COURSE OUTCOMES

B. Tech. First Semester
COURSE OUTCOMES

B. Tech. First Semester

1BET01T	Applied Mathematics-I

After completion of Syllabus, the student will be able to:

1	Apply the concept of Matrix operations and inversion
2	Determine partial derivative of various functions and apply their concepts to Engineering problems.
3	Apply the concept of Beta and Gama functions to solve the problem.
4	Solve ordinary differential equations using elementary techniques and apply it to formulate mathematical models.
5	Use higher order differential equations to solve the problems in engineering field.

B. Tech. First Semester

1BET02T	Applied Physics

After completion of Syllabus, the student will be able to:

1	Develop elementary concepts of quantum mechanics and their applications.
2	Relate the structure of crystalline solids by applying knowledge of crystallography.
3	Categorize solids on the basis of band theory and study of semiconductor devices along with their applications.
4	Describe the quantum transitions and apply them to the working of lasers.

B. Tech. First Semester

1BET02P	Applied Physics Lab

After completion of Syllabus, the student will be able to:

1	Create the basic circuitries in Electronics. Demonstrate and illustrate the basic principles of operation of semiconductor diodes and transistors.
2	Differentiate between the types of semiconductors through band gap experiment. Analyze the magnetic field-based experiment to distinguish the materials.
3	Apply the concept of diffraction for the optical based devices using LASER beam. Develop the concept of fiber optic cables to determine the numerical aperture of the fiber cables and to get acquainted with its use in daily life.
4	Examine the various electrical and electronics-based parameters viz. A.C. Voltage, frequency, and phase shift and time period using CRO.
5	Practice effectively as an individual and as a member of a team.

B. Tech. First Semester

1BET03T	Programming for Problem Solving

After completion of Syllabus, the student will be able to:

1	Illustrate and explain the basic computer concepts and programming principles of C language.
2	Develop C programs to solve simple mathematical, decision making problems and problems using looping constructs.
3	Apply C programming to solve matrix addition and multiplication problems and also develop C programs to demonstrate the applications of derived data types such as arrays, searching & sorting.
4	Develop C programs to demonstrate the applications of derived data types such as functions.
5	Develop C programs to demonstrate the applications of structures, pointers & File Handling.

B. Tech. First Semester

1BET03P	Programming for Problem Solving Lab

After completion of Syllabus, the student will be able to:

1	Understand fundamentals of C language
2	Analyze correctness in syntax and logic for the program which is developed from algorithm.
3	Apply debugging techniques according to the algorithm requirements
4	Evaluate the computational resources for a program application
5	Implement conditional branching, iteration and recursion, to decompose a problem into functions and synthesize a complete program.

B. Tech. First Semester

1BET04T	Basics of Electrical & Electronics Engineering

After completion of Syllabus, the student will be able to:

1	Acquire basic concepts of electric and magnetic circuit.
2	Analyze AC series circuits
3	Explain construction, working and applications of single-phase transformers and electric machines.
4	Discuss 3-phase power generation and basic power system.
5	Explain operation and applications of semiconductor devices like diode and BJT.

B. Tech. First Semester

1BET04P	Basics of Electrical & Electronics Engineering Lab

After completion of Syllabus, the student will be able to:

1	Acquire basic concepts of electric and magnetic circuit.
2	Analyze AC series circuits.
3	Explain construction, working and applications of single-phase transformers and electric machines.
4	Discuss 3-phase power generation and basic power system.
5	Explain operation and applications of semiconductor devices like diode and BJT.

B. Tech. First Semester

1BAE01T-A / 2BAE01T-A	Professional communication

After completion of Syllabus, the student will be able to:

1	Apply basic communication skill and correct grammar usage.
2	Design formal written communication.
3	Prepare and illustrate their thoughts effectively through improving listening & speaking skills
4	Use of oral communication skills in order to handle themselves effectively in interview and group discussion

B. Tech. First Semester

1BCC01P-A / 2BCC01P-A	Yoga/ Sports Recreation

After completion of Syllabus, the student will be able to:

1	Illustrate the fundamental techniques, underlying principles, and standard practices of both sports and yoga.
2	Collect practical experience in applying the principles of general and targeted physical conditioning exercises and yoga.
3	Enhance health-related fitness levels and achieve harmony between body and mind through participation in a variety of fitness activities, sports, recreational games, and yoga.
4	Practice Healthy & active living with reducing Sedentary Life style.

K.D.K. COLLEGE OF ENGINEERING

Department of Electronics & Telecommunication Engineering

B. Tech. First Semester

1BET05P	Skill Enhancement Course (Electronics workshop I)

After completing the practical course, students shall be able to:

1	Explain the Basic Concepts of Different Semiconductor Components with Their types & Usage Physically.
2	Use Semiconductor Devices in Different Electronic Circuits and Projects.
3	Calculate Different Performance Parameters of Active and Passive Devices and their Datasheets.
4	Plot and Study the Characteristics of Semiconductor Devices.

B. Tech. Second Semester
COURSE OUTCOMES

K.D.K. COLLEGE OF ENGINEERING

Department of Electronics & Telecommunication Engineering

B. Tech. Second Semester

2BET01T	Applied Mathematics-II

After completion of Syllabus, the student will be able to:

1	Analyze statistical data using curve fitting techniques.
2	Evaluate integrals using concepts of scalar and vector point function.
3	Apply various numerical methods to solve simultaneous equations.
4	Solve partial differential equations by various methods.
5	Use Laplace Transform techniques in engineering problems.

B. Tech. Second Semester

2BET02T	Applied Chemistry

After completion of Syllabus, the student will be able to:

1	Illustrate qualitative and quantitative aspects of water for industrial and domestic applications.
2	Identify the types of fuels and explain working of I.C. engines.
3	Apply concepts of electrochemistry for energy storage devices and corrosion.
4	Identify and describe different types of advanced engineering materials.
5	Apply the principles of green chemistry in designing alternative reaction methodologies and use of solid waste as energy source.

B. Tech. Second Semester

2BET02P	Applied Chemistry Lab

After completion of Syllabus, the student will be able to:

1	Estimate the soluble impurities present in the given water sample.
2	Analyze a broad foundation in energy and environment that stresses scientific reasoning and analytical problem solving.
3	Point out & operate the different instruments used in chemistry laboratory.

B. Tech. Second Semester

2BET03T	Object Oriented Programming

After completion of Syllabus, the student will be able to:

1	Understand the principles of object-oriented programming; create classes, instantiate objects and invoke methods
2	Apply the concepts of generics and implement collection classes and develop reusable programs using the concepts of OOP.
3	Apply the concepts of Exception handling to develop efficient and error free Codes for solving classic synchronization problems.
4	Apply the concepts of Multithreading to develop efficient and error free Codes for solving classic synchronization problems.
5	Create design Pattern in Software design process.

K.D.K. COLLEGE OF ENGINEERING

Department of Electronics & Telecommunication Engineering

B. Tech. Second Semester

2BET03P	Object Oriented Programming Lab

After completion of Syllabus, the student will be able to:

1	Understand the basics of object-oriented programming using JAVA.
2	Apply the concept of classes, Java, JDK Components and develop Simple Java Programs.
3	Develop Simple Java Programs using inheritance and Exception handling.
4	Develop Multi-threading Programming and Interfaces.
5	Develop GUI applications using Applet classes, Swing components and Event handling programs.

B. Tech. Second Semester

2BET04T	Digital Electronics Design

After completion of Syllabus, the student will be able to:

1	Describe the logic gates and apply various optimization techniques to minimize digital circuits.
2	Design basic combinational logic circuits.
3	Design applications of combinational logic circuits.
4	Design basic sequential logic circuits.

B. Tech. Second Semester

1BIK01T-A / 2BIK01T-A	Indian Knowledge System

After completion of Syllabus, the student will be able to:

1	Illustrate the diverse dimensions of Indian knowledge traditions.
2	Analyze the contributions of ancient Indian scholars to different fields of knowledge.
3	Point out the interconnectedness of various branches of Indian knowledge.
4	Evaluate critically the relevance of Indian knowledge systems in modern society.

B. Tech. Second Semester

2BSE07P	Skill Enhancement Course (Electronics workshop II)

After completion of Syllabus, the student will be able to:

1	Understand the various PCB design steps and design PCB for an electronic circuit.
2	To design the electronics circuits using simulation software.
3	Interface basic electronic circuits to Arduino.
4	Demonstrate Raspberry Pi to implement various electronic projects.
5	Build a mini-project based on Arduino and Raspberry-Pi.

B. Tech. Second Semester

1BCC01P-F / 2BCC01P-F	Basics of Vedic Maths

After completion of Syllabus, the student will be able to:

1	Compute simple arithmetic calculations with speed and accuracy.
2	Generate tables of any number.
3	Solve products of large numbers quickly.
4	Solve difficult calculations like square roots and cube roots of integers speedily.

COURSE OUTCOMES
B. Tech. Third Semester

COURSE OUTCOMES

B. Tech. Third Semester

3BET01T	ELECTRONICS DEVICES AND CIRCUITS

After completion of syllabus, the student would be able to

1	Explain the operation, characteristics, and applications of BJT in different Configurations.
2	Analyze different transistor biasing techniques and evaluate circuit stability under varying conditions.
3	Apply and analyze the characteristics and amplifier configurations of FET and MOSFET.
4	Explain and analyze the concepts of feedback in amplifiers and oscillator circuits.
5	Evaluate the operation and efficiency of power amplifiers and identify sources of distortion.

COURSE OUTCOMES

B. Tech. Third Semester

3BET01P	ELECTRONICS DEVICES AND CIRCUITS LAB

After completion of syllabus, the student would be able to

1	Analyze input and output characteristics of BJT in CB and CE configurations.
2	Examine biasing and frequency response of transistor amplifiers.
3	Evaluate FET and MOSFET characteristics for amplification applications.
4	Design and simulate different oscillator circuits.
5	Investigate performance of power amplifiers for audio frequency applications.

COURSE OUTCOMES

B. Tech. Third Semester

3BET02T	DIGITAL SYSTEM DESIGN WITH HDL

After completion of syllabus, the student shall be able to

1	Describe the evolution, abstraction levels, and design methodologies in digital system design using HDL.
2	Use basic VHDL constructs to model combinational and sequential digital logic circuits.
3	Develop modular designs using subprograms, packages, generics, and create test benches for verification.
4	Analyze and design synchronous/asynchronous finite state machines using HDL.
5	Implement digital designs on CPLDs and FPGAs using place-and-route processes and apply VHDL for real-world applications.

COURSE OUTCOMES

B. Tech. Third Semester

3BET02P	DIGITAL SYSTEM DESIGN WITH HDL LAB

After completion of syllabus, the student would be able to

1	Model combinational circuits using gate-level, operator-based, and user-defined primitives.
2	Design and simulate sequential logic circuits using flip-flops, shift registers, and counters.
3	Implement and analyze FSMs for pattern detection using Moore and Mealy models.
4	Construct arithmetic modules like adder and adder-subtractor using HDL.

COURSE OUTCOMES

B. Tech. Third Semester

3BMDET01T	INTRODUCTION TO INTERNET OF THINGS

After completion of syllabus, the student would be able to

1	Describe the fundamental concepts, physical and logical design of IoT systems.
2	Analyze IoT architecture and system views including real-world design constraints.
3	Distinguish and relate M2M concepts to IoT systems and value chains.
4	Evaluate communication protocols and tools used for IoT development.
5	Identify IoT applications and explore emerging trends in smart environments and industries.

COURSE OUTCOMES

B. Tech. Third Semester

3BOE01T-A	PRINCIPLES OF MANAGEMENT

After completion of syllabus, the student will be able to

1	Define and explam the core concepts of management and distinguish between managers and administrators.
2	Demonstrate knowledge of planning. including setting objectives, formulating policies and applying planning tools and techniques.
3	Analyse different organizational structures and processes including stalling delegation and departmentalization.
4	Understand behavioural aspects of directing, including motivation. leadership and communication.
5	Uulize various control mechanisms, including budgeting and performance monitoring to improve organizational productivity and effectiveness.

COURSE OUTCOMES

B. Tech. Third Semester

3BOE01T-B	PROFESSIONAL PRACTICES AND ETHICS

After completion of syllabus, the student will be able to

1	Understand basic purpose of profession. professional ethics and various moral and social Issues.
2	Analyze various moral issues and theories of moral development.
3	Realize their roles of applying ethical principles at various professional levels.
4	Identify their responsibilities for safety and risk benefit analysis.
5	Understand their constructive roles in dealing various global issues.

COURSE OUTCOMES

B. Tech. Third Semester

3BOE01T-C	INSURANCE AND BANKING MANAGEMENT

After completion of syllabus, the student will be able to

1	Explain the structure and types of banking institutions in India and the concept of core and universal banking.
2	Describe key operations in commercial banking and apply regulatory norms such as KYC, AMI.. RTGS, NEFT. and FEMA.
3	Evaluate asset-liability management processes and prudential norms related to NPAs and credit risk management.
4	Illustrate the concepts and types of life and general insurance, and understand premiun calculation and risk measurement.
5	Analyze the operational aspects of insurance companies including underwriting principles and claims settlement processes.

COURSE OUTCOMES

B. Tech. Third Semester

3BOE01T-D	TOTAL QUALITY MANAGEMENT

After completion of syllabus, the student will be able to

1	Develop an understanding about Quality management in corporate world.
2	Employ various techniques being used in Total Quality Management.
3	Engage into control of processes in manufacturing and operations.
4	Audit control systems and Quality management.
5	Apply TQM tools like Benchmarking. QFD. Taguchi Loss Function TPM. and FMEA to improve quality and reliability in industrial and service processes.

COURSE OUTCOMES

B. Tech. Third Semester

3BOE01T-E	CAMPUS SUSTAINABILITY

After completion of syllabus, the student will be able to

1	Explain the concept of sustainability and its relevance to campus ecosystems.
2	Evaluate current campus practices in energy, water and waste management.
3	Analyze the application of green infrastructure and sustainable mobility in institutions.
4	Propose practical and technical strategies for improving campus sustainability.
5	Demonstrate environmental responsibility through individual and group actions.

COURSE OUTCOMES

B. Tech. Third Semester

3BOE01T-F	INDIAN STOCK MARKETING

After completion of syllabus, the student will be able to

1	Explain the structure and functions of Indian stock markets and financial instruments
2	Demonstrate knowledge of trading mechanisms and regulatory compliance.
3	Apply technical and fundamental analysis to evaluate investment opportunities.
4	Analyze and compare financial products like mutual funds, FTFs, and derivatives.
5	Construct and manage a diversified portfolio applying key risk-return concepts.

COURSE OUTCOMES

B. Tech. Third Semester

3BOE01T-G	CLIMATE CHANGE

After completion of syllabus, the student will be able to

1	Explain the basic science of climate systems and greenhouse effect.
2	Interpret evidence and data supporting global climate change.
3	Assess environmental, social, and economic impacts of climate change.
4	Describe national and international responses and frameworks like UNF CCC Kyoto Protocol Paris Agreement.
5	Propose technological and policy-based solutions to mitigate and adapt to climate change.

COURSE OUTCOMES

B. Tech. Third Semester

3BVE01T-A	ENVIRONMENTAL STUDIES

After completion of syllabus, the student is able to

1	Understand the Multidisciplinary nature of environmental science and gain in-depth knowledge of natural processes that sustain life and govern economy
2	Develop critical thinking for shaping strategies (scientific, social economic and legal for environmental protection and conservation of biodiversity, social equity and sustainable development.
3	Acquire values and attitudes towards understanding complex environmental-economic social challenges, and participating actively in solving current environmental problems and preventing the future ones.
4	Adopt sustainability as a practice in life. society and industry and know their roles and ethics, as citizens, and consumers in a complex, interconnected world

COURSE OUTCOMES

B. Tech. Third Semester

3BVE01T-B	INDIAN CONSTITUTION

After completion of syllabus, the students will be able to

1	Interpret the Basic Concepts of Indian Constitution.
2	Evaluate the Fundamental Rights and Fundamental Duties in proper sense.
3	Analyze the Indian political system, the powers and functions of the Union and State Governments in detail.
4	Learn about the Institutions of Indian Politics and to acquire a sense of Democratic System.

COURSE OUTCOMES

B. Tech. Third Semester

3BVE01T-C	CIVIC EDUCATION

After completion of syllabus, the students will be able to

1	Explain how engineering solutions affect communities and the environment emphasizing sustainable and socially responsible practices
2	Utilize established ethical theories and codes to analyze and resolve moral dilemmas encountered in engineering scenarios.
3	Exhibit understanding of professional standards, manage conflicts of interest. and commit to lifelong learning within the engineering profession.
4	Identify and apply relevant laws and regulations affecting engineering practice, including contract law, liability, and intellectual property rights.

COURSE OUTCOMES

B. Tech. Third Semester

3BVE01T-D	GENDER EDUCATION

After completion of syllabus, the students will be able to

1	Differentiate between sex and gender, and explain related concepts such as patriarchy. gender roles, and stereotypes.
2	Assess the influence of social institutions on gender socialization and discrimination.
3	Critically examine gender issues within the Indian societal and educational context.
4	Propose and implement inclusive practices to address gender disparities in engineering fields.

COURSE OUTCOMES

B. Tech. Third Semester

3BVE01T-E	UNIVERSAL HUMAN VALUES

After completion of syllabus, the students will be able to

1	Understand the significance of value inputs in a classroom and start applying them in their life and profession.
2	Distinguish between values and skills, happiness and accumulation of physical facilities, the Self and the Body. Intention and Competence of an individual, etc.
3	Understand the role of a human being in ensuring harmony in society and nature.
4	Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.

COURSE OUTCOMES

B. Tech. Third Semester

3BET03P	COMMUNITY ENGAGEMENT PROJECT

After completion of syllabus, the students will be able to

1	Identify and analyze the social, economic, and environmental issues prevalent in the community.
2	Collaborate effectively with local communities and stakeholders to understand their needs.
3	Apply theoretical knowledge to plan, implement, and evaluate a project that addresses a real-world community issue.
4	Demonstrate leadership, teamwork, communication, and ethical responsibility while working on community-centered problems.

COURSE OUTCOMES
B. Tech. Fourth Semester

COURSE OUTCOMES
B. Tech. Fourth Semester

4BET01T	MICROPROSSOR AND MICROCONTROLLER

After completion of syllabus, the students will be able to

1	Describe the architecture and functioning of 8085 microprocessor.
2	Write and simulate assembly language programs for 8085 including interrupt handling.
3	Write and simulate assembly language programs for 8085 including interrupt handling.
4	Develop programs and interface 8051 with various peripheral devices.
5	Explain and compare features of advanced microcontrollers including ARM, PIC, MSP430 and Arduino platforms.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BET01P	MICROCONTROLLER AND APPLICATIONS LAB

After the completion of syllabus, the students will be able to:

1	Write and execute Assembly Language Programs (ALP) for 8085 and 8051 microcontrollers.
2	Perform data manipulation and arithmetic operations using ALP.
3	Implement control flow, stack operations, and subroutine handling in assembly code.
4	Interface and control peripheral devices like LED, LCD, motors, and ADC/DAC.
5	Design and develop simple real-time microcontroller-based embedded application systems.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BET02T	ANALOG & DIGITAL COMMUNICATION

After the completion of syllabus, the students will be able to

1	Explain amplitude modulation techniques and evaluate their power and spectral efficiency.
2	Analyze and compare angle modulation and pulse modulation techniques.
3	Evaluate the effects of noise on communication systems and explain radio receiver operations.
4	Apply digital modulation techniques and calculate performance metrics like bit error rate.
5	Implement source and channel coding methods and understand spread spectrum techniques.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BET02P	ANALOG & DIGITAL COMMUNICATION LAB

After the completion of syllabus, the students will be able to

1	Generate and analyze analog modulation techniques such as AM and FM.
2	Implement and evaluate pulse modulation schemes (PAM, PWM, PPM).
3	Validate sampling theorem and study delta/adaptive delta modulation schemes.
4	Simulate and analyze digital modulation schemes including BPSK, FSK, QPSK, and MSK.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BMDET02T	SENSORS & ACTUATORS FOR INDUSTRIAL APPLICATIONS

After the completion of syllabus, the students will be able to

1	Understand the concepts of sensors, transducers, and instrumentation characteristics.
2	Apply knowledge to select and use temperature and pressure sensors for industrial applications.
3	Analyze and design signal conditioning circuits including A/D and D/A converters.
4	Explain various actuators and their role in automation and industrial control.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BOE02T-A	CORPORATE SOCIAL RESPONSIBILITY

After the completion of syllabus, the students will be able to

1	Define CSR and explain its significance in the modern business environment
2	Evaluate CSR in different areas and implement the concept of TBL
3	Analyze legal and ethical dimensions along with the planning and implementation of corporate responsibility.
4	Reflect on their own ethical responsibilities as future professionals and evaluate the CSR strategies and activities of Indian and global companies

COURSE OUTCOMES
B. Tech. Fourth Semester

4BOE02T-B	BASICS OF MUTUAL FUNDS

After the completion of syllabus, the students will be able to

1	Understand the structure, key components, features, and risks of mutual funds along with essential financial terms like NAV, AUM, and Expense Ratio.
2	Identify and compare various types of mutual funds and investment options, assessing their suitability based on different investor goals and profiles.
3	Evaluate mutual fund performance using key indicators (Sharpe Ratio, Alpha, Beta), and apply knowledge of fund selection and investment procedures.
4	Explain the regulatory framework of mutual funds, assess taxation aspects, and recognize current trends such as digital platforms and robo-advisors.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BOE02T-C	DIGITAL MARKETING

After the completion of syllabus, the students will be able to

1	Understand the core concepts of Digital Marketing
2	Summarize the core concepts of Online Marketing
3	Understand the social media platforms for business.
4	Apply the various tools of digital marketing.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BOE02T-D	LIFE SKILL

After the completion of syllabus, the students will be able to

1	Apply essential life skills for personal and professional development.
2	Develop self-awareness, emotional intelligence, and to equip students with skills for stress and time management.
3	Learn and implement the decision- making, and critical thinking.
4	Apply leadership skills, interpersonal relationships and teamwork.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BOE02T-D	LIFE SKILL

After the completion of syllabus, the students will be able to

1	Apply essential life skills for personal and professional development.
2	Develop self-awareness, emotional intelligence, and to equip students with skills for stress and time management.
3	Learn and implement the decision- making, and critical thinking.
4	Apply leadership skills, interpersonal relationships and teamwork.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BOE02T-E	INTRODUCTION TO PSYCHOLOGY

After the completion of syllabus, the students will be able to

1	Describe the scope, approaches, and applications of psychology.
2	Explain key psychological processes like attention, learning, motivation, and memory.
3	Demonstrate understanding of personality, emotional intelligence, and interpersonal skills.
4	Apply psychological insights to improve academic, professional, and social functioning.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BOE02T-F	WORLD GEOGRAPHY AND GLOBAL ISSIE

After the completion of syllabus, the students will be able to

1	Identify and describe key physical and political features of the world using maps.
2	Explain how geography influences cultural, political, and economic systems.
3	Analyze population trends, urbanization, and environmental issues from a global perspective.
4	Evaluate international policies and treaties addressing global challenges

COURSE OUTCOMES
B. Tech. Fourth Semester

4BOE02T-G	INTERCULTURAL COMMUNICATION

After the completion of syllabus, the students will be able to

1	Define and explain the basic concepts, models, and significance of intercultural communication.
2	Analyze the impact of cultural frameworks and dimensions on communication styles.
3	Demonstrate verbal and non-verbal communication competence in multicultural settings.
4	Identify communication barriers and apply conflict-resolution strategies in diverse cultural contexts.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BOE02T-H	FUNDAMENTALS OF FINANCING FOR GREEN HYDROGEN PROJECT

After the completion of syllabus, the students will be able to

1	Understand the core concepts of Green Hydrogen Technologies.
2	Summarize the core concepts of Hydrogen Technologies.
3	Understand the Green Hydrogen project financing risks and complexities.
4	Apply the various tools of hydrogen safety.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BAE02T-A	INTRODUCTION TO GERMAN LANGUAGE

After completing of the course, students will be able to:

1	Understand everyday phrases and simple expressions
2	Use basic expressions in daily situations
3	Introduce yourself and other people
4	Ask and answer basic questions with confidence

COURSE OUTCOMES
B. Tech. Fourth Semester

4BAE02T-B	STRESS MANAGEMENT

After completing of the course, students will be able to

1	Understand the cognitive variables of stress.
2	Learn Managing Work-Life Balance.
3	Understand role of communication and emotional intelligence, conflict management.
4	Preparing for better future by reducing the stress using the various techniques.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BAE02T-C	CRITICAL THINKING

After completing of the course, students will be able to

1	Demonstrate the ability to construct and deconstruct arguments effectively.
2	Apply logical reasoning to identify and solve engineering problems.
3	Evaluate the credibility of sources and the validity of information in engineering scenarios.
4	Make informed decisions by integrating critical thinking with technical knowledge.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BAE02T-D	EMPLOYABILITY SKILLS

After completing of the course, students will be able to

1	Demonstrate effective teamwork and leadership qualities in professional settings.
2	Apply analytical and logical reasoning skills to solve complex problems.
3	Communicate proficiently in both verbal and written forms. Suitable for professional environments.
4	Prepare impactful resumes and perform confidently in interviews.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BAE02T-E	TECHNICAL ENGLISH WRITING

After completing of the course, students will be able to

1	Apply rules of grammar, sentence structure, and vocabulary effectively.
2	Interpret written texts analytically and demonstrate active listening skills.
3	Express ideas clearly in spoken and written forms.
4	Demonstrate professional behavior, conduct formal meetings, deliver effective short presentations.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BAE02T-F	INTRODUCTION TO JAPNESE LANGUAGE

After the completion of this course, the students will be able to

1	To introduce students to basic Japanese language skills
2	To develop elementary listening, speaking, reading, and writing abilities
3	To enable students to communicate in simple day-to-day situations
4	To familiarize learners with basic Japanese culture and etiquette

COURSE OUTCOMES
B. Tech. Fourth Semester

4BEM02T-A	ENTREPRENEURSHIP DEVELOPMENT

After the completion of Entrepreneurship, the students will be able to

1	To enable the students to understand the concept of Entrepreneurship and to learn the Professional behavior expected of an entrepreneur.
2	To identify significant changes and trends which create business opportunities and to analyze the environment for potential business opportunities.
3	To provide conceptual exposure on converting idea to a successful entrepreneurial firm
4	To provide information about various funding sources

COURSE OUTCOMES
B. Tech. Fourth Semester

4BVE02T-B	INDIAN CONSTITUTION

By the end of the course, the students will be able to:

1	Interpret the Basic Concepts of Indian Constitution
2	Evaluate the Fundamental Rights and Fundamental Duties in proper sense
3	Analyze the Indian political system, the powers and functions of the Union and State Governments in detail
4	Learn about the Institutions of Indian Politics and to acquire a sense of Democratic System

COURSE OUTCOMES
B. Tech. Fourth Semester

4BVE02T-C	CIVIC EDUCATION

By the end of the course, the students will be able to:

1	Explain how engineering solutions affect communities and the environment, emphasizing sustainable and socially responsible practices.
2	Utilize established ethical theories and codes to analyze and resolve moral dilemmas encountered in engineering scenarios.
3	Exhibit understanding of professional standards, manage conflicts of interest, and commit to lifelong learning within the engineering profession.
4	Identify and apply relevant laws and regulations affecting engineering practice, including contract law, liability, and intellectual property rights.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BVE02T-D	GENDER EDUCATION

By the end of the course, the students will be able to:

1	Differentiate between sex and gender, and explain related concepts such as patriarchy, gender roles, and stereotypes.
2	Assess the influence of social institutions on gender socialization and discrimination.
3	Critically examine gender issues within the Indian societal and educational context.
4	Propose and implement inclusive practices to address gender disparities in engineering fields.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BVE02T-A	ENVIRONMENTAL STUDIES

After completion of syllabus, students would be able to

1	Understand the Multidisciplinary nature of environmental science and gain in-depth knowledge of natural processes that sustain life and govern economy.
2	Develop critical thinking for shaping strategies (scientific, social, economic and legal) for environmental protection and conservation of biodiversity, social equity and sustainable development.
3	Acquire values and attitudes towards understanding complex environmental-economic social challenges, and participating actively in solving current environmental problems and preventing the future ones.
4	Adopt sustainability as a practice in life, society and industry and know their roles and ethics, as citizens and consumers in a complex, interconnected world.

COURSE OUTCOMES
B. Tech. Fourth Semester

4BETVS02P	SOFTWARE WORKSHOP

After completion of syllabus, students would be able to

1	Apply basic MATLAB programming concepts such as variables, vectors, matrices, and plotting for signal analysis.
2	Perform signal operations like convolution, scaling, shifting, and correlation using MATLAB.
3	Analyze and simulate basic electronic circuits like rectifiers, filters, and amplifiers using PSPICE.
4	Interpret frequency response and waveform behaviors of amplifiers and oscillators.
5	Design and verify waveform shaping circuits using PSPICE like clippers and clampers.

COURSE OUTCOMES

B. Tech. Fifth Semester

COURSE OUTCOMES

B. Tech. Fifth Semester

BEETC-501T	EMBEDDED SYSTEM DESIGN

By the end of the course, the students will be able to:

C501T.1	Describe and analyze the Requirements & Design issues of embedded systems design.
C501T.2	Apply the knowledge of architecture and Programming for development of simple applications.
C501T.3	Describe and Demonstrate the interfacing of various peripherals with ARM Processor
C501T.4	Explain the concept of Real Time Operating System for embedded system design.

COURSE OUTCOMES

B. Tech. Fifth Semester

BEETC-501P	EMBEDDED SYSTEM DESIGN LAB

By the end of the course, the students will be able to:

C501P.1	Apply the knowledge of Instruction skill for the Development of Simple and Complex Programs.
C501P.2	Apply the programming skill for the Development of Simple application
C501P.3	Apply and Demonstrate the Concept of Interfacing for the Development of Embedded System.

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COURSE OUTCOMES

B. Tech. Fifth Semester

BEETC-502T	ELECTROMAGNETIC WAVES

By the end of the course, the students will be able to:

C502T.1	Understand the different coordinate system & analyze theorems of electric Field.
C502T.2	Understand magnetic fields, Apply the Maxwell's equations to solve problems in electromagnetic field theory.
C502T.3	Analyze the propagation of wave in different transmission media.
C502T.4	Understand and analyze various parameters and characteristics of the rectangular waveguide
C502T.5	Understand principle of radiation and radiation characteristics of an antenna

COURSE OUTCOMES

B. Tech. Fifth Semester

BEETC-503T	DIGITAL SIGNAL PROCESSING

By the end of the course, the students will be able to:

C503T.1	Analyze discrete time signals and system.
C503T.2	Process the signal in z domain for various discrete time systems.
C503T.3	Draw the structures of various discrete time systems in DFI, DFII, cascade and parallel form
C503T.4	Apply discrete Fourier transform, its properties & Analyze the discrete time systems in frequency domain
C503T.5	Understand the filter design techniques for IIR and FIR digital filters and will be able to determine parameters affecting its response.

COURSE OUTCOMES

B. Tech. Fifth Semester

BEETC-503P	DIGITAL SIGNAL PROCESSING LAB

By the end of the course, the students will be able to:

C503P.1	Demonstrate the sampling and reconstruction of discrete time signal & perform different signal operation in developing discrete time system.
C503P.2	Analyze different properties of Z-transform.
C503P.3	Analyze different properties of discrete Time Fourier transform.
C503P.4	Analyze and process the signals in the discrete domain.
C503P.5	Design the filters to suit requirements of specific applications.
C503P.6	Apply the techniques, skills, and modern engineering tools like MATLAB.

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COURSE OUTCOMES

B. Tech. Fifth Semester

BEETC-504T	HSC:INDUSTRIAL ECONOMICS ENTREPRENEURSHIP DEVELOPMENT(ECONOMICS)

By the end of the course, the students will be able to:

C504T.1	Understand different types of business structure.
C504T.2	Acquire the knowledge of different market structures and New economic policy.
C504T.3	Grasp the functions of banks, taxations system and implications of Inflation.
C504T.4	Identify various sources of finance.
C504T.5	Analyze the problems of Small Scale Industries and government's policies for them.

COURSE OUTCOMES

B. Tech. Fifth Semester

BEETC-505PE	OPERATING SYSTEM (PE -I)

By the end of the course, the students will be able to:

C505PE.1	Explain basic concepts of operating system.
C505PE.2	Understand the process management policies and scheduling algorithms.
C505PE.3	Design various memory management techniques.
C505PE.4	Analyze process synchronization techniques.
C505PE.5	Evaluate deadlock detection and prevention mechanism.

COURSE OUTCOMES

B. Tech. Fifth Semester

BEETC-505PE	ELECTRONIC DESIGN TECHNIQUES WITH HDL(PE-I)

By the end of the course, the students will be able to:

C505PE.1	Design digital systems through HDL language.
C505PE.2	Understand Different Modelling Style of VHDL.
C505PE.3	Develop a Test bench for various Combinational and Sequential logic Circuits.
C505PE.4	Design examples of sequence detector, Finite state machine and analysis of Asynchronous Sequential Circuits.
C505PE.5	Synthesis the concept of Timing analysis, Combinational logic synthesis and FPGA based systems.

COURSE OUTCOMES

B. Tech. Fifth Semester

BEETC-506P	ELECTRONICS WORKSHOP-II

By the end of the course, the students will be able to:

C506P.1	Understand the various PCB design steps and design PCB for an Electronic circuit.
C506P.2	Use the simulation software to design Electronic circuit.
C506P.3	Demonstrate Rasberry pi to implement various Electronics project and interface basic Electronic circuits to Arduino.

COURSE OUTCOMES

B. Tech. Sixth Semester

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COURSE OUTCOMES

B. Tech. Sixth Semester

BEETC-601T	COMPUTER COMMUNICATION NETWORKS

By the end of the course, the students will be able to:

C601T.1	Describe the basics of Computer Network, Data Communication, Network topologies, transmission media and switching techniques.
C601T.2	Analyze the services and features of various protocols of Data Link Layer and MAC sub-layer.
C601T.3	Apply the concept of IP Addressing techniques and its various protocols of Network Layer.
C601T.4	Describe the transport layer, Application Layer services and its protocol Headers and analyze the congestion control protocols.
C601T.5	Explain the function of Application Layer and Presentation layer paradigm and protocols.

COURSE OUTCOMES

B. Tech. Sixth Semester

BEETC-601P	COMPUTER COMMUNICATION NETWORKS LAB

By the end of the course, the students will be able to:

C601P.1	Analyze and select various cables and Connectors used for networking with computer network security.
C601P.2	Verify the implementation results on software like NS2 and simulate different networking models and implement different networking protocols.
C601P.3	Understand different data transmission techniques using TCP and UDP Protocol for evaluating the different IP addresses for various systems.

COURSE OUTCOMES

B. Tech. Sixth Semester

BEETC-602T	INTERNET OF THINGS (IOT)

By the end of the course, the students will be able to:

C602T.1	Analyze different design levels of IoT.
C602T.2	Analyze IOT Architecture.
C602T.3	Describe network and communication aspects.
C602T.4	Design a portable IoT using Rasperry Pi and Aurdino.
C602T.5	Analyze applications of IoT in real time scenario.

COURSE OUTCOMES

B. Tech. Sixth Semester

BEETC-602P	INTERNET OF THINGS (IOT) LAB

By the end of the course, the students will be able to:

C602P.1	Understand the concept of IOT.
C602P.2	Implement interfacing of various Sensors with Arduino/Raspberry Pi.
C602P.3	Demonstrate the ability to transmit data wirelessly between different Devices.
C602P.4	Show an ability to upload/ Download sensor data on cloud and server.

COURSE OUTCOMES

B. Tech. Sixth Semester

BEETC-603T	WIRELESS SENSOR NETWORK

By the end of the course, the students will be able to:

C603T.1	Demonstrate advanced knowledge and understanding of the engineering principle of sensor design, signal processing, established digital communications techniques, embedded hardware and software, sensor network architecture, sensor networking principles and protocols
C603T.2	Demonstrate a computing science approach, in terms of software techniques, for wireless sensor networking with emphasis on tiny sensors, sensor specific programming languages, RFID technology, embedded architectures, software program design and associated hardware, data fusion.
C603T.3	Demonstrate knowledge of the associated business, legislative, safety and commercial issues; future technological advances and the way these will impact on the engineering product enterprise process.

COURSE OUTCOMES

B. Tech. Sixth Semester

BEETC-603P	WIRELESS SENSOR NETWORK LAB

By the end of the course, the students will be able to:

C603P.1	Analyze and evaluate the performance of wireless sensor network by using simulation tools (NS-2).
C603P.2	Understand the basic concepts and components of wireless sensor networks, including sensors nodes, communication protocols, data routing, network architecture and its applications.
C603P.3	Simulate and analyze wireless sensor network and involve NS-2 architecture, command line interface and simulation script language (TCL) used in NS-2.

COURSE OUTCOMES

B. Tech. Sixth Semester

BEETC-604PE	COMPUTER ARCHITECTURE (PE-II)

By the end of the course, the students will be able to:

C604PE.1	Demonstrate computer architecture concepts related to design of modern processors, memories and I/O s.
C604PE.2	Develop logic for assembly language programming using arithmetic and logical operations.
C604PE.3	Distinguish the organization of various parts of a system memory hierarchy.
C604PE.4	Describe fundamentals concepts of pipeline and vector processing.
C604PE.5	Analyze the performance of commercially available computers.

COURSE OUTCOMES

B. Tech. Sixth Semester

BEETC-604PE	DATA BASE MANAGEMENT SYSTEM(PE-II)

By the end of the course, the students will be able to:

C604PE.1	Understands basic database concepts and data modeling techniques used in data base design.
C604PE.2	Study the concept of functional dependency and perform the calculus with design database by using different normalization techniques.
C604PE.3	Study query processing and perform optimization on query processing.
C604PE.4	Understand the concept of transaction processing and different recovery techniques used in RDBMS.
C604PE.5	Study and Implement advanced database which are used in real time system.

COURSE OUTCOMES

B. Tech. Sixth Semester

BEETC-605OE	CONSUMER ELECTRONICS (OPEN ELECTIVE-I)

By the end of the course, the students will be able to:

C605OE.1	Describe various audio gadgets used in domestic and commercial applications.
C605OE.2	Describe various video gadgets used in domestic and commercial applications.
C605OE.3	Explain satellite communication technology along with DTH for day to day application.
C605OE.4	Describe various types of home appliances used in domestic life like washing machine, RO plant, Mixer, grinder, vacuum cleaner etc.
C605OE.5	Describe various types of home appliances used in domestic life like Microwave oven, printers, food processors, Induction devices, scanner and fax machines etc.

COURSE OUTCOMES

B. Tech. Sixth Semester

BEETC-606T	HSC:EFFECTIVE TECHNICAL COMMUNICATION

By the end of the course, the students will be able to:

C606T.1	Provide the graduates to use written communication in work and personal experience beyond college.
C606T.2	A cquaint student for active participation in reading and writing.
C606T.3	Teach the skills needed to successfully communicate in modern word through written materials.
C606T.4	Identify and select many types of writing frequently required in variety of careers.
C606T.5	Improve the graduates ability to differentiate among and to use facts, inferences and judgment in professional careers.

COURSE OUTCOMES

B. Tech. Sixth Semester

BEETC-607I	MINIPROJECT (INTERNSHIP)

By the end of the course, the students will be able to:

C607I.1	Understand various PCB design.
C607I.2	Interface basic Electronics circuits to Arduino.
C607I.3	Build a mini project based on Electronic components and Arduino and Raspberry Pi.

COURSE OUTCOMES

B. Tech. Seventh Semester

COURSE OUTCOMES

B. Tech. Seventh Semester

BEETC-701PE-T	AUDIO & VIDEO ENGINEERING

By the end of the course, the students will be able to

C701T.1	Analyze Color T.V. System.
C701T.2	Compare different T. V. Standards.
C701T.3	Distinguish advanced T. V. Technologies
C701T.4	Analyze audio & video recording, display and relevant consumer application.

COURSE OUTCOMES

B. Tech. Seventh Semester

BEETC-701PE-P	AUDIO & VIDEO ENGINEERING LAB

By the end of the course, the students will be able to:

C701P.1	Understand the knowledge of fundamental principles in Audio and Video Engineering.
C701P.2	Gain proficiency in operating Audio and Video equipment's such as television, camera etc.
C702P.3	Ability to troubleshoot technical issues related to Audio and Video productions.

COURSE OUTCOMES

B. Tech. Seventh Semester

BEETC-702PE-T	DATA SCIENCE & CLOUD COMPUTING

By the end of the course, the students will be able to:

C702T.1	Identify the basic concepts and Technologies involved in dealing with data science Process.
C702T.2	Apply data management for exploring and fixing data.
C702T.3	Understands different types statistical data analysis.
C702T.4	Apply and use different technologies for Data Visualization.

COURSE OUTCOMES

B. Tech. Seventh Semester

BEETC-702PE-T	MICROWAVE AND RADAR ENGINEERING

By the end of the course, the students will be able to:

C702T.1	Understand the use of active and passive microwave devices.
C702T.2	Analyze scattering matrix, different UHF components with the help of scattering parameters.
C702T.3	Understand the use of different klystrons.
C702T.4	Analyze the different power distribution Tees.
C702T.5	Identification and acquisition of technical competence in specialized areas of RADAR Engineering.

COURSE OUTCOMES

B. Tech. Seventh Semester

BEETC-702PE-P	MICROWAVE AND RADAR ENGINEERING LAB

By the end of the course, the students will be able to:

C702P.1	Analyze the various types of microwave measuring components using microwave Test Bench.
C702P.2	Characterize microwave devices in terms of directionality of communication.
C702P.3	Understand the use the working principle of non-reciprocal devices like Isolator, Circulator, Gyrator etc. and verify its result.

COURSE OUTCOMES

B. Tech. Seventh Semester

BEETC-703PE	SOFT COMPUTING

By the end of the course, the students will be able to:

C703T.1	Recognize the feasibility of applying a soft computing methodology for a particular problem.
C703T.2	Apply fuzzy logic and reasoning to handle uncertainty and solve engineering problems.
C703T.3	Apply genetic algorithm to combinatorial optimization problems.
C703T.4	Apply neural networks to pattern classification and regression problems.

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COURSE OUTCOMES

B. Tech. Seventh Semester

BEETC-703PE	OPTICAL COMMUNICATION

By the end of the course, the students will be able to:

C703T.1	Learn the basic elements and behavior of optical fiber.
C703T.2	Analyze the different kinds of losses, signal distortions in Optical fiber.
C703T.3	Classify various optical source materials, LED structures, LASER Diodes.
C703T.4	Explore the fiber optic receivers such as PIN, APD Diodes, Receiver operation and performance.
C703T.5	Understand the operational principle of WDM, SONET and Optical Amplifier.

COURSE OUTCOMES

B. Tech. Seventh Semester

BEETC-704OE	MECHATRONICS

By the end of the course, the students will be able to:

C704T.1	Model and simulate physical systems.
C704T.2	Incorporate sensors, actuators and interfacing modules.
C704T.3	Develop logic to automate, and supervise a system.
C704T.4	Design mechatronics subsystem\ system\ process to meet consumer and industry need by incorporating State-of-the-art technologies.
C704T.5	Conduct experiments to demonstrate the knowledge of Automation, Supervisory control and Human machine Interfaces.

COURSE OUTCOMES

B. Tech. Seventh Semester

BEETC-705P	PROJECT SEMINAR

By the end of the course, the students will be able to:

C705P.1	Demonstrate the ability to perform close and critical analysis based on existing literature review.
C705P.2	Demonstrate the ability to consider critically the motives and methods of scholarship and the relationship between them.
C705P.3	Formulate the problem for further analysis and design.

COURSE OUTCOMES

B. Tech. Seventh Semester

BEETC-706A	INTELLECTUAL PROPERTY RIGHTS

By the end of the course, the students will be able to:

C706A.1	Read about the concepts of Intellectual Property Rights.
C706A.2	Distinguish and understand the world of Intellectual Property.
C706A.3	Explain why it needs to be protected? How is it protected?
C706A.4	Analyze , discuss and debate about the latest legal problems confronting the world and solutions being offered.
C706A.5	Consider new and upcoming areas of Intellectual Property (IP) like bio-technology domain.

COURSE OUTCOMES

B. Tech. Eighth Semester

COURSE OUTCOMES

B. Tech. Eighth Semester

BEETC-801PE	CMOS VLSI DESIGN

By the end of the course, the students will be able to:

C801T.1	Describe and interpret the basic concepts of MOS transistors.
C801T.2	Construct the ability to design a system, components or process as per need and specifications.
C801T.3	Analyze invertor design, characteristics and applications and performance parameters of CMOS circuits.
C801T.4	Evaluate circuits using different CMOS styles and measure performance of the complex logic structures.
C801T.5	Describe data path VLSI system components.

COURSE OUTCOMES

B. Tech. Eighth Semester

BEETC-801 PE	MICRO ELECTRO MECHANICAL SYSTEMS

By the end of the course, the students will be able to:

C801T.1	Apply the principles behind the operations of MEMS Devices.
C801T.2	Choose a Micro machining technique for a specific MEMS fabrication process.
C801T.3	Understand recent advancements in the field of MEMS and Devices

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COURSE OUTCOMES

B. Tech. Eighth Semester

BEENE-802PE	VLSI SIGNAL PROCESSING

By the end of the course, the students will be able to:

C802T.1	Learn various methodologies to optimize power delay and area of VLSI design.
C802T.2	Build real time processing systems.
C802T.3	Designs of algorithms structures for DSP algorithm based on algorithm transformation.

COURSE OUTCOMES

B. Tech. Eighth Semester

BEETC-802PE	SATELLITE COMMUNICATION

By the end of the course, the students will be able to:

C802T.1	Do research with capabilities in the design, development and manufacture of satellite communication systems used in a wide spectrum of applications.
C802T.2	Experience real world experience from household appliances to sophisticated satellite communication from electronics ignition to neural networks and signal processing chips and to integrate academic discipline with project based engineering applications, classroom Learning theory.
C802T.3	Able for acquisition of technical competence in specialized areas of satellite communication engineering.
C802T.4	Able to identify, formulate and model problems and Satellite communication engineering solutions based on system approach.

COURSE OUTCOMES

B. Tech. Eighth Semester

BEETC-803P	PROJECT PHASE 2

By the end of the course, the students will be able to:

C803P.1	**Analyze or design the electronics / Telecommunication / allied engineering Problems by using appreciate Methodology in a team work.**
C803P.2	**Interpret the communication skills of team members.**
C803P.3	**Use of modern tools in the field of Electronics Engineering.**

Dr. J. S. Gawai
Head, Dept. of Electro & Telecomm. Engg.