Mar Baselios Christian College of Engineering and Technology

Kuttikanam, Peermade – 685531

Course Code	Course	Course Outcomes	
EN010 101	Engineering Mathematics I	CO1	Have a fundamental understanding of matrices and their special forms, their Eigen values and Eigen vectors; reduction of to canonical form
		CO2	Understand the application of derivatives with multi-variables and the determination of higher order derivatives
		CO3	Assimilate the concepts of double and triple integration and visualize the concept of volume in 3-dimensional space
		CO4	Perceive the concept of linear differential equation of the second order and modeling a differential equation from diverse practical applications
		CO5	Analyze a function, find its Laplace transform and its inverse and to solve differential equations using the transform
EN010 102	Engineering Physics	CO1	Understand the fundamentals of science and engineering
		CO2	Comprehend the principles behind various engineering applications
		CO3	Ingrain the principles of fiber optics and its applications to engineering and technology
EN010 103	Engineering. Chemistry	CO1	Adopt a scientific approach to gain acquaintance with the applications of chemistry in the field of technology
		CO2	Be aware about the major environmental issues for sustainable development
EN010 104	Engineering Mechanics	CO1	Use the concepts of basic Engineering mechanics concepts in analyzing static structures and identify an appropriate structural system to study a given problem and isolate it from its environment, model the problem using compatible free-body diagrams and workable equilibrium equations
		CO2	Identify and model various types of loading and support conditions that act on structural systems.
		CO3	Understand the essence of centers of gravity (mass)/centroids and understand the Moments of Inertia
		CO4	Apply equations for straight line motion to solve problems with variable acceleration
		CO5	Analyze dynamic problems using work energy and impulse momentum techniques
EN010 105	Engineering Graphics	CO1	Prepare and understand drawings and will be familiar with the various curves used in Engineering and their applications

		CO2	Understand and use the principles of orthographic projections
		CO3	Visualize three dimensional objects and to design new products by studying the projections of solids
		CO4	Assimilate solid sections along with the internal details of objects, machine parts, etc
		CO5	Possess good knowledge of isometric and perspective projections which will be helpful in representing the objects in three dimensions
EN010 106	Basic Civil Engineering	CO1	Possess a working knowledge of the types, manufacturing processes and market rates of construction materials available in the market
		CO2	Understand the different parts of buildings and appropriate construction practices in order to analyze construction work
		CO3	Acquire essential knowledge of different foundations used in practice and their structural significance
		CO4	Appreciate surveying concepts and surveying results like maps, remote sensing, GPS, GIS etc
		CO5	Familiarization with the basics of transportation engineering, sanitary engineering, building regulations and modern concepts of building construction from the social and environmental point of view
EN010 107	Basic Mechanical Engineering	CO1	Conversant with basic concepts and laws of heat transfer
		CO2	Grasp of IC Engine principles, performance of Refrigeration & Air conditioning units
		CO3	Familiarization with Energy Sources and Power Generation
		CO4	Understand the theory of different types of turbines and their operation
		CO5	Familiarization with various manufacturing processes
EN010 108	Basic Electrical Engineering	CO1	Solve electrical networks mathematically
		CO2	Obtain elementary knowledge of electromagnetism
		CO3	Distinguish between DC and AC circuits and analyze them
		CO4	Imbibe elementary knowledge of Electric machines
		CO5	Apply different energy conservation measures and create social awareness on home energy management
EN010 109	Basic Electronics Engineering & Information Technology	CO1	Understand the methods to analyze and characterize basic Electronic circuits and components like transistors, Diodes, Op-Amps etc
		CO2	Understand various frequency bands, analog modulation techniques, principles related to the operation and concepts of satellite and mobile communication
		CO3	Knowledge of electronic measuring instruments, transducers and consumer electronics

		CO4	Understand the basics of digital computer components, different computer network programming, Internet and IP addressing
EN010 110	Mechanical Workshop	CO1	Understand the basics of digital computer components, different computer network programming, Internet and IP addressing
		CO2	Understand applications of hand tools and power tools
		CO3	Conversant with marking and measurement in carpentry, fitting, smithy, and foundry
		CO4	Appreciate arc and gas welding techniques
EE 110	Electrical Workshops	CO1	Enable the student to have the practical skills for electrical wiring and basic awareness of safety measures
		CO2	Assimilate fundamental knowledge in the use of components to set up Wiring circuits by soldering and testing them
EN010 111	Civil Workshops	CO1	Imbibe practical skills in use of instruments employed in Civil Engg. Practice
		CO2	Possess a working knowledge of current building materials, masonry, plumbing and surveying
EN010 301B	Engineering Mathematics II	CO1	understand number theory ,functions and mathematical logic
		CO2	Solve problems related to lattice and relations
		CO3	Implement graph theory
EN010 302	Economics and Communication Skills	CO1	Enable the student to have basic idea about functions of bank and stock market.
		CO2	Understand about globalization and privatisation and also abot different taxes.
		CO3	Understand concepts of inflationand national income.
CS010 303	Problem Solving and Computer Programming	CO1	Students will be able identify appropriate C language constructs to solve problems
		CO2	Students will be able analyze problems, identify subtasks and implement them as Functions/procedures.
		CO3	Students will able implement algorithms using different data structures and efficient C-programming techniques
		CO4	Students will be able to enhance their programming skills with the use of structure, union and pointers.
		CO5	Students will able to analyze the concept of file system for handling data storage and apply it for solving problems
CS010 304	Computer Organization	CO1	Students will be able to identify the basic structure and functional units of a digital computer
		CO2	Students will be able to analyze the effect of addressing modes on the execution time of a program.
		CO3	Students will be able to design processing unit using the concepts of ALU and control logic design

		CO4	Students will be able to identify the pros and cons of different types of control logic design in processors
		CO5	Students will be able to select appropriate interfacing standards for I/O devices
		CO6	Students will be able to identify the roles of various functional units of a computer in instruction execution
CS010 305	Switching Theory and Logic Design	CO1	Understand basic number system and codes
		CO2	Understand basic combinational and sequential logic circuits
		CO3	Design counters and shift registers.
		CO4	Understand Digital IC and fault tolerance
CS010 306 (EC)	Electronics Devices and Circuits	CO1	To understand basic principles of various electronic circuits and their design
CS010 307	Programming lab	CO1	Students will be familiarized with compliers, editors and operating systems
		CO2	Students will be able to write, compile and debug programs in C language.
		CO3	Students will be able to inscribe C programs using decision structures, loops arrays, strings, functions, structures, pointers and file
CS010 308 (EC)	Logic Design lab	CO1	Familiarize logic gates and relation of logic circuits using basic gates.
		CO2	Implement Flip-flops,counters.registers
		CO3	Design and implement arithmetic circuits.
EN010 401	Engineering Mathematics III	CO1	Compute Fourier series and fourier transform
		CO2	Solve problems related to Probability distribution and partial difference equations.
		CO3	Implement testing hypothesis
CS010 402	Object Oriented Programming	CO1	To demonstrate the differences between traditional structured design and object oriented design
		CO2	To understand the role of inheritance, polymorphism, dynamic binding and generic structures in building reusable code.
		CO3	Map an object-oriented program design into the class and template model of C++.
		CO4	Apply traditional error and exception handling mechanisms in C++ for creating efficient codes.
CS010 403	Data Structures and Algorithms	CO1	Compute complexity of simple algorithms.
		CO2	Analyse problems to identify the best data structures to use for solving them and write programs to solve them.

		CO3	Design programs to create and manipulate static and dynamic data structures.
		CO4	Identify and solve real life problems using tree and graph.
		CO5	Develop and compare various searching and sorting algorithms based on their complexities.
CS010 404 (EC)	Signals and Communication Systems	CO1	To understand the fundamentals of signals- Analog and Digital.
		CO2	To understand communication system and communication channel.
		CO3	To analyze modulation and understand multiplexing ,error correction ,detection.
CS010 405	Microprocessor Systems	CO1	Students will be able to develop queries for relational database in the context of practical applications using database programming
		CO2	Students will be able to develop assembly language programs for 8085 microprocessor
		CO3	Students will be able to design how to interface microprocessor with various peripheral devices
CS010 406	Theory of Computation	CO1	Outline the concepts of Finite Automata and Regular Expression
		CO2	Analyze the formal languages and grammars.
		CO3	Design automata for regular, context-free, context sensitive and unrestricted languages.
		CO4	Make use of Turing Machine concepts to solve simple problems.
CS010 407	Data Structures lab	CO1	Write C programs using structures, unions, dynamic memory allocation functions and command line arguments
		CO2	Implement various linear data structures like stacks, queues, linked lists using static and dynamic allocation and their applications
		CO3	Implement nonlinear data structure binary search tree
CS010 408 (EC)	Electronic Circuits lab	CO1	To design electronic circuits working with electronic devices
		CO2	To perform communication engineering experiments
EN010 501B	Engineering Mathematics IV	CO1	To solve finite difference and Z transform
		CO2	To understand complex integration
		CO3	To understand queuing theory.
EN010 502 (ME)	Principles of Management	CO1	To identify and understand the relevance of management concepts.
		CO2	To describe, discuss, and relate management techniques adopted within an organization

		CO3	To apply management techniques for meeting current and future management challenges faced by the organization
		CO4	To apply principles of management in order to execute the role as a manager
CS010 503	Database Management Systems	CO1	Can explain and illustrate the fundamental concepts of databases.
		CO2	Able to model and design an Entity-Relationship (E-R) model from specification.
		CO3	Will be able to develop queries for relational database in the context of practical applications using database programming
CS010 504 (EC)	Digital Signal Processing	CO1	To introduce signals and system
		CO2	To understand frequency domain representation of discrete time signals,
		CO3	To understand finite and infinite impulse response filter.
		CO4	To understand DSP chips
CS010 505	Operating Systems	CO1	Students will be able to identify the significance and working of operating system in computing devices.
		CO2	Students will be able to exemplify the communication between processes and process synchronization.
		CO3	Students will be able to compare and illustrate various process scheduling algorithms and to identify multithreading processes
		CO4	Students will be able to identify the reasons for deadlock and their remedial measures in an operating systems.
		CO5	Students will be able to apply appropriate memory management schemes used in operating systems.
		CO6	Students will be able to classify different file systems and apply the knowledge in developing new operating systems.
CS010 506	Advanced Microprocessors & Peripherals	CO1	Describe in detail about the architectural components of 8086 microprocessor
		CO2	Students are able to analyze the features of different advanced microprocessors
		CO3	Interpret the working principle behind various peripheral devices and parts of motherboard
		CO4	Develop assembly language programs for 8086 microprocessor
		CO5	Analyze about storage structure of different types of memories
CS010 507 (P)	Database Lab	CO1	Infer database language commands to create simple database

		CO2	Analyze the database using commands to create simple database
		CO3	Applying PL/SQL for processing database
		CO4	Develop solutions using database concepts for real time requirement
CS010 508 (P)	Hardware & Microprocessors lab	CO1	To make students understand 8085,8086,masm programming.
		CO2	To understand various PC hardware components
CS010 601	Design and Analysis of Algorithms	CO1	Able to understand algorithm and solve problems based on analysis.
		CO2	To analyse different problem solving techniques
		CO3	To understand backtracking and solve problems based on branch and bound techniques.
		CO4	To implement sophisticated algorithms and lower bound theory
CS010 602	Internet Computing	CO1	Student can demonstrate the ability to employ repetition constructs in a Java program.
		CO2	Able to design programs in object oriented programming concepts, packages, interfaces, exception handling and applying the concepts of multithreading.
		CO3	Develop Input/output handling capability with applets and graphical user interfaces in Java programs.
		CO4	Implementation of client–server networking in Java by applying TCP, UDP and RMI.
		CO5	Develop and understand about advanced Java applications.
CS010 603	System Software	CO1	Students will be able to distinguish different software into different categories.
		CO2	Students will be able to design, analyze and implement macro processors
		CO3	Students will be able to design, analyze and implement one pass, two pass or multi pass assembler.
		CO4	Students will be able to design, analyze and implement loader and linker.
		CO5	Students will be able to critique the features of modern editing /debugging tools and device drivers
CS010 604	Computer Networks	CO1	Students will be able to explain and illustrate the basic architecture of computer networks and the Internet.
		CO2	Students will be able to analyse the capabilities of different protocols in transport layer, network layer and data link layer.
		CO3	Students will be able to solve problems related to network configuration in real world scenario.

		CO4	Student will have knowledge of the working of major network applications like web, email, DNS and mechanisms to make interoperable applications.
CS010 605	Software Engineering	CO1	Understand different process models, its assessment, concepts such as design lifecycles and cost estimation techniques.
		CO2	The student will able to relate and outline the engineering process of software and will be able to explain, apply in software development process.
		CO3	Enhance team work, critical thinking and communication skills to construct software of high quality.
		CO4	Develop skills to make use of tools that helps in software specification, design, testing, and maintenance
CS010 606L01	Elective I[Distributed Systems]	CO1	To recall and identify the relevance of Distributed Computing
		CO2	Students will be able to define key mechanisms and analyze different models of distributed systems and shared memory architecture
		CO3	Will be able to correlate the different types of file systems and different naming services used by different client processes
		CO4	Able to identify how to manage a distributed system
		CO5	Can identify the distributed database concept
CS010 607	Operating Systems Lab	CO1	Students will be able to understand the use various unix commands
		CO2	Students will be able to implement shell programming.
		CO3	Students will be able to demonstrate the the various concepts of operating system using c program
CS010 608	Mini Project	CO1	Graduates will be able to identify and define problems in the area of Computer science
		CO2	Graduates will get a chance to apply current technologies , create systems and solve problems
		CO3	Graduates will get opportunities to practice as teams.
CS010 701	Web Technologies	CO1	Students will be able to understand the working of web and its components.
		CO2	Students will be able to understand the working of web and its components.
		CO3	Student shall be able to understand universal data interchange formats for web such as XML and associated languages.
		CO4	Student will be able to create interactive web pages for real world application scenarios using Perl, PHP, AJAX.
		CO5	Student shall be able to use modern web page frameworks like Rails.

CS010 702	Compiler Construction	CO1	Understand the concepts and different phases of compilation with compile time error handling
		CO2	Represent language tokens using regular expressions, context free grammar and finite automaton and design lexical analyzer for language.
		CO3	Compare top down with bottom up parsers, and develop appropriate parser to produce parse tree representing the input
		CO4	Generate intermediate code for statements in high level language
		CO5	Design syntax directed translation schemes for a given context free grammar.
CS010 703	Computer Graphics	CO1	Students will be able to understand the basics of computer graphics and able to define and compare various display devices
		CO2	Students will be able to analyze and compare various algorithms for generating and displaying output primitives.
		CO3	Students will be able to understand and apply the concepts of 2D and 3D graphics representations.
		CO4	Enable the students to analyze and design application areas of computer graphics
CS010 704	Object Oriented Modelling & Design	CO1	Students will be able to understand the Object oriented view of Systems.
		CO2	Students will be able to evaluate the complexity in software design.
		CO3	Students will be able to develop object-based models in real world projects.
		CO4	Students will be able to be able to analyse information systems in real-world settings.
		CO5	Students will be able to represent a real-world system using UML diagrams.
CS010 705	Principles of Programming Languages	CO1	The Student will be able to compare, contrast and classify different programming languages
		CO2	The Student will be able to explain and apply the principles of an imperative, functional and object oriented programming language.
		CO3	The Student will be able to differentiate new programming languages with ease
		CO4	The Student will be able to express programming concepts and choose among alternative ways to express things
		CO5	The Student will be able to experiment a new programming language

CS010 706L06	Elective II[Client Server Architecture]	CO1	Students can recall and identify the client-server applications that can scale well to growing customer needs
		CO2	Inculcate concepts of securing client-server systems
		CO3	Applying client-server technology to improve existing application responsiveness.
		CO4	To analyse existing client-server applications being deployed in market
		CO5	Able to analyse and use modern tools for interacting with heterogeneous applications
CS010 707	Systems Programming Lab	CO1	Students will able to distinguish the implementation of lexical analyzer in C and LEX.
		CO2	Students will able to relate YACC tool with parsers
		CO3	Students will be able to demonstrate the parsing steps used in different types of parsers in C.
		CO4	Students will be able to convert the input to intermediate code and thereby generate target code
		CO5	Students will be able to develop 2 pass assembler
		CO6	Students will be to design an absolute loader.
CS010 708	Networking lab	CO1	Students will be able to understand the use various data types, arrays, operators and control statements o java and demonstrate their use by simple java programming. Students will be able to summarize the object oriented concepts o java
		CO2	Students will be able to develop applets and frames, conduct experiments on AWT classes, use the event classes and event listeners in Java, and employ Swings and AWT concepts to develop graphical user interfaces using for Java applications.
		CO3	Students will be able to demonstrate the role of Java in network programming, develop the concepts of socket programming, examine the datagram sockets and infer the mechanism to create distributed application in Java using Java RMI.
		CO4	Students will be able to understand web designing programming methods and able develop applications using Perl, PHP and XML programming languages.
		CO5	Students will be able to develop web applications and practice website development.
CS010 709	Seminar	CO1	The students will be able to recall existing technologies in the area of computer science.
		CO2	The students will be able to describe, compare and evaluate different technologies.
		CO3	The students will be able to develop their communication skills.
		CO4	The students will be able to develop their communication skills.

CS010 710	Project	CO1	Graduates will be able to make contributions in design, implementations and execution of Computer science related projects.
		CO2	Graduates will get an exposure to current technologies.
		CO3	Graduates will get opportunities to work as teams on multidisciplinary projects with effective writing and communication skills.
CS010 801	High Performance Computing	CO1	Graduates will be able to classify and describe the operation of parallel computer architectures
		CO2	Graduates will be able to understand the basic concepts of pipelining and related design issues
		CO3	Graduates will be able to learn advanced concepts in multiprocessor architecture and interconnection networks
		CO4	Graduates will understand the concepts of parallelism especially inter process communication and synchronization
		CO5	Graduates will get a thorough knowledge of various design alternatives of dataflow computers
CS010 802	Artificial Intelligence	CO1	The students will know the fundamental concepts of Artificial Intelligence such as knowledge representation, problem solving, fuzzy set and expert systems.
		CO2	The students will be able to implement search methods using Python
		CO3	Students will be able to summarize different learning methods used in artificial intelligence.
		CO4	Students will be able to develop new facts from existing knowledge base using resolution and unification
CS010 803	Security in Computing	CO1	Students will be able to solve and relate mathematic concepts behind the cryptographic algorithms
		CO2	Students will be able to explain basic concepts and algorithms of cryptography, including
		CO3	Students will be able to describe various network security practice applications
		CO4	Students will be able to evaluate the role played by various security mechanisms like Password management, access control mechanisms, firewalls etc
CS010 804L05	Elective III[Mobile Computing]	CO1	Students should be able to describe the basic concepts and principles in wireless communication systems and satellite communication systems.
		CO2	Students are able to design and compare wireless LANs, wireless ATM, Mobile and ad-hoc networks.
		CO3	Students should be able to explain the structure and components of Mobile IP ,adhoc routing protocols and mobility management.
		CO4	Students should be able to understand positioning techniques and location based services and applications.

		CO5	Students should have a good understanding of how the underlying wireless and mobile communication networks, their technical features and what kind of applications they support.
		CO6	Students should be able to explain the structure and components of Mobile Computing.
CS010 805G04	Elective IV[Software Architecture]	CO1	Design and understand software architecture for large scale software systems.
		CO2	Recognise major software architectural styles, design patterns, and frameworks
		CO3	Understand the formal definition of a number of architectures and be able to reason precisely about the properties of those architectures
		CO4	Describe a software architecture using various documentation approaches and architectural description languages.
		CO5	Identify the architectural alternatives and connectors for a problem and select among them.
CS010 806	Computer Graphics Lab	CO1	Students will develop programs for lines and circle drawing.
		CO2	Students will program the hidden surface elimination technique and demonstrate the rotation of the 3d object
		CO3	Students will write program functions to implement the different transformations that includes rotation, translation, scaling of 2d objects
		CO4	Students will write programs that demonstrate computer graphics animations
		CO5	Students will be able to construct curves and irregular patterns
CS010 807	Project	CO1	Graduates will be able to make contributions in design, implementations and execution of Computer science related projects
		CO2	Graduates will be able to develop practical skills needed to understand and modify problems related to programming and designing
		CO3	Graduates will get an exposure to current technologies
		CO4	Graduates will get opportunities to work as teams on multidisciplinary projects with effective writing and communication skills