.B.N. COLLEGE (AUTONOMOUS)

CURRICULUM FRAMEWORK – 2022-2023

BACHELOR OF SCIENCES

ANNEXURE - II CBCS CURRICULAR FRAMEWORK (2020 - 21 ONWARDS) - BACHELOR OF SCIENCES

Subjects		SEM I Hrs/W	SEM I Credits	SEM II Hrs/W	SEM II Credits	SEM III Hrs/W	SEM III Credits	SEM IV Hrs/W	SEM IV Credits	SEM V Hrs/W	SEM V Credits	SEM VI Hrs/W	SEM VI Credits
Languages													
English		4	3	4	3	4	3						
Language (H/T/S)		4	3	4	3	4	3						
Life Skill Courses		2	2	2	2	2+2	2+2						
Skill Development Courses		2	2	2+2	2+2	2	2						
Major 1	Core 1,2,3,& 4	4+2	4 + 1	4+2	4 + 1	4+2	4 + 1	4+2	4 + 1				
Major 2	Core 1,2,3,& 4	4+2	4 + 1	4+2	4 + 1	4+2	4 + 1	4+2	4 + 1				
Major 3	Core 1,2,3,& 4	4+2	4 + 1	4+2	4 + 1	4+2	4 + 1	4+2	4 + 1				
Major 1	Core -5							4+2	4 + 1				
Major 2	Core -5							4+2	4 + 1				
Major 3	Core -5							4+2	4 + 1				
Major 1	Skill Enhancement Courses (6 & 7)									4+2	4 + 1		
Major 2	Skill Enhancement Courses (6 & 7)									4+2	4 + 1		
										4+2	4 + 1		
Major 3	Skill Enhancement Courses (6 & 7)									4+2	4 + 1		
										4+2	4 + 1		
Hrs/W (Academic Credits)		30	25	32	27	32	27	36	30	36	30		12	4	4
Project Work													
Extension Activities (Non													
NCC/NSS/Sports/Extra Curricular									2				
Yoga							1		1				
Extra Credits													
Hrs/W (Total Credits)		30	25	32	27	32	28	36	33	36	30		12	4	4

THIRD PHASE of APPRENTICESHIP Entire 5th / 6th Semester

FIRST and SECOND PHASES (2 spells) of APPRENTICESHIP between 1st and 2nd year and between 2nd and 3rd year (two summer vacations).

PRINCIPAL
Kakaraparti Bhavanarayana College
V I J A Y A W A D A – 1.

B.Com., BBA, BCA

ANNEXURE - III CBCS CURRICULAR FRAMEWORK (2020 - 21 ONWARDS) - B.Com., BBA, BCA etc.

Subjects	SEM I Hrs/W	SEM I Credits	SEM II Hrs/W	SEM II Credits	SEM III Hrs/W	SEM III Credits	SEM IV Hrs/W	SEM IV Credits	SEM V Hrs/W	SEM V Credits	SEM VI Hrs/W	SEM VI Credits
Languages												
English	4	3	4	3	4	3						
Language (H/T/S)	4	3	4	3	4	3						
Life Skill Courses	2	2	2	2	2+2	2+2						
Skill Development Courses	2	2	2+2	2+2	2	2						
Core Courses***												
Core	5	4	5	4	5	4	5	4				
Core	5	4	5	4	5	4	5	4				
Core	5	4	5	4	5	4	5	4				
Core							5	4				
Core							5	4				
Core							5	4				
									5	4		
									5	4		
(Domain Related) Skill Enhancement Courses**** (SECs)									5	4		
									5	4		
									5	4		
									5	4		
Hrs/W (Academic Credits)	27	22	29	24	29	24	30	24	30	24	0	12	4	4
Project Work												
Extension Activities												
NCC/NSS/Sports/Extra Curricular								2				
Yoga						1		1				
Extra Credits												
Hrs/W (Total Credits)	27	22	29	24	29	25	30	27	30	24	0	12	4	4

THIRD PHASE of APPRENTICESHIP Entire 5th / 6th Semester

FIRST and SECOND PHASES (2 spells) of APPRENTICESHIP between 1st and 2nd year and between 2nd and 3rd year (two summer vacations).

PRINCIPAL
Kakaraparti Bhavanarayana College
V I J A Y A W A D A – 1.

Life Skill and Skill Development Courses offered by the college:

S. No.	Name of the Course	Offered Programmes
1	Solar Energy (R20SDC201)	I B.Sc. MPC
		I B.Sc. MPCS
		I B.Sc. MECS
		I B.Sc. MSCS
		I B.Sc. MCCS
		I B.Sc. Data Science
		I B.Sc. CBZ
		I B.Sc. IoT
2	Environmental Education (R20LSC304)	II B.Sc. MPC
		II B.Sc. MPCS
		II B.Sc. MECS
		II B.Sc. MSCS
		II B.Sc. MCCS
		II B.Sc. Data Science
		II B.Sc. CBZ
		II B.Sc. IoT
		II B.Voc. (WT&SD)
		II B.Com. (GEN)
		II B.Com. (T.P)
		II B.Com. (COMPUTERS)
		II B.Com. (LOGISTICS)
		II BBA
		II BCA
3	Human Values & Professional Ethics	I B.Sc. MPCS

	(R20LSC102)	I B.Sc. MECS
		I B.Sc. MSCS
		I B.Sc. MCCS
		I B.Sc. Data Science
		I B.Sc. IoT
		I B.Voc. (WT&SD)
		I B.Com. (COMPUTERS)
		I BCA
4	Indian Culture & Science (R20LSC202)	II B.Sc. MPCS
		II B.Sc. MECS
		II B.Sc. MSCS
		II B.Sc. MCCS
		II B.Sc. Data Science
		II B.Sc. IoT
		II B.Voc. (WT&SD)
		II B.Com. (COMPUTERS)
		II BCA
5	Food Adulteration (R20SDC202)	I B.Sc. MPC
		I B.Sc. MPCS
		I B.Sc. MECS
		I B.Sc. MSCS
		I B.Sc. MCCS
		I B.Sc. Data Science
		I B.Sc. CBZ
		I B.Sc. IoT
6	Environmental Audit (R20SDC301C)	I B.Sc. MPC
		I B.Sc. MPCS

		I B.Sc. MECS
		I B.Sc. MSCS
		I B.Sc. MCCS
		I B.Sc. Data Science
		I B.Sc. CBZ
		I B.Sc. IoT

BoS Meetings Scanned copies – 2022-23 A.Y.

[3 Departments (For Reference)]

KAKARAPARTI BHAVANARAYANA COLLEGE
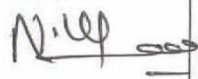
(Sponsored by S.K.P.V.V.Hindu High Schhools Committee)
Kothapet, Vijayawada-1, Andhra Pradesh.
(An Autonomous Institution with affiliation to Krishna University, Machilipatnam)

Name of the Department: Department of Physics

Composition of 16th Board of Studies on 29.06.2022, at 10:00 am

Name of the BOS Member	Designation	Position	Signature
Sri Ch .Nagabushnam	Head Department of Physics KBN College	CHAIRPERSON	
Prof.V.Ravi Kumar	Professor Acharya Nagarjuna University, Guntur	UNIVERSITY REPRESENTATIVE	
Sri Dr.B Venkateswara Rao	Head, Dept. of Physics, SSN College, Narasaraopeta	SUBJECT EXPERT	
Sri Dr.L Malleswara Rao	Associate Professor, Department of Physics, YN College, Narsapur	SUBJECT EXPERT	
Sri. V Govinda Rao	Head, Microlink Peripheral Controls(P) Ltd., Vijayawada	INDUSTRY EXPERT	
Dr. S Sarath Kumar	Lecturer in Physics, Department of Physics, RGUKT, Nuzivid	ALUMNUS	
Smt.G Jwala Purnima	Lecturer in Physics, Department of Physics, KBN College	Member	
Sri.S Harinadh Babu	Lecturer in Physics, Department of Physics, KBN College	Member	

KAKARAPARTI BHAVANARAYANA COLLEGE

DEPARTMENT OF PHYSICS

The Meeting of Sixteenth Board of Studies in Physics is conducted in the Department Staff Room on 29.06.2022 at 10.00 AM under the Chairmanship of Sri Ch.Nagabhushanam, HoD, Dept. of Physics.

Agenda:

1. To frame the syllabus for both theory and practical courses of 5th / 6th Semester for III B.Sc. (MPC & MPCS) Programme(R20 Batch) as per APSCHE Guidelines with effect from 2022-2023.

2. To discuss on the Internship programme for III B.Sc. (MPC) students.

3. To discuss on the reformation of Internal and External Assessment marks.

4. To review the syllabus and Model Question Paper of I Semester Students admitted during the Academic year 2022-23 as per the new assessment pattern.

5. Any other item with the permission of the chairman.

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Resolutions:

1. It is resolved the Syllabus for V semester/VI Semester of III B.Sc. MPC & MPCs programs was discussed and recommended to follow the APSCHE framework for 2020-2023 batch students.

   - Resolved to offer the following pair of skill enhancement courses

Paper Code	Name of Course	Th. Hrs / Week	IE Marks	EE Marks	Credits	Prac Hrs/ Wk	Marks	Credits
R20PHYA501/ R20PHYA501P	Optical Instruments and Optometry Optical Instruments and Optometry lab	3	25	75	3	3	50	2
R20PHYA502/ R20PHYA502P	Optical Imaging and Photography Optical Imaging and Photography lab	3	25	75	3	3	50	2

OR

Paper Code	Name of Course	Th. Hrs / Week	IE Marks	EE Marks	Credits	Prac Hrs/ Wk	Marks	Credits
R20PHYB501/ R20PHYB501P	Low Temperature Physics & Refrigeration Low Temperature Physics & Refrigeration lab	3	25	75	3	3	50	2
R20PHYB502/ R20PHYB502P	Solar Energy and Applications Solar Energy and Applications lab	3	25	75	3	3	50	2

OR

Paper Code	Name of Course	Th. Hrs / Week	IE Marks	EE Marks	Credits	Prac Hrs/ Wk	Marks	Credits
R20PHYC501/	Applications of Electricity & Electronics	3	25	75	3	3	50	2

1. It is resolved to send III B.Sc., students to Internship either in the V Semester or in the VI Semester as per the APSCHE Guidelines.

2. It is resolved to reform the Internal & External Assessment marks pattern from 25:75 to 40:60 with effect from the Academic year 2022-23.

3. a) Resolved to follow the existing syllabus.

b) Resolved to frame the Model Question Paper of I Semester End Examination for 60 Marks as per the new assessment marks pattern.

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University, Machilipatnam)

DEPARTMENT OF COMMERCE AND MANAGEMENT

Minutes of the 17th Board of Studies meeting of Department of Commerce and Management, held on **1th July, 2022 at 10.00 am** in the Department of Commerce and Management staff room.

AGENDA:

1. To frame the syllabus for V/VI semester of III B.Com. General, TP, Logistics, Computers and BBA.

2. To introduce internship program for V/VI semesters of 2020-23 batch students

3. To modify internal and external assessment marks pattern to 40:60

4. To review I Semester syllabus and Model Question Paper pattern.

5. Any other item with the permission of the chair.

KAKARAPARTI BHAVANARAYANA COLLEGE

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(An Autonomous Institution with affiliation to Krishna University, Machilipatnam)

DEPARTMENT OF COMMERCE AND MANAGEMENT

Resolutions:

1. (a) Resolved to provide the following pairs of Sill Enhancement Courses for B.Com General, TP, Computers and Logistics of R20 Batch students as per new guidelines of APSCHE.

Course No	Series A: Accountancy Course Name	Course No	Series B: Services Course Name	Course No	Series C: E Commerce Course Name
16-A	Advanced Corporate accounting	16-B	Advertising and Media Planning	16-C	Digital Marketing
17-A	Software solutions to Accounting	17-B	Sales Promotion and Practice	17-C	Service Marketing
18-A	Management Accounting	18-B	Logistics services and Practice	18-C	Income Tax Procedure & Practice
19-A	Cost control Techniques	19-B	EXIM Procedure and practice	19-C	GST Procedure & Practice
20-A	Stock Markets	20-B	Life Insurance with Practice	20-C	E- Commerce
21-A	Stock Market Analysis	21-B	General Insurance with Practice	21-C	E-Filing

The pairs offered are as under

(1) 16A & 17A, 18B & 19B and 20C & 21C
(2) 16A & 17A, 18C & 19C and 20B & 21B
(3) 16B & 17B, 18A & 19A and 20C & 21C
(4) 16B & 17B, 18C & 19C and 20A & 21A
(5) 16C & 17C, 18B & 19B and 20A & 21A
(6) 16C & 17C, 18A & 19A and 20B & 21B

(b) Resolved to provide the following pairs of Sill Enhancement Courses for B.B.A. of R20 Batch students as per new guidelines of APSCHE.

Course No.	Series -A: HRM	Course No.	Series-B: Marketing Management	Course No.	Series-C: Financial Management
	Course Name		Course Name		Course Name
16 - A	Talent Management	16 - B	Export and Import Management	16 - C	Foreign Exchange Management
17 - A	Leadership	17 - B	Brand Management	17 - C	E – Payment System

18 - A	Stress Management	18 - B	Digital Marketing	18 - C	Income Tax Procedure & Practice
19 - A	Performance Management	19 - B	Retail Analytics	19 - C	GST Procedure & Practice

20 - A	HR Analytics	20 - B	Sales Promotion & Practice	20 - C	Stock Market
21 - A	HR Audit & Accounting	21 - B	B_2B Marketing	21 - C	Stock Market Analysis

The pairs offered are as under
  (1) 16A & 17A, 18B & 19B and 20C & 21C
  (2) 16A & 17A, 18C & 19C and 20B & 21B
  (3) 16B & 17B, 18A & 19A and 20C & 21C
  (4) 16B & 17B, 18C & 19C and 20A & 21A
  (5) 16C & 17C, 18B & 19B and 20A & 21A
  (6) 16C & 17C, 18A & 19A and 20B & 21B

2. It is unanimously resolved to send the students to internship in their V/VI semester as per APCHE guidelines.

3. It is unanimously resolved to modify internal and external assessment marks pattern to 40:60

4. It is unanimously resolved to follow the existing syllabus for I Semester and modify I Semester Model Question Paper as per new assessment pattern with effect from 2022-23.
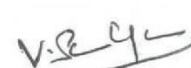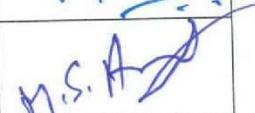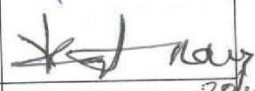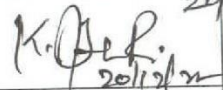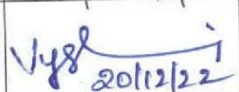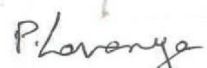
KAKARAPARTI BHAVANARAYANA COLLEGE
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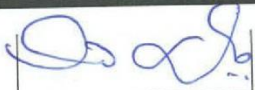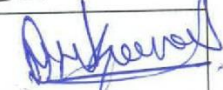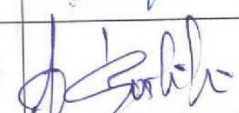### Kothapet, Vijayawada-1, Andhra Pradesh.
(An Autonomous Institution with affiliation to Krishna University, Machilipatnam)
Department of Commerce and Management
Composition of Board of Studies
On 20th December, 2022 at 10.00 am

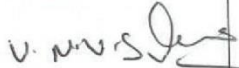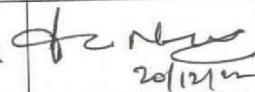| S. No.	Name of the BOS Member	Designation	Position	Signature
01	Dr. G.V.S.R.N.S.A.SASTRY	Head of the Department	CHAIR PERSON	
02	Dr. G.NARAYANA RAO	Dr.LHR Government Degree College, Mylavaram	UNIVERSITY REPRESENTATIVE	
03	Dr. M.SAMBASIVUDU	Associate Professor Department of Commerce, JMJ College, Tenali	SUBJECT EXPERT	
04	Dr. R.S.N.SARMA	Head, Department of Commerce, Ch.S.D.St. Theresa Autonomous College for Women, Eluru	SUBJECT EXPERT	
5	Mr. A.MARUTI RAM	Express Printers, Hanumanpet, Vijayawada.	INDUSTRY EXPERT	ABSENT
6	Mr. N.VENKATESH	Punjab National Bank, Vijayawada.	ALUMNUS	
7	Mr. Ch. SRINIVASA REDDY	Lecturer	MEMBER	
8	Mr. V. SESHAGIRI RAO	Lecturer	MEMBER	
9	Dr. K.SIVA PRAKASA RAO	Lecturer	MEMBER	
0	Mr. T.VIJAYABABU	Lecturer	MEMBER	
1	Mr. D.PAVAN KUMAR	Lecturer	MEMBER	

Mr. B.V.MANOHAR BABU	Lecturer	MEMBER	
Mr. Ch. RAVINDRANATH	Lecturer	MEMBER	
Mr. N.HEMANTH KUMAR	Lecturer	MEMBER	
Mr. A.GOPALA KRISHNA	Lecturer	MEMBER	
Smt. V.SAILAJA	Lecturer	MEMBER	
Dr. M.VENKATESWARA RAO	Lecturer	MEMBER	
Mr. M.ANAND SUDHAKAR	Lecturer	MEMBER	
Mr. K.VENKATA RATNAM	Lecturer	MEMBER	
Ms. K.SWARUPA RANI	Lecturer	MEMBER	
Ms. P.VYSHNAVI	Lecturer	MEMBER	
Ms. P.L.V.D.LAVANYA	Lecturer	MEMBER	
Ms. V.N.V.S.MANI	Lecturer	MEMBER	
Mr. A. LAKSHMI NARAYANA	Lecturer	MEMBER	
Ms. K. RAJANI KUMARI	Lecturer	MEMBER	
Mr. M. JAYAVARDHAN	Lecturer	MEMBER	

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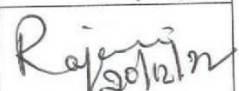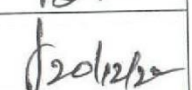**(An Autonomous Institution with affiliation to Krishna**
University, Machilipatnam)

DEPARTMENT OF COMMERCE AND MANAGEMENT

Minutes of the 18th Board of Studies meeting of Department of Commerce and Management, held on **20th December, 2022 at 10.00 am** in the Department of Commerce and Management staff room.

AGENDA:

1. To frame the course structure and syllabus for V/VI semester of III

   B.Com. TP as per the new guide lines recently issued by APSCHE.

2. To modify internal and external assessment marks pattern.

3. To review the II Semester syllabus and prepare Model Question Paper

according to modified assessment marks pattern.

4. Any other item for discussion with the permission of the chair.

KAKARAPARTI BHAVANARAYANA COLLEGE

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Kothapet, Vijayawada-1, Andhra Pradesh.
DEPARTMENT OF COMMERCE AND MANAGEMENT

Resolutions:

1. Resolved to offer the following pairs of Skill Enhancement Courses for B.Com TP as per new guidelines of APSCHE.

Course No	Series A: Accountancy Course Name	Course No	Series B: Services Course Name	Course No	Series C: E Commerce Course Name	Course No	Series D: Taxation Course Name
16-A	Advanced Corporate accounting	16-B	Advertising and Media Planning	16-C	Digital Marketing	16-D	Tax Planning and Management
17-A	Software solutions to Accounting	17-B	Sales Promotion and Practice	17-C	Service Marketing	17-D	Assessment of other units
18-A	Management Accounting	18-B	Logistics services and Practice	18-C	Income Tax Procedure & Practice	18-D	International Auditing
19-A	Cost control Techniques	19-B	EXIM Procedure and practice	19-C	GST Procedure & Practice	19-D	International Taxation
20-A	Stock Markets	20-B	Life Insurance with Practice	20-C	E-Commerce	20-D	Corporate Tax Planning
21-A	Stock Market Analysis	21-B	General Insurance with Practice	21-C	E-Filing	21-D	Customs procedure and Practice

2. It is resolved to restructure the internal and external assessment marks pattern from 25:75 to 40:60

3. a. Resolved to follow the existing syllabus of II Semester for the Academic Year 2022-2023 also.

b. It is resolved to prepare II Semester Model Question Paper as per new assessment marks pattern with effect from 2022-23.

4. It is resolved to introduce two new certificate courses from the academic year 2022-2023 are: (i) Digital Marketing and (ii) e-filing

KAKARAPARTI BHAVANARAYANA COLLEGE

(Sponsored by S.K.P.V.V.Hindu High Schhools Committee)

Kothapet, Vijayawada-1, Andhra Pradesh.

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DEPARTMENT OF PG Chemistry

The Meeting of Board of Studies in M.Sc. Analytical Chemistry is conducted in the PG Department Staff Room on 31st October, 2022 at 9.30 am under the Chairmanship of Dr. G. Krishnveni, HoD, Dept. of PG Chemistry.

Minutes of the 5th Board of Studies meeting of M.Sc. Analytical Chemistry- KBN College held on 31/10/22 at 9.30 am in the PG Department staff room.

AGENDA:

(1) To design the course Structure and frame the regulations (R22) as per National Education Policy 2020 for M.Sc. Analytical Chemistry Programme.

(2) To frame the Syllabus for 1st and 2nd Semester of M.Sc. Analytical Chemistry.

(3) To review the R20 Syllabus of 3rd & 4th Semesters of II M.Sc. Analytical Chemistry

(4) Any other item with the permission of the chairman.

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Kothapet, Vijayawada-1, Andhra Pradesh.

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Resolutions:

1. Resolved to adopt R22 regulations and the course structure designed by Krishna University as per National Education Policy-2020, for the students admitted during the academic year 2022-2023.

2. Syllabus for M.Sc. analytical chemistry programme was discussed and

- Resolved to adopt the following courses with new course codes (Theory and practical) and model question papers for the 1st & 2nd semesters of M.Sc. Analytical chemistry.

I SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE	Internal Marks	External Marks	No. of Credits
		L	P	T				
22 ACH 101	General Chemistry	4	0	0	Core	30	70	4
22 ACH102	Organic Chemistry	4	0	0	Core	30	70	4
22 ACH103	Inorganic Chemistry -1	4	0	0	Core	30	70	4
22 ACH 104	Physical Chemistry –1	4	0	0	Core	30	70	4
22 ACH 105	Personality Development through Life Enlightenment Skills	3	1	0	Core	30	70	3
22 ACH 106	Organic Chemistry Lab-1	0	6	0	Core	30	70	3
22 ACH 107	Inorganic Chemistry Lab	0	6	0	Core	30	70	3
TOTAL FOR FIRST SEMESTER						210	490	25

II SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE / DSE/SEC	Internal Marks	External Marks	No. of Credits
		L	P	T				
R22ACH 201	Organic Spectroscopy	4	0	0	Core	30	70	4
R22ACH 202	Physical Chemistry -2	4	0	0	Core	30	70	4
R22ACH 203	Inorganic Chemistry -2	4	0	0	Core	30	70	4
R22ACH 204	Research Methodology & IPR	3	1	0	SEC	30	70	3
DOMAIN SPECIFIC ELECTIVE COURSES (CHOOSE ANY ONE)								
R22ACH 205	Heterocyclic Chemistry	4	0	0	DSE	30	70	4
R22ACH 206	Chemistry of Bioorganic compounds	4	0	0	DSE	30	70	4
R22ACH 207	Polymers Chemistry	4	0	0	DSE	30	70	4
LAB PRACTICALS								
R22ACH 208	Organic Chemistry lab-2	0	6	0	Core	30	70	3
R22ACH 209	Physical Chemistry lab	0	6	0	Core	30	70	3
TOTAL FOR SECOND SEMESTER						210	490	25

At the end of 2nd semester, every student must undergo summer Internship/ Apprenticeship/Project work/Industrial training/Research based Project work for Six weeks and must prepare a report concerned as per approved project guidelines, and submit the same to the College 14 days before the commencement of third semester end examinations.

L – Lecture, T- Tutorial & P – Practicals

III SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE / ID/DS/ SE/OE/ MOOCS	Internal Marks	External Marks	No. of Credits
		L	P	T				
ACH 301	Separation Methods	4	0	0	Core	30	70	4
DOMAIN SPECIFIC ELECTIVE COURSES (CHOOSE ANY THREE)								
R22ACH 302	Applied Analysis-I	4	0	0	DSE	30	70	4
R22ACH 303	Chemical and Spectral Methods of Analysis	4	0	0	DSE	30	70	4
R22ACH 304	Quality Control and Standard Methods of Analysis	4	0	0	DSE	30	70	4
R22ACH 305	Bio Inorganic chemistry, Bioorganic & Bio Physical Chemistry	4	0	0	DSE	30	70	4
R22ACH 306	Green Chemistry	4	0	0	DSE	30	70	4
R22ACH 307	Food Chemistry	4	0	0	DSE	30	70	4
LAB PRACTICALS								
R22ACH 308	Classical Methods of Analysis Practical	0	6	0	Core	30	70	3
R22ACH 309	Spectral Methods of Analysis Practical	0	6	0	Core	30	70	3
OPEN ELECTIVE (INTERDISCIPLINARY/MULTIDISCIPLINARY) COURSES (CHOOSE ANY ONE)								
R22ACH 310	Chemistry in daily life	3	0	0	OEC	30	70	3
R22ACH 311	Environmental Chemistry	3	0	0	OEC	30	70	3
R22ACH 312	Techniques for modern industrial application	3	0	0	OEC	30	70	3
TOTAL FOR III SEMESTER						210	490	25

IV SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE/ID/ DS/S/OE/ MOOCS	Internal Marks	External Marks	No. of Credits
		L	P	T				
R22ACH 401	Instrumental Methods of Analysis	4	0	0	Core	30	70	4
DOMAIN SPECIFIC ELECTIVE COURSES (CHOOSE ANY THREE)								
R22ACH 402	Traditional and Environmental Methods of analysis	4	0	0	DSE	30	70	4
R22ACH 403	Applied Analysis-II	4	0	0	DSE	30	70	4
R22ACH 404	Spectroscopic Methods	4	0	0	DSE	30	70	4
R22ACH 405	Nuclear and Photo Chemistry	4	0	0	DSE	30	70	4
R22ACH 406	Nano Chemistry	4	0	0	DSE	30	70	4
R22ACH 407	Drug Chemistry	4	0	0	DSE	30	70	4
LAB PRACTICALS								
R22ACH 408	Instrumental Methods of analysis Practical	0	6	0	Core	30	70	3
ENTREPRENURAL & INNOVATION/IT SKILL RELATED TO DOMAIN SPECIFIC ELECTIVE COURSES (CHOOSE ANY ONE)								
R22ACH 409	Drug Design and Drug chemistry	3	0	0	SEC	30	70	3
R22ACH 410	Energy, environment and soil Chemistry	3	0	0	SEC	30	70	3
R22ACH 411	Catalysis	3	0	0	SEC	30	70	3
* CHOOSE MOOCs FROM SWAYAM/NPTEL SOURCES								
R22ACH 412	Swayam/ NPTEL or Equivalent							4
R22ACH 413- PROJECT WORK EVALUATION AND VIVA-VOCE						100		4
TOTAL FOR IV SEMESTER						180	520	30

L – Lecture, T- Tutorial & P – Practicals

Note: Students may be allowed to register and appear for MOOCS from the third semester itself. However, students are to complete the MOOCS successfully and submit pass certificate of the same to the University through the Principal of the College concerned for approval and endorsement of the same on grade cards and PCs and ODs as per the regulations of the University.

3. Resolved to follow the existing syllabus for 3rd & 4th Semesters of II M.Sc. Analytical Chemistry for the academic 2022-23.

4. Resolved to offer one Certificate course for M.Sc Chemistry Students.

   A. Instrumental Methods of Chemical Analysis.