



CSMSS
Chhatrapati Shahu Maharaj Shikshan Sanstha's
CHH. SHAHU COLLEGE OF ENGINEERING

Kanchanwadi, Paithan Road, Chh. Sambhajinagar, 431 011
Ph. No. : (0240) 2646373, 9922668199, 2646350 Fax: (0240) 2646222
Website: www.csmssengg.org



Approved by AICTE New Delhi, DTE (Govt. of Maharashtra) and affiliated to Dr. BATU, Lonere (Raigad). **DTE Code:2533**

DEPARTMENT OF ELECTRONICS AND COMMUNICATION

(ADVANCED COMMUNICATION TECHNOLOGY)

LIST OF COURSE OUTCOMES (A.Y.2024-25 EVEN SEMESTER)

| SEM | COURSE CODE | NAME OF THE COURSE | CO NO. | CO STATEMENTS |
|--------|-------------|----------------------------|--------|---|
| SEM-IV | BTECA401 | Digital Communication | 1 | Student will able to calculate performance of a baseband and pass band digital communication system in terms of error rate and spectral efficiency. |
| | | | 2 | Student will able to describe the time and frequency domain of the signals in a digital communication system. |
| | | | 3 | Student will be able to explain design of digital communication system. |
| | | | 4 | Student will able to calculate performance of a digital communication system in presence of Noise and other interferences. |
| | | | 5 | Student will able to calculate Performance of spread spectrum communication system. |
| | BTECA402 | Control System Engineering | 1 | Understand the Basics of Control Systems and Explain mathematical modeling techniques like transfer functions. |
| | | | 2 | Determine the performance of system in time domain. |
| | | | 3 | Apply stability criteria (Routh-Hurwitz, Root locus) to determine system stability |
| | | | 4 | Analyze frequency response of systems to evaluate system performance |



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| | | | 5 | Calculate controllability and observe ability for given system. |
| BTECA403 | Basic Human Rights | | 1 | Understand the history of human rights |
| | | | 2 | Learn to respect others caste, religion, region and culture. |
| | | | 3 | Aware of their rights as Indian citizen. |
| | | | 4 | Understand the importance of groups and communities in the society. |
| | | | 5 | Realize the philosophical and cultural basis and historical perspectives of human rights. |
| BTECA404 | Probability Theory and Random Processes | | 1 | To apply fundamental concepts of probability, Bayes' theorem, and standard probability distributions to describe real-life phenomena |
| | | | 2 | To utilize the basic concepts of probability distributions and random variables to solve engineering problems. |
| | | | 3 | To apply the concepts of correlation and their applications in engineering disciplines. |
| | | | 4 | To interpret the concepts of linear regression, including regression lines and coefficients, in practical scenarios. |
| | | | 5 | To apply estimation techniques and hypothesis testing to draw conclusions and assess errors in statistical analyses |
| BTECA405A | Professional Elective Courses -I Python Programming | | 1 | Illustrate the importance of Python over the other programming languages and Write program using input and print instructions |
| | | | 2 | Demonstrate use of data structure, operators, control flow and sequences using python program |



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| | | | 3 | Develop python function for a given problem |
| | | | 4 | Implement classes, objects in python |
| | | | 5 | Develop python program using the concepts of networking, databases and GUI tools. |
| BTECA405D | Professional Elective Courses -I Electrical Machine & Instrumentation | | 1 | To provide knowledge and identify the performance of different types of AC/DC machines |
| | | | 2 | To demonstrate and fundamental understanding of various applications based on electricity, laws & motors. |
| | | | 3 | To analyze the performance of different types, characteristics & applications of special purpose machines. |
| | | | 4 | To troubleshoot the operation of an electrical machine, instruments & sensors for a given application. |
| | | | 5 | To estimate and correct deviations in measurements due to the accuracy of the instrument as per industrial applications. |
| BTECA307 | Digital Communication Lab | | 1 | Student will able to calculate performance of a baseband and pass band digital communication system in terms of error rate and spectral efficiency. |
| | | | 2 | Student will able to describe the time and frequency domain of the signals in a digital communication system. |
| | | | 3 | Student will able to explain design of digital communication system. |
| | | | 4 | Student will able to calculate performance of a digital communication system in presence of Noise and other interferences. |



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| | | | 5 | Student will able to calculate Performance of spread spectrum communication system. |
| | BTECA308 | Control System Engineering Lab | 1 | Understand the Basics of Control Systems and Explain mathematical modeling techniques like transfer functions. |
| | | | 2 | Determine the performance of system in time domain. |
| | | | 3 | Apply stability criteria (Routh-Hurwitz, Root locus) to determine system stability |
| | | | 4 | Analyze frequency response of systems to evaluate system performance |
| | | | 5 | Calculate controllability and observe ability for given system. |
| | | | BTECA408 | PEC-1 Lab - Python Programming |
| | 2 | Demonstrate use of data structure, operators, control flow and sequences using python program | | |
| | 3 | Develop python function for a given problem | | |
| | 4 | Implement classes, objects in python | | |
| | 5 | Develop python program using the concepts of networking, databases and GUI tools. | | |
| | BTECA408 BTECA405D | PEC-1 Lab -1 Electrical Machine & Instrumentation | 1 | To provide knowledge and identify the performance of different types of AC/DC machines |
| | | | 2 | To demonstrate and fundamental understanding of various applications based on electricity, laws & motors. |



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| | | | 3 | To analyze the performance of different types, characteristics & applications of special purpose machines. |
| | | | 4 | To troubleshoot the operation of an electrical machine, instruments & sensors for a given application. |
| | | | 5 | To estimate and correct deviations in measurements due to the accuracy of the instrument as per industrial applications. |
| | BTECA409 | Seminar - II | 1 | Identify a specialized topic beyond the syllabus, from interdisciplinary domains such as Electronics Engineering, Computer Science, AI, and Data Science. |
| | | | 2 | Summarize literature related to their topic gathered from various sources. |
| | | | 3 | Prepare the presentation using appropriate tools. |
| | | | 4 | Revise the seminar presentation based on constructive feedback from teachers and peers. |
| | | | 5 | Prepare a well-structured technical report following academic writing and reporting standards. |

HEAD OF THE DEPARTMENT



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| SEM | COURSE CODE | NAME OF THE COURSE | CO NO. | CO STATEMENTS |
|---------|-------------|-----------------------------|--------|--|
| SEM-III | BTECA301 | Engineering Mathematics-III | 1 | Students will be able to apply the properties of Laplace Transform to solve integrals and find Laplace Transform of given functions. |
| | | | 2 | Students will be able to apply inverse Laplace transform methods, including partial fractions and the Convolution Theorem to solve linear differential equations with constant coefficients. |
| | | | 3 | Students will be able to apply concept of Fourier transform, including integral representation and Parseval's identity. |
| | | | 4 | Students will be able to construct the solution of partial differential equations such as heat and wave equations, using appropriate methods, including Lagrange's equations, separation of variables. |
| | | | 5 | Students will be able to identify analytic functions and solve contour integral using Cauchy integral theorems and residue theorem. |
| | BTECA302 | Analog Circuits | 1 | Identify operation of biasing and applications of BJT, JFET & MOSFET. |
| | | | 2 | Explain Various circuit and test the performance of Transistors. |
| | | | 3 | Understand the basic concepts related to Operational-amplifier. |
| | | | 4 | Identify characteristics of Op-Amp and its internal structure. |
| | | | 5 | Analyze and identify linear and nonlinear applications of Op-Amp. |



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| BTECA303 | Analog Communication and Signals & System | 1 | Student will Understand and identify the fundamental concepts and various components of analog Communication systems. |
| | | 2 | Understand the concepts of modulation and demodulation techniques. |
| | | 3 | Students are able to design circuits to generate modulated and demodulated wave. |
| | | 4 | Understand mathematical description and representation of continuous and discrete time signals and systems. |
| | | 5 | Students are able to develop input output relationship for linear shift invariant system and understand the Convolution operator for continuous and discrete time system. |
| BTECA304 | Digital Electronics and Microprocessor | 1 | Student will be able to describe the digital signal, Boolean algebra, number system and solve given problem using above concept. |
| | | 2 | Student will be able to illustrate working mechanism and design of different combinational logic circuit and their application in digital electronics. |
| | | 3 | Student will be able to illustrate working mechanism and design of different sequential logic circuit and their application in digital electronics. |
| | | 4 | Students will be able to identify and apply fundamentals of 8085 microprocessor to demonstrate I/O devices and memory interfacing. |
| | | 5 | Students will be able to identify and apply fundamentals of 8086 microprocessor to demonstrate I/O devices and memory interfacing |
| BTECA305 | Network Theory | 1 | Analyze linear circuit with the use of different network theorems and analysis methods. |
| | | 2 | Understand the concept of resonance. |



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| | | | 3 | Compute two port network parameters and draw equivalent network. |
| | | | 4 | Understand transient and steady state response of linear circuit. |
| | | | 5 | Understand concept of graph theory. |
| | BTECA306 | Analog Circuits Lab , | 1 | Identify operation of biasing and applications of BJT, JFET & MOSFET |
| | | | 2 | Explain Various circuit and test the performance of Transistors. |
| | | | 3 | Understand the basic concepts related to Operational-amplifier. |
| | | | 4 | Identify characteristics of Op-Amp and its internal structure. |
| | | | 5 | Analyze and identify linear and nonlinear applications of Op-Amp. |
| | BTECA307 | Analog Communication Lab | 1 | Student will Understand and identify the fundamental concepts and various components of analog Communication systems. |
| | | | 2 | Understand the concepts of modulation and demodulation techniques. |
| | | | 3 | Students are able to design circuits to generate modulated and demodulated wave. |
| | | | 4 | Understand mathematical description and representation of continuous and discrete time signals and systems. |
| | | | 5 | Students are able to develop input output relationship for linear shift invariant system and understand the Convolution operator for continuous and discrete time system. |
| | BTECA308 | Digital Electronics and Microprocessor Lab | 1 | Student will be able to describe the digital signal, Boolean algebra, number system and solve given problem using above concept. |



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| | | | 2 | Student will be able to illustrate working mechanism and design of different combinational logic circuit and their application in digital electronics. |
| | | | 3 | Student will be able to illustrate working mechanism and design of different sequential logic circuit and their application in digital electronics. |
| | | | 4 | Students will be able to identify and apply fundamentals of 8085 microprocessor to demonstrate I/O devices and memory interfacing. |
| | | | 5 | Students will be able to identify and apply fundamentals of 8086 microprocessor to demonstrate I/O devices and memory interfacing |
| | BTECA309 | Seminar-I | 1 | Developing presentation skills among students |
| | | | 2 | Create Literature survey to generate report for defined Task |
| | | | 3 | Interference with Recent Technology |
| | | | 4 | Outline industrial problems as a part of industrial training curriculum. |
| | | | 5 | Develop Effective Group communication and self-management |

HEAD OF THE DEPARTMENT