Department of Computer Science KKTM Govt College, Pullut

Offers

3 Minor courses

&

2 MDC Courses

Minor Course:

Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours
	4	3	-	2	75

Marks		
Internal	**External**	**Total**
30	70	100

MDC Course:

Total Hours	**Hours/ Week**	**Credits**	**Marks**		
			Internal	**External**	**Total**
45	3	3	25	50	75
45	3	3	25	50	75

2.6.1. Course Outcomes:

Minor1 - Data Science and AI

1st Semester

CSC1MN102 Python Programming

This course explores the versatility of Python language in programming and teaches the application of various data structures using Python.

CO1 Understand the basic concepts of Python programming
CO2 Apply problem- solving skills using different control structures and loops
CO3 Design simple Python programs to solve basic computational problems and acquire knowledge Python's error handling mechanisms to effectively debug programs
CO4 Analyse the various data structures and operations on it using Python
CO5 Apply modular programming using functions
CO6 Identify the necessary Python packages in the domain and create simple programs with it

2nd Semester

CSC2MN102 Introduction to Data Science

This course provides a comprehensive overview of data science, covering the various types of data and their applications. The students will acquire a deep understanding of exploratory data analysis along with hands-on implementation skills. . The curriculum introduces both supervised and unsupervised and techniques of Machine learning. Additionally, the data pre-processing techniques are introduced Overall, the course provides a comprehensive understanding of the fundamental data science principles, guiding students through the data science process and illustrating practical applications.

CO1 Understand the types of data and the applications of data science .
CO2 Analyse the irregularities present in the data and perform data cleaning .
CO3 Implement various visualisation techniques on different data types .
CO4 Create prediction models using supervised techniques .
CO5 Assess the similarity among the data using unsupervised techniques.
CO6 Gain insights on advanced data pre processing techniques.

3rd Semester

CSC3MN202 Introduction to AI and Machine Learning

This course provides an introduction to the ideas, techniques, and applications of artificial intelligence (AI) is given in this course. The fundamentals of knowledge representation, machine learning, and problem solving will be taught to the students.

CO1 Explain the basic concepts of Artificial Intelligence.
CO2 Master Problem-Solving Techniques. Apply a problem solving technique to solve standard AI problems .
CO3 Master various packages required to develop AI and machine learning applications.
CO4 Understand few AI tools and an insight to Machine learning, Deep learning concepts.
CO5 Implement and analyse Machine learning algorithms to solve practical problems.
C06 Apply Concepts in Real-World Projects.

Minor2 - Foundation of Computer Programming

1st Semester

CSC1MN101 Exploring Computer Basics & Computational Thinking

CO1 Understanding of computer hardware, software, and basic operation principles .
CO2 Understand and identify computer hardware components.
CO3 Understand how data is represented and manipulated within a computer system.
CO4 Understand the basics of computer languages, operating systems, and their comparison .
C05 Learn to design and implement algorithms to solve simple computational problems.
C06 Develop computational thinking skills essential for problem-solving in various domains.

2nd Semester

CSC2MN101 Foundations of C Programming

This course teaches the basics of programming using the C language. C is a powerful and widely used programming language known for its efficiency and flexibility. Through this course, students will learn how to write, understand, and debug C code to solve various problems and build simple applications..

CO1 Demonstrate a solid understanding of fundamental programming concepts .
CO2 Develop effective problem-solving skills by applying algorithmic thinking and logical reasoning.
CO3 Gain proficiency in writing, compiling, debugging, and executing C programs to implement algorithms, solve problems, and create applications.
CO4 Learn techniques to write efficient and optimized C code, including memory management, algorithm design, and performance tuning, to produce high quality and scalable software solutions..
CO5 Understand and apply software development practices such as modular programming, code documentation, and debugging techniques to write maintainable and robust C programs. .
CO6 Develop critical thinking skills by analyzing and evaluating C code, identifying errors and inefficiencies, and proposing solutions to improve code quality and performance.

3rd Semester

CSC3MN201 Python Programming

This course explores the versatility of Python language in programming and teaches the application of various data structures using Python.

CO1 Understand the basic concepts of Python programming
CO2 Apply problem- solving skills using different control structures and loops
CO3 Design simple Python programs to solve basic computational problems and acquire knowledge Python's error handling mechanisms to effectively debug programs
CO4 Analyse the various data structures and operations on it using Python
CO5 Apply modular programming using functions
CO6 Identify the necessary Python packages in the domain and create simple programs with it

Minor3 - Computing Skills and Programming Fundamentals

1st Semester

CSC1MN104 Computer Essentials with Word Processing & Presentation

This course serves as an introductory exploration into the foundational concepts of computing. Through a combination of lectures, hands-on exercises, and practical assignments, participants develop a holistic understanding of computer fundamentals. Ultimately, this course serves as a cornerstone for further studies in computer science, information technology, and related disciplines, empowering learners to navigate and contribute to the ever-evolving landscape of computing.

CO1 Gain proficiency in understanding and representing data in various forms, including binary, decimal, hexadecimal, and character encodings.
CO2 Understand the basic principles of computer architecture and organization
CO3 Understand the concept of software and its significance in computing and be familiar with various types of software, including system software, application software, and utility software.
CO4 Understand the basic principles of document design and layout for enhanced readability and visual appeal
C05 Understand the importance of effective communication and visual aids in presentations.
C06 Acquire practical skills through hands-on exercises and projects, preparing participants to apply their knowledge in academic, professional, and personal contexts. .

2nd Semester

CSC2MN104 Web Design Trends and Techniques

The aim of this course is to provide students with an understanding of the basic concepts in web browser and to achieve the basic web designing skills.
CO1 To get general introduction to internet.
CO2 To identify and analyse the current trends in web designing .
CO3 To understand basic knowledge in HTML5 and CSS3 for responsive web design.
CO4 To learn how to design a simple web applications.
CO5 To incorporate user experience principle in web design.
CO6 To Enable student to become proficient in web designing through current technologies .

3rd Semester

CSC3MN204 Programming fundamentals using C

This course teaches the basics of programming using the C language. C is a powerful and widely used programming language known for its efficiency and flexibility. Through this course, students will learn how to write, understand, and debug C code to solve various problems and build simple applications.

CO1 Demonstrate a solid understanding of fundamental programming concepts .
CO2 Develop effective problem-solving skills by applying algorithmic thinking and logical reasoning.
CO3 Gain proficiency in writing, compiling, debugging, and executing C programs to implement algorithms, solve problems, and create applications.
CO4 Learn techniques to write efficient and optimized C code, including memory management, algorithm design, and performance tuning, to produce high quality and scalable software solutions.
CO5 Understand and apply software development practices such as modular programming, code documentation, and debugging techniques to write maintainable and robust C programs.
CO6 Develop critical thinking skills by analyzing and evaluating C code, identifying errors and inefficiencies, and proposing solutions to improve code quality and performance.

General Foundation Papers

MDC (Multidisciplinary Course)

1st Semester

CSC1FM105 Data Analysis and Visualisation Through Spread sheets

This course provides a comprehensive introduction to Spreadsheets, focusing on understanding formulas, functions, data organization, analysis techniques, and data visualization. Participants will gain skills in spreadsheet management, data cleansing, analysis, and visualization using Excel's various tools and features.

CO1 Students will demonstrate proficiency in managing spreadsheets, including creating, formatting, and manipulating data within Excel workbooks. They will be able to effectively navigate Excel's interface and utilize toolbars.

CO2 Learners will understand the importance of data organization and cleansing in Excel. They will be able to import, export, filter, sort, validate, and remove duplicates from datasets. Students will develop skills to ensure data integrity and consistency, enhancing their ability to work with clean and organized data sets.

CO3 Participants will acquire advanced data analysis skills like pivot tables, what-if analysis, and goal seek. They will be able to apply various Excel functions and tools to perform complex calculations, analyze trends, and make informed decisions based on data analysis.

CO4 Students will gain proficiency in data visualization techniques using Excel. They will be able to create a variety of charts, design pivot charts, dashboards for effective data analysis. Additionally, learners will be able to implement form controls for interactive data manipulation in their visualizations.

CO5 Learners will develop skills in advanced features of Excel like macros, protect data sheets and workbooks, utilize split, freeze, and hide options effectively, incorporate add-ins for extended functionalities, and manage printing options in Excel for professional presentation of data.

2nd Semester

CSC2FM106 Digital Empowerment through Ethical Standards

This course explores the evolution from pre-digital challenges to the current digital landscape, covering historical milestones, key technologies, and the vision of Digital India. It emphasizes the benefits and importance of digital revolution while addressing ethical and security considerations. Participants engage with digital tools for personal and professional growth and examine case studies on digital infrastructure, missions, and services to understand real-world applications.

CO1 Students will be able to analyze the challenges of the pre-digital age and comprehend the importance and benefits of digital revolution, facilitating a deeper understanding of technological evolution.

CO2 Participants will gain familiarity with key digital technologies like Cloud Computing, IoT, AI, and Blockchain, equipping them with the knowledge to identify their applications and potential benefits in different sectors.

CO3 Students will develop insights into Digital India initiatives and emergence of Kerala as Digital Society .

CO4 Through exploration of digital tools for personal and professional growth, students will enhance their digital literacy and ability in utilizing tools for data sharing, online learning, networking, and content creation, empowering them to thrive in the digital age.

CO5 Learners will become aware of ethical and security considerations in the digital age, including privacy concerns, Intellectual Property Rights, key terminologies related to cyber security, and an introduction to cyber laws in India, fostering responsible digital citizenship.

C06 Students will analyze real-world case studies of digital infrastructure projects, digital missions, and digital services to demonstrate a comprehensive understanding of the practical applications and implications of digital technologies in various contexts, fostering critical thinking and strategic decision making skills in digital transformation initiatives.

Programme Outcomes

The broad objective of the programme is to provide sound academic base from which an advanced career in Computer Applications can be developed. Conceptual grounding in computer usage as well as its practical business application will be provided making candidates suitable for IT sector entry level jobs.

PO1 An ability to apply knowledge of computing, algorithmic principles, and computer science theory in the modeling and design of computer-based systems to real-world problems

PO2 An ability to design and conduct experiments

PO3 An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs

PO4 An ability to analyze a problem, and identify, formulate and use the appropriate computing and requirements for obtaining its solution (problem solving skills).

PO5 Recognition of the need for, and an ability to engage in continuing professional development and life-long learning (continuing education awareness).

PO6 An ability to use current techniques, skills, and tools necessary for computing and practice (practical engineering analysis skills).

PO7 An ability to recognize the importance of professional development by pursuing postgraduate studies or face competitive examinations that offer challenging and rewarding careers in computing (successful career and immediate employment).

Method of Measurinf the level of attainment of POs and Cos

1. Module wise Evaluations
2. Internal Evaluations
3. External Evaluations
4. Programming Evaluations Internal and External
5. Assignments
6. Seminars
7. Viva voce