

AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER

Department of Electronics and Telecommunication Engineering

Course Outcome

| Final Year: 2024 Course | | |
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| Course Code | Course Name | Course Outcomes |
| Semester-I | | |
| PCC-201-ETC | Electronics Circuits | CO1:Assimilate the physics, characteristics and parameters of MOSFET towards its applications as amplifier. |
| | | CO2:Design MOSFET amplifiers, with and without feedback, & MOSFET oscillators, for given specifications. |
| | | CO3:Design, Build and test Op-amp based analog signal processing and conditioning circuits towards various real time applications. |
| | | CO4:Understand and compare the principles of various data conversion techniques and PLL with their applications. |
| | | CO5:Analyze and assess the performance of linear and switching regulators, with their variants, towards applications in regulated power supplies. |
| PCC-203-ETC | Digital Electronics | CO1:Analyze,design and implement combinational logic circuits. |
| | | CO2:Analyze,design and implements sequential circuits. |
| | | CO3:Analyze,design FSM and ASM. |
| | | CO4:Understand various digital parameters and analyze digital system design using PLD. |
| | | CO5:Understand the fundamentals of VHDL. |
| PCC-204-ETC | Electronics Circuits & Digital Electronics Lab | CO1:Design and implement analog and digital electronic circuits such as amplifiers, Op-Amp based circuits, combinational and sequential logic circuits using appropriate components and ICs. |
| | | CO2:Analyze and evaluate the performance parameters of electronic circuits by measuring characteristics such as gain, bandwidth, input/output resistance, and verifying truth tables and timing diagrams. |
| | | CO3:Simulate and validate electronic circuits using software tools and virtual labs to study circuit behavior and compare with practical results. |
| | | CO4:Design and develop simple electronic systems and applications by integrating circuit concepts to solve real-world problems. |
| MDM-230-ETC | Data Structures & Algorithms | CO1:Apply and implement the principal sorting and searching algorithms on the given data using the C language |
| | | CO2: Develop applications of stack and queue using arrays. |
| | | CO3: Implement and demonstrate the applicability of a Linked List |

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| | | CO4:Build, represent and traverse a Binary Search Tree |
| | | CO5:Build, represent and traverse graphs. |
| MDM-231-ETC | Data Structures & Algorithms Lab | CO1:Apply structured programming concepts in C to develop solutions for real-world problems such as student database management using arrays and structures. |
| | | CO2:Implement and analyze linear data structures like stack and queue using arrays to simulate practical scenarios (e.g., parcel handling system). |
| | | CO3:Develop dynamic data handling using singly linked lists, including insertion, deletion, traversal, and reversal operations. |
| | | CO4:Construct and operate on Binary Search Trees (BST) to perform efficient searching and recursive traversals. |
| | | CO5:Design and implement graph traversal algorithms (BFS and DFS) using adjacency matrix representation for pathfinding applications. |
| EEM-240-ETC | Engineering Economics & Applications | CO1:Apply economic principles and time value of money concepts using practical tools. |
| | | CO2:Perform break-even and CVP analyses to support engineering decisions. |
| | | CO3:Analyze market competition and pricing strategies with case studies. |
| | | CO4:Evaluate projects with capital budgeting and interpret macroeconomic effects on electronics. |
| VEC-250-ETC | Universal Human Values & Professional Ethics | CO1: Recognize the concept of self-exploration as the process of value education and see they have the potential to explore on their own right. |
| | | CO2:Explore the human being as the coexistence of self and body to see their real needs / basic aspirations clearly. |
| | | CO3:Explain the relationship between one self and the other self as the essential part of relationship and harmony in the family. |
| | | CO4:Interpret the interconnectedness, harmony and mutual fulfilment inherent in the nature and the entire existence. |
| CEP-260-ETC | Community Engagement Project | CO1:Identify and Analyze local community needs and challenges by engaging with stakeholders and evaluating real-world problems. |
| | | CO2:Design and Implement practical, creative, and context-specific solutions using engineering principles to address community issues. |
| | | CO3:Reflect and Evaluate the effectiveness of their interventions and articulate lessons learned through reports and presentations. |

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| Open Elective-II OEL-220C : | Digital Marketing | CO1: Understand the basic Concepts of Digital marketing |
| | | CO2: Apply digital marketing tools for suitable applications |
| | | CO3: Examine the various social media and design Advertising campaigns |
| | | CO4: Learn search engine optimization (SEO) techniques and apply it for suitable application to increase page views |
| | | CO5: Analyse social media advertising platforms |
| Semester-II | | |
| PCC-205- ETC | Communication Engineering | CO1: Understand the fundamentals of communication systems. |
| | | CO2: Apply amplitude modulation and demodulation techniques to analyze AM system performance. |
| | | CO3: Apply frequency modulation and demodulation techniques to analyze FM system performance. |
| | | CO4: Examine analog to digital conversion techniques and execute pulse modulation schemes for digital communication systems. |
| | | CO5: Identify and Interpret real-world applications of communication systems. |
| PCC-206- ETC | Signals and Systems | CO1: Develop the mathematical equations of continuous and discrete time signals and perform fundamental operations on signals and Categorize signals into different categories. |
| | | CO2: Analyze different systems by applying the knowledge of system classification |
| | | CO3: Find response of a system for any arbitrary input signal using the convolution process and aware of its modern applications. Test the system stability using the impulse response. |
| | | CO4: Analyze and resolve the signals in frequency domain using Fourier Transform. |
| | | CO5: Apply Laplace transform for continuous time signals and perform system analysis. |
| PCC-207- ETC | Control Systems | CO1: Analyze Control System Performance: Determine the transfer function of control systems and evaluate time-domain responses of first and second-order systems to understand their behavior and performance. |
| | | Assess Stability using Root Locus: Apply the root locus method to determine the stability of control systems, ensuring they operate within desired parameters. |
| | | CO3: Evaluate Frequency Domain Stability: Utilize graphical methods (e.g., Bode plots) to analyze the frequency domain stability of control systems, enabling the design of stable systems. |
| | | CO4: Apply State-Space Analysis: Solve system equations using state-variable representations, enabling the analysis and design of complex control systems using modern control |

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| | | theory |
| | | CO5:Design Feedback Control Systems: Compare and contrast various feedback controllers (e.g., P, PI, PID) and understand their roles in industrial automation, facilitating the design of effective control. |
| PCC-208-ETC | Communication Engineering Lab | CO1: Demonstrate the working of amplitude and frequency modulation and analyze its behavior in terms of modulation index and bandwidth requirement. |
| | | CO2: Verify the sampling theorem and observe the effect of aliasing in sampling through simulation and hardware implementation. |
| | | CO3: Demonstrate the working of different blocks of digital communication systems and representation of its output in different data formats either through hardware implementation or a simulation software. |
| | | CO4:Simulate the communication systems to analyze its performance in presence of noise. |
| Open Elective-II | Business Analytics | CO1:To understand Business Analytics in practice. |
| | | CO2:Apply analytical thinking to business problems using tools like Excel, Tableau, etc. |
| | | CO3:Use predictive and prescriptive methods like regression and optimization. |
| | | CO4: Analyze real-world marketing and finance problems through analytics. |
| MDM-232-ETC | Object-Oriented Programming | CO1:Explain concepts of Object-Oriented Programming using C++. |
| | | CO2:Implement classes, objects, constructors, and destructor concepts in JAVA to build modular programs. |
| | | CO3:Analyze and design JAVA codes using abstract classes, inheritance and polymorphism. |
| | | CO4:Evaluate the concept of interfaces & packages |
| | | CO5:Design and implement JAVA based mini project |
| PCC-209-ETC | Signals & Systems and Programming Lab | CO1:Apply computational methods to generate, simulate, and analyze standard signals and their corresponding amplitude and phase spectra. |
| | | CO2:Demonstrate understanding of sampling, aliasing, convolution operations, and Fourier series analysis through programming-based experimentation. |
| | | CO3:Perform time-domain and frequency-domain analysis of real-time speech and music signals and interpret their spectral characteristics. |
| | | CO4:Apply object-oriented programming concepts to design classes, implement methods, and solve problems involving numerical computation, data handling, and system modelling. |

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| | | CO5:Implement advanced OOP features—constructors, inheritance, interfaces, abstract classes, and exception handling—to develop modular and extensible applications in C++ and Java. |
| | | CO6:Develop multi-threaded, interactive, and application-oriented programs and demonstrate integration of OOP principles through a mini-project. |
| VSE-270-ETC | Electronics Skill Development Lab | CO1:Build application specific electronic circuit/system |
| | | CO2: Use various measuring, debugging and EDA tools effectively. |
| | | CO3: Exercise prototype towards product development. |
| AEC-281-ETC | Modern Indian Languages (Marathi/Hindi) | CO1:Understand and explain the role of Marathi language in personality development, society, democracy, and media. |
| | | CO2:Apply Marathi language skills in practical activities such as dialogues, presentations, object descriptions, and group performances. |
| | | CO3:Analyze and create written content including newspaper summaries, blogs, reports, professional letters, and reviews. |
| | | CO4:Demonstrate effective communication, teamwork, and cultural awareness through debates, role-plays, skits, competitions, and literary/film reviews. |
| EEM-241-ETC | Entrepreneurship Skill Development | CO1:Describe the role of entrepreneurship in economic growth and the startup ecosystem. |
| | | CO2:Apply creative techniques to viable business ideas based on customer needs. |
| | | CO3:Develop a basic business model using tools like the Business Model Canvas through market research. |
| | | CO4: Implement basic marketing strategies for startups. |
| | | CO5: Deliver a concise business pitch using storytelling and effective communication techniques. |
| VEC-251-ETC | Environment Awareness | CO1:Illustrate the interdependence of ecosystems through activity-based exploration |
| | | CO2:Analyze the role of natural resources in sustainable development using real-world data. |
| | | CO3:Investigate biodiversity threats and conservation strategies through surveys and projects |
| | | CO4:Create awareness tools or reports promoting sustainability based on their findings. |