



Department of E & TC Engineering

S. Y. B. Tech Course Outcome

Knowledge and Attitude Profile (WK):

WK1	A systematic, theory-based understanding of the natural sciences applicable to the discipline and awareness of relevant social sciences.
WK2	Conceptually-based mathematics, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline.
WK3	A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.
WK4	Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.
WK5	Knowledge, including efficient resource use, environmental impacts, whole-life cost, re-use of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area.
WK6	Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.
WK7	Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development.
WK8	Engagement with selected knowledge in the current research literature of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues.
WK9	Ethics, inclusive behavior and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes.

Program Outcomes (PO):

PO1	Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.
PO2	Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4).
PO3	Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5).
PO4	Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).



Department of E & TC Engineering

S. Y. B. Tech Course Outcome

PO5	Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6).
PO6	The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).
PO7	Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)
PO8	Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
PO9	Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences.
PO10	Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
PO11	Life-Long Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

Program Specific Outcome (PSO):

PSO1	ACADEMICS: Apply fundamentals of electronics/course in analog and digital domains.
PSO2	INTER DISCIPLINARY: Use of technique, skill
PSO3	SOCIAL ASPECT: Demonstrate engineering knowledge, interpersonal skills for societal responsibilities.



Department of E & TC Engineering

S. Y. B. Tech Course Outcome

Course Outcome

	- Entrepreneurship Development (172306) [Practical regular]
CO ID	Course Outcome
CO1	Explain the concept of entrepreneurship and its importance in economic and social development.
CO2	Identify, evaluate, and validate innovative business ideas using market research techniques.
CO3	Apply design thinking and business model frameworks to structure entrepreneurial ventures.
CO4	Analyse startup funding options, revenue models, and financial feasibility of new businesses.
CO5	Demonstrate the ability to pitch business ideas effectively to potential stakeholders

	104301 - Digital Electronics [Theory regular]
CO ID	Course Outcome
CO1	Apply the knowledge of Boolean algebra and simplification of Boolean expressions to deduce optimal digital circuits
CO2	Design sequential circuits using Moore and Mealy Machines.
CO3	Design synchronous and asynchronous counters.
CO4	Develop codes for combinational and sequential circuits using VHDL.
CO5	Analyze characteristics of TTL and design logic using PLD.

	104302 - Electronics Devices and Circuits [Theory regular]
CO ID	Course Outcome
CO2	Apply the working principle of JFET and describe its application as an amplifier and a switch
CO3	Interpret the operation and characteristics of EMOSFET and analyze its use in amplifier and switching circuits
CO4	Perform analysis of EMOSFET amplifiers and evaluate their frequency response
CO1	Analyze small signal and power BJT amplifier circuits and evaluate their performance parameters
CO5	Explain the concept of feedback and analyze its application in amplifier design and oscillator circuits

	104303 - Network Theory [Theory regular]
CO ID	Course Outcome
CO1	Analyze the simple DC circuit using appropriate circuit simplification techniques.
CO2	Analyze driven and source free RL, RC and RLC circuits.
CO3	Analyze a network by formulating the network parameters of a given network.
CO4	Evaluate the performance of frequency selective filters and Attenuators networks.
CO5	Learn to analyze the frequency response of different filter types.

	104308 - Community Engagement / Field Project [Theory regular]
CO ID	Course Outcome
CO1	Explore relevance between theory and practice through community-based problem learning.
CO2	Identify real-life socio-technical problems and develop a solution.
CO3	Implement a wisdom of empathy and social responsibility to meet complex global challenges
CO4	Develop innovative ideas in collaboration with society through community-based research methods.



Department of E & TC Engineering

S. Y. B. Tech Course Outcome

CO5	Analyze the need of research projects and develop a plan for betterment of public service values through active citizenship.
-----	--

	170304A - Engineering Mathematics-III [Theory regular]
CO ID	Course Outcome
CO1	Learner will be able to Solve higher order linear differential equations using appropriate techniques.
CO2	Learner will be able to Apply Laplace transform and Z-Transform to solve differential equations, difference equations.
CO3	Learner will be able to Apply vector calculus to analyze fields and solve problems using differential operators and Stoke's and Gauss's Theorem.
CO4	Learner will be able to Analyze discrete and continuous random variables using Binomial, Poisson, and Normal distributions.
CO5	Learner will be able to Analyze data through hypothesis tests like Chi-square and t-tests.

	171305A - Intellectual Property Rights and Ethics [Theory elective]
CO ID	Course Outcome
CO1	Understand the basic of intellectual property rights
CO2	Learn the patent filling process
CO3	Understand the copyright/trademark/industrial design and filing process
CO4	Understand the importance of ethics in their personal and professional life
CO5	Learn the workplace responsibilities and rights as an engineer in the industry

	171305B - Renewable Energy [Theory elective]
CO ID	Course Outcome
CO1	Describe the basics of renewable energy
CO2	Explain the constructional details and working of hydro-electric power plant
CO3	Describe the fundamentals and technology to harness solar energy
CO4	Explain the wind energy conversion system
CO5	Discuss the bio-energy conversion pathways

	171305B - Renewable Energy [Practical elective]
CO ID	Course Outcome
CO1	Explore a holistic vision of life, including the self and surroundings.
CO2	Recognize the co-existence of self, realize harmony, and comprehend the true happiness.
CO3	Apply strategies that foster harmony in family and society through effective communication and relationship-building to cultivate social well-being.
CO4	Execute self-regulations to mutually fulfilling human behavior and enriching interaction with nature to realize harmony.
CO5	Emphasize the implications of a holistic approach in terms of ethical human conduct, and transit towards value based life.

	171305C - Health, Care and Management Systems [Theory elective]
CO ID	Course Outcome
CO1	Understand the structure and function of key human body systems relevant to healthcare and



Department of E & TC Engineering

S. Y. B. Tech Course Outcome

	diagnosis
CO2	Identify common health issues and explain their causes, symptoms.
CO3	Describe the working principles and applications of basic biomedical instruments used in diagnosis and monitoring.
CO 4	Analyze the role of advanced medical devices and imaging systems in clinical decisionmaking and treatment.
CO 5	Explain the components of hospital management system and significance of digital health technologies like Electronic Health Records (EHR), telemedicine and emergency tracking

	171305D - Smart City and Infrastructure [Theory elective]
CO ID	Course Outcome
CO1	Describe the concept, features, and components of smart cities with relevant examples.
CO2	Demonstrate the structure and regulatory mechanisms of smart city development in context of Indian and international benchmarks.
CO3	Apply GIS and remote sensing techniques for spatial analysis and infrastructure planning in smart cities.
CO4	Relate smart transportation technologies and their role in improving urban mobility and sustainability
CO5	Suggest smart solutions for urban water, air and waste management using IOT technologies.

	173307 (TU) - Universal Human values (TU) [Theory regular]
CO ID	Course Outcome
CO1	Explore a holistic vision of life, including the self and surroundings.
CO2	Recognize the co-existence of self, realize harmony, and comprehend the true happiness.
CO3	Apply strategies that foster harmony in family and society through effective communication and relationship-building to cultivate social well-being.
CO4	Execute self-regulations to mutually fulfilling human behavior and enriching interaction with nature to realize harmony.
CO5	Emphasize the implications of a holistic approach in terms of ethical human conduct, and transit towards value based life

	104401 - Analog Communication [Theory regular]
CO ID	Course Outcome
CO1	Interpret the concepts of analog & digital communication system
CO2	Analyze the techniques of generation, transmission of Analog Modulation Systems.
CO3	Analyze the techniques of generation, transmission and reception of Angle Modulation Systems
CO4	Analyze the techniques of generation, reception of Angle Modulation Systems
CO5	Exhibit the importance of Sampling Theorem and correlate with Pulse Modulation technique.

	104402 - Signals and System [Theory regular]
CO ID	Course Outcome
CO1	Classify different signals and apply different operations on signals.
CO2	Apply the convolution to determine system output.
CO3	Analyze periodic and non-periodic signals using Fourier series and Fourier transform.



Department of E & TC Engineering

S. Y. B. Tech Course Outcome

CO4	Analyze systems using Laplace Transform and evaluate system stability
CO5	Analyze discrete time systems using Z-Transform.

104403 - Control System [Theory | regular]

CO ID	Course Outcome
CO1	Analyze mathematical models of physical systems to determine control system stability.
CO2	Analyze closed-loop control systems using time-domain response techniques.
CO3	Analyze control system stability using root locus and Routh-Hurwitz criteria.
CO4	Analyze control system response and stability using frequency-domain techniques.
CO5	Analyze state-space models and state feedback control of systems.

104409 - Skill Development [Practical | regular]

CO ID	Course Outcome
CO1	Apply Embedded C programming to develop Arduino-based embedded system
CO2	Implement digital and analog Input Output operations for sensor and actuator control.
CO3	Integrate various sensors to acquire, process, and analyze real-time data.
CO4	Utilize communication protocols (UART, I2C, SPI) for device interfacing.
CO5	Develop IoT-based applications using ESP8266 for wireless data transmission

170404A - Artificial Intelligence [Theory | regular]

CO ID	Course Outcome
CO1	Explain the basic principles and scope of Artificial Intelligence and its relevance to different engineering disciplines
CO2	Apply search algorithms for solving simple engineering problems
CO3	Understand and differentiate between types of machine learning and data representations.
CO4	Identify and analyze AI applications in domains such as predictive maintenance, smart cities, automation, and control systems.
CO5	Recognize ethical, social, and professional issues in deploying AI solutions in engineering contexts.

171405A - Introduction to Cyber Security [Theory | regular]

CO ID	Course Outcome
CO1	Explain the architecture, communication and governance of cyberspace and web technologies
CO2	Identify and relate specific cybercrime incidents to relevant provisions of the IT act 2000
CO3	Apply basic practices to ensure privacy and security on social media platforms
CO4	Apply security practices and legal guidelines to ensure safe -commerce and digital payment systems
CO5	Demonstrate configuration and management of secure digital devices and tools

171405A - Introduction to Cyber Security [Theory | regular]

CO ID	Course Outcome
CO1	Explain the architecture, communication and governance of cyberspace and web technologies
CO2	Identify and relate specific cybercrime incidents to relevant provisions of the IT Act 2000



Department of E & TC Engineering

S. Y. B. Tech Course Outcome

CO3	Apply Basic Practices to ensure privacy and security on social media platforms
CO4	Apply security practices and legal guidelines to ensure safe -Commerce and digital payment systems
CO5	Demonstrate configuration and management of secure digital services and tools

	172406 - Business Economics [Theory regular]
CO ID	Course Outcome
CO1	Understand the role of economics in business decision-making and analyze real- world economic scenarios, Apply demand and supply principles to determine market equilibrium and pricing strategies.
CO2	Analyze cost structures, profitability, and break-even points in business operations.
CO3	Evaluate the impact of business cycles, inflation, and government economic policies on industries.
CO4	Compare and contrast different market structures and their influence on business strategies.
CO5	Develop pricing strategies based on competitive analysis and consumer demand.

	173407 - Environmental Studies [Practical regular]
CO ID	Course Outcome
CO1	Describe the importance of environmental studies and the sustainable use of natural resources
CO2	Explain the structure and function of ecosystems and the significance of biodiversity.
CO3	Identify various types of environmental pollution and their control measures.
CO4	Discuss key environmental issues, policies and their impact on society.
CO5	Observe and report environmental conditions and features through field activities.

	174408A - Foreign Language - Basic English [Theory elective]
CO ID	Course Outcome
CO1	Learn the basic phonetics, alphabets, and sounds of the selected foreign language.
CO2	Interpret and use everyday vocabulary to manage simple social interaction
CO3	Form simple sentences using basic grammatical structures and sentence patterns.
CO4	Participate in simple conversations and everyday communication situations relevant to academic, social, and professional contexts.
CO5	Demonstrate cultural awareness and appropriate language behaviour to facilitate global and cross-cultural interactions

	174408C - Foreign Language
CO ID	Course Outcome
CO1	Learn the basic phonetics, alphabets, and sounds of the selected foreign language.
CO2	Interpret and use everyday vocabulary to manage simple social interaction
CO3	Form simple sentences using basic grammatical structures and sentence patterns.
CO4	Participate in simple conversations and everyday communication situations relevant to academic, social, and professional contexts.
CO5	Demonstrate cultural awareness and appropriate language behaviour to facilitate global and cross-



MARATHA VIDYA PRASARAK SAMAJ'S
Karmaveer Adv. Baburao Ganpatrao Thakare
College of Engineering (An Autonomous Institute)

Permanently Affiliated to Savitribai Phule Pune University Vide Letter No. : CA/1542 & Approved by AICTE New Delhi - Vide Letter No. : 740-89-32 (E) ET/98 AISHE Code - C-41622



• MECHANICAL
• COMPUTER
• INSTRUMENTATION AND CONTROL
• CIVIL
• INFORMATION TECHNOLOGY (IT)

Department of E & TC Engineering

S. Y. B. Tech Course Outcome

cultural interactions
