ITS ENGINEERING COLLEGE
GREATER NOIDA | SINCE 2006

Department of Civil Engineering

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To be well familiar with the concepts of Civil Engineering for leading a successful career in industry or as entrepreneur or to pursue higher education.

PEO2: To develop techno-commercial skills for providing effective solutions to complex problems using domain knowledge of Civil Engineering.

PEO3: To instill lifelong learning approach towards constantly evolving technologies with innovative and ethical mindset.

PROGRAM OUTCOMES (POs)

ENGINEERING GRADUATES WILL BE ABLE TO:-

PO1: ENGINEERING KNOWLEDGE: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: PROBLEM ANALYSIS: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

PO3: DESIGN/DEVELOPMENT OF SOLUTIONS: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety and cultural, societal and environmental considerations.

PO4: CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS: The problems:

- that cannot be solved by straightforward application of knowledge, theories and techniques applicable to the engineering discipline.
- that may not have a unique solution.
- that requires consideration of appropriate constraints/requirements not explicitly given in the problem statement.
- which need to be defined (modeled) within appropriate mathematical framework.

- that often require use of modern computational concepts and tools.

PO5: MODERN TOOL USAGE: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling to complex engineering activities, with an understanding of the limitations.

PO6: ENGINEER AND SOCIETY: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: ENVIRONMENT AND SUSTAINABILITY: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: ETHICS: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: PROJECT MANAGEMENT AND FINANCE: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: LIFE-LONG LEARNING: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Ability to apply the civil engineering knowledge for proposing solutions to real world problems through incubation of innovative ideas.

PSO2: To understand modern management and construction techniques to complete projects within stipulated time and budget.

ITS ENGINEERING COLLEGE
GREATER NOIDA | SINCE 2006

Department of Computer Science and Engineering

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To be well familiar with the computer science and engineering concepts for leading a successful career in industry or as entrepreneur or to pursue higher education.

PEO2: To develop techno-commercial skills for providing effective solutions to complex problems using domain knowledge of computer science.

PEO3: To instill lifelong learning approach towards constantly evolving technologies with innovative and ethical mindset.

PROGRAM OUTCOMES (POs)

ENGINEERING GRADUATES WILL BE ABLE TO:-

PO1: ENGINEERING KNOWLEDGE: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: PROBLEM ANALYSIS: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

PO3: DESIGN/DEVELOPMENT OF SOLUTIONS: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety and cultural, societal and environmental considerations.

PO4: CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: MODERN TOOL USAGE: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling to complex engineering activities, with an understanding of the limitations.

PO6: ENGINEER AND SOCIETY: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: ENVIRONMENT AND SUSTAINABILITY: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: ETHICS: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: PROJECT MANAGEMENT AND FINANCE: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: LIFE-LONG LEARNING: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: The ability to design and develop effective application based solutions and analyzes their associated risks.

PSO2: To develop the ability to solve large complex evolving projects using cutting edge technologies and modern tools.

ITS ENGINEERING COLLEGE
GREATER NOIDA | SINCE 2006

Department of Electronics and Communication Engineering

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To be well familiar with the fundamentals of Electronics and Communication Engineering for leading a successful career in industry or as entrepreneur or to pursue higher education.

PEO2: To develop techno-commercial skills to provide innovative solutions to complex problems related to Electronics and Communication areas.

PEO3: To instill life-long learning approach towards constantly evolving technologies with innovative and ethical mindset.

PROGRAM OUTCOMES (POs)

ENGINEERING GRADUATES WILL BE ABLE TO:-

PO1: ENGINEERING KNOWLEDGE: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.

PO2: PROBLEM ANALYSIS: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: DESIGN/DEVELOPMENT OF SOLUTIONS: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.

PO4: CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS: The problems:

- that cannot be solved by straightforward application of knowledge, theories and techniques applicable to the engineering discipline.
- that may not have a unique solution.
- that requires consideration of appropriate constraints/requirements not explicitly given in the problem statement.
- which need to be defined (modeled) within appropriate mathematical framework.
- that often requires use of modern computational concepts and tools.

PO5: MODERN TOOL USAGE: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling to complex engineering activities, with an understanding of the limitations.

PO6: ENGINEER AND SOCIETY: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: ENVIRONMENT AND SUSTAINABILITY: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: ETHICS: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: PROJECT MANAGEMENT AND FINANCE: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: LIFE-LONG LEARNING: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Ability to apply the engineering knowledge in the areas of embedded systems, robotics, virtual instrumentation and signal processing to develop solutions to complex real world problems.

PSO2: Demonstrate ideas and follow methodologies using cutting-edge technologies for product development, starting from lowest level of physical devices to the top level of application development.

ITS ENGINEERING COLLEGE
GREATER NOIDA | SINCE 2006

Department of Electrical and Electronics Engineering

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To be well equipped with the Electrical and Electronics Engineering concepts to design, analyze and optimize the solutions for energy sector challenges and leading a successful career.

PEO2: To develop techno-commercial skills for providing efficient and viable solutions to complex problems, using the domain knowledge of Electrical and Electronics Engineering.

PEO3: To instill lifelong learning approach towards constantly evolving technologies with innovative and ethical mindset.

PROGRAM OUTCOMES (POs)

ENGINEERING GRADUATES WILL BE ABLE TO:-

PO1: ENGINEERING KNOWLEDGE: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.

PO2: PROBLEM ANALYSIS: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: DESIGN/DEVELOPMENT OF SOLUTIONS: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.

PO4: CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS:

The problems:

- that cannot be solved by straightforward application of knowledge, theories and techniques applicable to the engineering discipline.
- that may not have a unique solution.
- that requires consideration of appropriate constraints/requirements not explicitly given in the problem statement.

- which need to be defined (modeled) within appropriate mathematical framework.
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PO5: MODERN TOOL USAGE: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling to complex engineering activities, with an understanding of the limitations.

PO6: ENGINEER AND SOCIETY: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: ENVIRONMENT AND SUSTAINABILITY: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: ETHICS: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: PROJECT MANAGEMENT AND FINANCE: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: LIFE-LONG LEARNING: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: The ability to implement Electrical and Electronics Engineering concepts in the field of Industrial Automation, Solar Energy and Smart Cities.

PSO2: To develop the ability to solve large complex evolving projects using cutting edge technologies and modern tools.

ITS ENGINEERING COLLEGE
GREATER NOIDA | SINCE 2006

Department of Masters in Business Administration

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Analytical skills for effective decision making and resolving business problems related both to Indian and Global competitive environment and business practices.

PEO2: Collaborative working, team work and leadership skills that results in effective business and professional communication skills

PEO3: Entrepreneurial skills Ethical, social and legal conscientiousness of the organization.

PROGRAM OUTCOMES (POs)

MANAGEMENT GRADUATES WILL BE ABLE TO:-

PO1: Apply knowledge of management theories and practices to solve business problems.

PO2: Foster Analytical and critical thinking abilities for data-based decision making.

PO3: Ability to develop Value based Leadership ability.

PO4: Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.

PO5: Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.

PO6: Demonstrate knowledge and understanding of the management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO7: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PO8: Apply ethical principles and commit to professional ethics and responsibilities and function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Students should exhibit their knowledge of management principles, demonstrate their critical-thinking and problem solving skills and manifest their leadership qualities.

PSO2: Students should prove an awareness of their own values, shows sense of responsibility and should evince their ability to recognize when change is needed and adapt to change.

ITS ENGINEERING COLLEGE
GREATER NOIDA | SINCE 2006

Department of Mechanical Engineering

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To be well familiar with the concepts of Mechanical Engineering for leading a successful career in industry or as entrepreneur or to pursue higher education.

PEO2: To develop techno-commercial skills for providing effective solutions to complex problems using domain knowledge of Mechanical Engineering.

PEO3: To instill lifelong learning approach towards constantly evolving technologies with innovative and ethical mindset.

PROGRAM OUTCOMES (POs)

ENGINEERING GRADUATES WILL BE ABLE TO:-

PO1: ENGINEERING KNOWLEDGE: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: PROBLEM ANALYSIS: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

PO3: DESIGN/DEVELOPMENT OF SOLUTIONS: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety and cultural, societal and environmental considerations.

PO4: CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS: The problems:

- that cannot be solved by straightforward application of knowledge, theories and techniques applicable to the engineering discipline.
- that may not have a unique solution.
- that requires consideration of appropriate constraints/requirements not explicitly given in the problem statement.
- which need to be defined (modeled) within appropriate mathematical framework.

- that often require use of modern computational concepts and tools.

PO5: MODERN TOOL USAGE: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling to complex engineering activities, with an understanding of the limitations.

PO6: ENGINEER AND SOCIETY: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: ENVIRONMENT AND SUSTAINABILITY: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: ETHICS: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: PROJECT MANAGEMENT AND FINANCE: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: LIFE-LONG LEARNING: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Ability to apply the engineering knowledge in the areas of pneumatics, electro-pneumatics, robotics, automation, additive manufacturing and laser cutting to develop solutions to complex real world problems.

PSO2: To develop the ability to solve large complex evolving projects using cutting edge technologies and modern tools.

ITS ENGINEERING COLLEGE
GREATER NOIDA | SINCE 2006

COURSE OUTCOMES (COs)
B.TECH. (CIVIL ENGINEERING)

THIRD SEMESTER

Engineering Mechanics (KCE301)

CO1 Use scalar and vector analytical techniques for analyzing forces in statically determinate structures.

CO2 Apply fundamental concepts of kinematics and kinetics of particles to the analysis of simple, practical problems.

CO3 Apply basic knowledge of mathematics and physics to solve real-world problems.

CO4 Understand basic dynamics concepts – force, momentum, work and energy.

CO5 Understand and be able to apply Newton's laws of motion.

Surveying and Geomatics (KCE302)

CO1 Describe the function of surveying and work with survey instruments, take observations, and prepare plan, profile, and cross-section and perform calculations.

CO2 Calculate, design and layout horizontal and vertical curves.

CO3 Operate a total station and GPS to measure distance, angles, and to calculate differences in elevation. Reduce data for application in a geographic information system.

CO4 Relate and apply principles of photogrammetry for surveying.

CO5 Apply principles of Remote Sensing and Digital Image Processing for Civil Engineering problems.

Fluid Mechanics (KCE303)

CO1 Understand the broad principles of fluid statics, kinematics and dynamics.

CO2 Understand definitions of the basic terms used in fluid mechanics.

CO3 Understand classifications of fluid flow.

CO4 Understand and apply the continuity, momentum and energy principles.

CO5 Understand and apply dimensional analysis.

Electronics Engineering (KOE038)

CO1 Understand the concept of PN junction and special purpose diodes.

CO2 Study the application of conventional diode and semiconductor diode.

CO3 Analyze the I-V characteristics of BJT and FET.

CO4 Analyze the applications of Op-Amp as amplifiers, integrator, and differentiator.

CO5 Understand the concept of digital storage oscilloscope and compare DSO with analog oscilloscope.

Technical Communication (KAS301)

CO1 Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers.

CO2 Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions.

CO3 Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience.

CO4 Technical communication skills will create a vast know-how of the application of the learning to promote their technical competence.

CO5 It would enable them to evaluate their efficacy as fluent and efficient communicators by learning the voice-dynamics.

Computer System Security (KNC301)

CO1 To discover software bugs that pose cyber security threats and to explain how to fix the bugs to mitigate such threats.

CO2 To discover cyber attack scenarios to web browsers and web servers and to explain how to mitigate such threats.

CO3 To discover and explain mobile software bugs posing cyber security threats. Explain and recreate exploits, and to explain mitigation techniques.

CO4 To articulate the urgent need for cyber security in critical computer systems, networks, and world wide web, and to explain various threat scenarios.

CO5 To articulate the well known cyber attack incidents, explain the attack scenarios, and explain mitigation techniques.

FOURTH SEMESTER

Materials, Testing & Construction Practices (KCE401)

CO1 Identify various building materials and to understand their basic properties.

CO2 Understand the use of non-conventional civil engineering materials.

CO3 Study suitable type of flooring and roofing in the construction process.

COURSE OUTCOMES (COs)
B.TECH. (CIVIL ENGINEERING)

CO4 Characterize the concept of plastering, pointing and various other building services.

CO5 Exemplify the various fire protections, sound and thermal insulation techniques, maintenance and repair of buildings.

Introduction to Solid Mechanics (KCE402)

CO1 Describe the concepts and principles of stresses and strains.

CO2 Analyze solid mechanics problems using classical methods and energy methods.

CO3 Analyze structural members subjected to combined stresses.

CO4 Calculate the deflections at any point on a beam subjected to a combination of loads.

CO5 Understand the behavior of columns, springs and cylinders against loads.

Hydraulic Engineering and Machines (KCE403)

CO1 Apply their knowledge of fluid mechanics in addressing problems in open channels.

CO2 Apply their knowledge of fluid mechanics in addressing problems in energy-depth relationship, measurement of discharge and velocity.

CO3 Solve problems in uniform, gradually and rapidly varied flows in steady state conditions.

CO4 Apply their knowledge of fluid mechanics in addressing problems related to impulse-momentum equation and its impact on jets.

CO5 Have knowledge in hydraulic machineries like pumps and turbines.

Mathematics-IV (KAS402)

CO1 The idea of partial differentiation and types of partial differential equations.

CO2 The idea of classification of second partial differential equations, wave, heat equation and transmission lines.

CO3 The basic ideas of statistics including measures of central tendency, correlation, regression and their properties.

CO4 The ideas of probability and random variables and various discrete and continuous probability distributions and their properties.

CO5 The statistical methods of studying data samples, hypothesis testing and statistical quality control, control charts and their properties.

Universal Human Values and Professional Ethics (KVE401)

COURSE OUTCOMES (COs)
B.TECH. (CIVIL ENGINEERING)

CO1 Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content and process of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society.

CO2 Distinguish between the Self and the Body and understand the meaning of Harmony in the Self the Co-existence of Self and Body.

CO3 Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explores their role in ensuring a harmonious society.

CO4 Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature.

CO5 Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.

Python Programming (KNC402)

CO1 Able to read and write simple Python programs.

CO2 Able to develop Python programs with conditionals and loops.

CO3 Able to define Python functions and to use Python data structures –- lists, tuples, dictionaries.

CO4 Able to do input/output with files in Python.

CO5 Able to do searching, sorting and merging in Python.

FIFTH SEMESTER

Managerial Economics (RAS501)

CO1: Introduce the basic knowledge of basic concepts of economic, demand theory, elasticity's, indifference curve and various techniques of Managerial Economics.

CO2: Identify and model various type of demand forecasting that act on the production system and introduce the concept of supply analysis with reference to consumer requirement.

CO3: Introduce the basic theories of production and cost and their application applicable to the industries.

CO4: Introduce the basic concept and laws of various market conditions and competition theory.

CO5: Explain the basic concepts of national income, GDP and business cycles.

Sociology (RAS502)

COURSE OUTCOMES (COs)
B.TECH. (CIVIL ENGINEERING)

CO1: An ability to understand the relationship of society with science and engineering, and to be familiar with different social conditions and context at the work place.

CO2: To be aware of the various stages in the evolution of productive systems in order to understand today's working scenario.

CO-3: Awareness of different labor acts and policies so that the engineers can confront any unexpected situations in the industry.

CO-4: Knowledge about the industrial problems, grievances and disputes, and the different methods and mechanisms to handle such issues.

CO-5: An ability to visualize the future in respect to industrialization and various sociological concerns.

SIXTH SEMESTER

Cyber Security (RUC601)

CO-1: To understand the core information system, its development process, information assurance (IA) principles, various threats to information system and need of information security.

CO-2: To understand the security issues associated with various applications and associated data, various threats and be able to identify the key components of cyber security network architecture, apply cyber security architecture principles.

CO-3: To understand the process of developing the secure information system and various security issues associated with it.

CO-4: To understand the need of different security policies, their development, review process and the security concerns in cloud, mobile, SCM, outsourcing etc.

CO-5: To have the awareness about information security standards, cyber crimes, Cyber Laws, Intellectual Property rights and various laws related to software's and semiconductors.

Industrial Management (RAS601)

CO1: Introduce the basic knowledge of production and productivity components of an industry and explain the various forms of industrial ownerships.

CO2: Identify and model various functions of industrial process and support condition that act on management systems and introduce the concept of human resource management.

CO3: Introduce the basic concept of work study and inventory management to the reducing and controlling cost of products.

CO4: Introduce the basic concepts and laws of quality control and identify the various properties of TQM.

CO5: Explain the project management and working of PERT/CPM.

EIGHTH SEMESTER

Renewable Energy Resources (ROE086)

CO1 To introduce students about the various resources of non-conventional energy and the construction and working concepts of solar cell.

CO2 To introduce students about the concept of solar thermal energy and their applications.

CO3 To introduce students about the concept of geothermal energy and the principle of operation of magneto-hydrodynamics and fuel cells.

CO4 To introduce students about the concept of thermo electrical and thermionic conversions. Also, help students in understanding the importance of wind energy and their limitations.

CO5 To introduce students about the concept of bio-mass, ocean-thermal energy and to the concepts of waves and tidal waves.

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COURSE OUTCOMES (COs)
B.TECH. (COMPUTER SCIENCE AND ENGINEERING)

THIRD SEMESTER

Data Structure (KCS301)

CO1 Describe how arrays, linked lists, stacks, queues, trees, and graphs are represented in memory, used by the algorithms and their common applications.

CO2 Discuss the computational efficiency of the sorting and searching algorithms.

CO3 Implementation of Trees and Graphs and perform various operations on these data structure.

CO4 Understanding the concept of recursion, application of recursion and its implementation and removal of recursion.

CO5 Identify the alternative implementations of data structures with respect to its performance to solve a real world problem.

Computer Organization and Architecture (KCS302)

CO1 Study of the basic structure and operation of a digital computer system.

CO2 Analysis of the design of arithmetic & logic unit and understanding of the fixed point and floating point arithmetic operations.

CO3 Implementation of control unit techniques and the concept of Pipelining.

CO4 Understanding the hierarchical memory system, cache memories and virtual memory.

CO5 Understanding the different ways of communicating with I/O devices and standard I/O interfaces.

Discrete Structures & Theory of Logic (KCS303)

CO1 Write an argument using logical notation and determine if the argument is or is not valid.

CO2 Understand the basic principles of sets and operations in sets.

CO3 Demonstrate an understanding of relations and functions and be able to determine their properties.

CO4 Demonstrate different traversal methods for trees and graphs.

CO5 Model problems in Computer Science using graphs and trees.

Mathematics-IV (KAS302)

CO1 The idea of partial differentiation and types of partial differential equations.

CO2 The idea of classification of second partial differential equations, wave, heat equation and transmission lines.

CO3 The basic ideas of statistics including measures of central tendency, correlation, regression and their properties.

CO4 The ideas of probability and random variables and various discrete and continuous probability distributions and their properties.

CO5 The statistical methods of studying data samples, hypothesis testing and statistical quality control, control charts and their properties.

Universal Human Values and Professional Ethics (KVE301)

CO1 Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content and process of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society.

CO2 Distinguish between the Self and the Body and understand the meaning of Harmony in the Self the Co-existence of Self and Body.

CO3 Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explores their role in ensuring a harmonious society.

CO4 Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature.

CO5 Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.

Python Programming (KNC302)

CO1 To read and write simple Python programs.

CO2 To develop Python programs with conditionals and loops.

CO3 To define Python functions and to use Python data structures –- lists, tuples, dictionaries.

CO4 To do input/output with files in Python.

CO5 To do searching, sorting and merging in Python.

ITS ENGINEERING COLLEGE
GREATER NOIDA | SINCE 2006

COURSE OUTCOMES (COs)
B.TECH. (COMPUTER SCIENCE AND ENGINEERING)

FOURTH SEMESTER

Operating systems (KCS401)

CO1 Understand the structure and functions of OS.

CO2 Learn about Processes, Threads and Scheduling algorithms.

CO3 Understand the principles of concurrency and Deadlocks.

CO4 Learn various memory management scheme.

CO5 Study I/O management and File systems.

Theory of Automata and Formal Languages (KCS402)

CO1 Analyze and design finite automata, pushdown automata, Turing machines, formal languages, and grammars.

CO2 Analyze and design, Turing machines, formal languages, and grammars.

CO3 Demonstrate the understanding of key notions, such as algorithm, computability, decidability, and complexity through problem solving.

CO4 Prove the basic results of the Theory of Computation.

CO5 State and explain the relevance of the Church-Turing thesis.

Microprocessor (KCS403)

CO1 Apply a basic concept of digital fundamentals to Microprocessor based personal computer system.

CO2 Analyze a detailed s/w & h/w structure of the Microprocessor.

CO3 Illustrate how the different peripherals (8085/8086) are interfaced with Microprocessor.

CO4 Analyze the properties of Microprocessors (8085/8086).

CO5 Evaluate the data transfer information through serial & parallel ports.

Electronics Engineering (KOE048)

CO1 Understand the concept of PN junction and special purpose diodes.

CO2 Study the application of conventional diode and semiconductor diode.

CO3 Analyze the I-V characteristics of BJT and FET.

CO4 Analyze the applications of Op-Amp as amplifiers, integrator, and differentiator.

CO5 Understand the concept of digital storage oscilloscope and compare DSO with analog oscilloscope.

Technical Communication (KAS401)

CO1 Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers.

CO2 Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions.

CO3 Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience.

CO4 Technical communication skills will create a vast know-how of the application of the learning to promote their technical competence.

CO5 It would enable them to evaluate their efficacy as fluent and efficient communicators by learning the voice-dynamics.

Computer System Security (KNC401)

CO1 To discover software bugs that pose cyber security threats and to explain how to fix the bugs to mitigate such threats.

CO2 To discover cyber attack scenarios to web browsers and web servers and to explain how to mitigate such threats.

CO3 To discover and explain mobile software bugs posing cyber security threats, explain and recreate exploits, and to explain mitigation techniques.

CO4 To articulate the urgent need for cyber security in critical computer systems, networks, and world wide web, and to explain various threat scenarios.

CO5 To articulate the well known cyber attack incidents, explain the attack scenarios, and explain mitigation techniques.

FIFTH SEMESTER

Managerial Economics (RAS501)

CO1: Introduce the basic knowledge of basic concepts of economic, demand theory, elasticity's, indifference curve and various techniques of Managerial Economics.

CO2: Identify and model various type of demand forecasting that act on the production system and introduce the concept of supply analysis with reference to consumer requirement.

CO3: Introduce the basic theories of production and cost and their application applicable to the industries.

CO4: Introduce the basic concept and laws of various market conditions and competition theory.

CO5: Explain the basic concepts of national income, GDP and business cycles.

Sociology (RAS502)

CO1: An ability to understand the relationship of society with science and engineering, and to be familiar with different social conditions and context at the work place.

CO2: To be aware of the various stages in the evolution of productive systems in order to understand today's working scenario.

CO-3: Awareness of different labor acts and policies so that the engineers can confront any unexpected situations in the industry.

CO-4: Knowledge about the industrial problems, grievances and disputes, and the different methods and mechanisms to handle such issues.

CO-5: An ability to visualize the future in respect to industrialization and various sociological concerns.

SIXTH SEMESTER

Cyber Security (RUC601)

CO-1: To understand the core information system, its development process, information assurance (IA) principles, various threats to information system and need of information security.

CO-2: To understand the security issues associated with various applications and associated data, various threats and be able to identify the key components of cyber security network architecture, apply cyber security architecture principles.

CO-3: To understand the process of developing the secure information system and various security issues associated with it.

CO-4: To understand the need of different security policies, their development, review process and the security concerns in cloud, mobile, SCM, outsourcing etc.

CO-5: To have the awareness about information security standards, cyber crimes, Cyber Laws, Intellectual Property rights and various laws related to software’s and semiconductors.

Industrial Management (RAS601)

CO1: Introduce the basic knowledge of production and productivity components of an industry and explain the various forms of industrial ownerships.

CO2: Identify and model various functions of industrial process and support condition that act on management systems and introduce the concept of human resource management.

CO3: Introduce the basic concept of work study and inventory management to the reducing and controlling cost of products.

CO4: Introduce the basic concepts and laws of quality control and identify the various properties of TQM.

CO5: Explain the project management and working of PERT/CPM.

EIGHTH SEMESTER

Renewable Energy Resources (ROE086)

CO1 To introduce students about the various resources of non-conventional energy and the construction and working concepts of solar cell.

CO2 To introduce students about the concept of solar thermal energy and their applications.

CO3 To introduce students about the concept of geothermal energy and the principle of operation of magneto-hydrodynamics and fuel cells.

CO4 To introduce students about the concept of thermo electrical and thermionic conversions. Also, help students in understanding the importance of wind energy and their limitations.

CO5 To introduce students about the concept of bio-mass, ocean-thermal energy and to the concepts of waves and tidal waves.

ITS ENGINEERING COLLEGE
GREATER NOIDA | SINCE 2006

COURSE OUTCOMES (COs)

B.TECH. (ELECTRONICS AND COMMUNICATION ENGINEERING)

THIRD SEMESTER

Electronic Devices (KEC301)

CO 1 Understand the principles of semiconductor Physics.

CO2 Understand and utilize the mathematical models of semiconductor junctions.

CO3 Understand carrier transport in semiconductors and design resistors.

CO4 Utilize the mathematical models of MOS transistors for circuits and systems.

CO5 Analyze and find application of special purpose diodes.

Digital System Design (KEC302)

CO 1 Design and analyze combinational logic circuits.

CO2 Design and analyze modular combinational circuits with MUX / DEMUX, Decoder & Encoder.

CO3 Design & analyze synchronous sequential logic circuits.

CO4 Analyze various logic families.

CO5 Design ADC and DAC and implement in amplifier, integrator, etc.

Network Analysis and Synthesis (KEC303)

CO 1 Understand basics electrical circuits with nodal and mesh analysis.

CO2 Appreciate electrical network theorems.

CO3 Apply Laplace transform for steady state and transient analysis.

CO4 Determine different network functions.

CO5 Appreciate the frequency domain techniques.

Basic Data Structure and Algorithms (KOE035)

CO 1 Understand and analyze the time and space complexity of an algorithm

CO 2 Understand and implement fundamental algorithms (including sorting algorithms, graph algorithms, and dynamic programming)

CO 3 Discuss various algorithm design techniques for developing algorithms

CO 4 Discuss various searching, sorting and graph traversal algorithms

CO 5 Understand operation on Queue, Priority Queue, D-Queue.

ENGINEERING COLLEGE
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COURSE OUTCOMES (COs)

B.TECH. (ELECTRONICS AND COMMUNICATION ENGINEERING)

Technical Communication (KAS301)

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CO2 Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions.

CO3 Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience.

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CO5 To articulate the well known cyber attack incidents, explain the attack scenarios, and explain mitigation techniques.

FOURTH SEMESTER

Communication Engineering (KEE401)

CO 1 Analyze and compare different analog modulation schemes for their efficiency and bandwidth.

CO2 Analyze the behavior of a communication system in presence of noise.

CO3 Analyze the behavior of a communication system in presence of noise.

CO4 Investigate various multiplexing techniques.

CO5 Analyze different digital modulations schemes and compute the bit error performance.

ITS ENGINEERING COLLEGE
GREATER NOIDA | SINCE 2006

COURSE OUTCOMES (COs)

B.TECH. (ELECTRONICS AND COMMUNICATION ENGINEERING)

Analog Circuits (KEC402)

CO 1 Understand the characteristics of diodes and transistors.

CO2 Design and analyze various rectifier and amplifier circuits.

CO3 Design sinusoidal and non-sinusoidal oscillators.

CO4 Understand the functioning of OP-AMP and design OP-AMP based circuits.

CO5 Design LPF, HPF, BPF, BSF.

Signals and Systems (KEC403)

CO 1 Analyze different types of signals.

CO2 Analyze linear shift-invariant (LSI) systems.

CO3 Represent continuous and discrete systems in time and frequency domain using Fourier series and transform.

CO4 Analyze discrete time signals in z-domain.

CO5 Study sampling and reconstruction of a signal.

Mathematics-IV (KAS402)

CO1 The idea of partial differentiation and types of partial differential equations.

CO2 The idea of classification of second partial differential equations, wave, heat equation and transmission lines.

CO3 The basic ideas of statistics including measures of central tendency, correlation, regression and their properties.

CO4 The ideas of probability and random variables and various discrete and continuous probability distributions and their properties.

CO5 The statistical methods of studying data samples, hypothesis testing and statistical quality control, control charts and their properties.

Universal Human Values and Professional Ethics (KVE401)

CO1 Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content and process of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society.

CO2 Distinguish between the Self and the Body and understand the meaning of Harmony in the Self the Co-existence of Self and Body.

CO3 Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explores their role in ensuring a harmonious society.

CO4 Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature.

CO5 Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.

Python Programming (KNC402)

CO1 Able to read and write simple Python programs.

CO2 Able to develop Python programs with conditionals and loops.

CO3 Able to define Python functions and to use Python data structures –- lists, tuples, dictionaries.

CO4 Able to do input/output with files in Python.

CO5 Able to do searching, sorting and merging in Python.

FIFTH SEMESTER

Integrated Circuits (REC501A)

CO1: Able to understand various types of Current Mirrors using BJT and MOSFETs, Large and Small Signal Analysis of various stages of an op-amp IC741C.

CO2: Able to understand ideal and non-ideal linear applications of op-amp based Circuits, Generalized Impedance Converter Circuit and inductor simulation, First and second order filter realizations, State-Variable and Biquad Filters.

CO3: Able to understand CMOS implementation of various Logic Gates, Boolean functions and Flip-Flops, Clocked SR and D Flip-flop Circuits.

CO4: Able to understand different Non-Linear applications of IC Op-amps and various waveform generation circuits.

CO5: Able to understand the operation and working of some special ICs like timer IC 555 and PLL 565, Analog-to-Digital and Digital-to-Analog Converters.

Principles of Communication (REC502)

CO-1: Able to understand the basic building blocks of communication systems, the need for modulation, fundamentals of AM systems.

CO-2: Able to understand the basic concept of angle modulation, methods used for modulation and demodulation of FM signals and few examples using MATLAB.

CO-3:Able to understand the fundamentals of PAM, PWM, PPM and digital modulation scheme such as PCM, their representation, generation and introduction to the concept of power spectral density.

CO-4: Able to understand the basic concept of DPCM, DM, ADM, and mathematical representation of noise signals.

CO-5: Able to understand the fundamental of noise in AM and FM systems, SNR, and Figure of Merit.

Digital Signal Processing (REC503)

CO1: Student will be able to understand and realize different types of realizations of digital systems (IIR and FIR) and their utilities.

CO2: Student will be able to formulate the design parameters of analog IIR digital filters (Butterworth and Chebyshev filters) and various methods such as impulse invariant transformation and bilinear transformation of conversion of analog to digital filters.

CO3: Student will be able to analyze different types of window functions used for the design of FIR filters.

CO4: Student will be able to understand the principle of discrete Fourier transform & its various properties and concept of circular and linear convolution. Also students will understand the concept of FFT i.e. a fast computation method of DFT.

CO5: Student will be able to understand the concept of decimation and interpolation. Also they will able to use it in various practical applications.

Computer Architecture and Organization (REC052)

CO1: To understand design methodology at gate, register and processor levels.

CO2: Developing the understanding of processor organization and data representation inside it.

CO3: Analyzing arithmetic operations and pipeline processing inside processor.

CO4: To understand the control system design including pipeline control in processors.

CO5: To develop the understanding of the memory organization and communication methods of a computing system.

Managerial Economics (RAS501)

CO1: Introduce the basic knowledge of basic concepts of economic, demand theory, elasticity's, indifference curve and various techniques of Managerial Economics.

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CO3: Introduce the basic theories of production and cost and their application applicable to the industries.

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CO-4: Knowledge about the industrial problems, grievances and disputes, and the different methods and mechanisms to handle such issues.

CO-5: An ability to visualize the future in respect to industrialization and various sociological concerns.

SIXTH SEMESTER

Microwave Engineering (MWE) (REC601)

CO1 To understand the basic concept of Microwaves waveguides.

CO2 To distinguish different frequency spectrum, and microwave components.

CO3 Able to understand about microwave tubes.

CO4 Ability to understand microwave semiconductor diodes and their applications.

CO5 To understand different measurement techniques of microwaves.

Digital Communication (REC602)

CO1: Able to Understand digital data transmission and generation & detection of various digital modulation systems.

CO-2: Able to Understand concept of probability, random process and power spectral density.

CO-3: Understands performance analysis of digital communication systems.

CO-4: Understands Spread Spectrum Communications (FHSS, DSSS, CDMA & OFDM).

CO-5: Able to Understand measure of Information, Source Encoding, generation and detection of different Error Correcting codes.

Microcontrollers for Embedded Systems (REC062)

CO1 Able to understand 8051 microcontroller.

CO2 To introduce students with the hardware details of 16-bit low power MCU MSP430.

CO3 To introduce students with configuring Peripherals in MSP430and interrupts of MSP430.

CO4 Students will also learn programming for interfacing of MSP430 with external hardware devices.

CO5 Understand the concept of IOT and other Wi-Fi devices.

Control Systems-I (RIC603)

CO1: Able to understand the basic components of a control system, block diagram reduction and signal flow graphs, DC Motors in Control Systems.

CO2: Able to understand State-Variable Analysis, Similarity transformation, Concept of Controllability and Observability.

CO3: Able to understand time-domain analysis of control systems and transient response of a prototype second order system.

CO4: Able to understand the concept of stability of linear control systems using Routh-Hurwitz criterion and Root-Locus technique.

CO5: Able to understand frequency-domain analysis using Nyquist stability criterion and the Bode plot.

Cyber Security (RUC601)

CO-1: To understand the core information system, its development process, information assurance (IA) principles, various threats to information system and need of information security.

CO-2: To understand the security issues associated with various applications and associated data, various threats and be able to identify the key components of cyber security network architecture, apply cyber security architecture principles.

CO-3: To understand the process of developing the secure information system and various security issues associated with it.

CO-4: To understand the need of different security policies, their development, review process and the security concerns in cloud, mobile, SCM, outsourcing etc.

CO-5: To have the awareness about information security standards, cyber crimes, Cyber Laws, Intellectual Property rights and various laws related to software's and semiconductors.

Industrial Management (RAS601)

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CO2: Identify and model various functions of industrial process and support condition that act on management systems and introduce the concept of human resource management.

CO3: Introduce the basic concept of work study and inventory management to the reducing and controlling cost of products.

CO4: Introduce the basic concepts and laws of quality control and identify the various properties of TQM.

CO5: Explain the project management and working of PERT/CPM.

SEVENTH SEMESTER

Data Communication Networks (REC701)

CO1 Understand the basic terminology of networking.

CO2 Identify the issues and challenges in the architecture of a network.

CO3 Understand the ISO/OSI seven layers in a network.

CO4 Realize protocols at different layers of a network hierarchy.

CO5 Recognize security issues in a network.

VLSI Design (REC702)

CO1 To learn basic CMOS Circuits and CMOS process technology.

CO2 Model the behaviour of a MOS Transistor.

CO3 Design combinational and sequential circuits using CMOS gates.

CO4 Identify the sources of power dissipation in a CMOS circuit.

CO5 Analyze SRAM cell and memory arrays.

Information Theory and Coding (REC071)

CO1 Model the Entropy, Joint Entropy and Conditional Entropy, Relative Entropy and Mutual Information, Relationship Between Entropy and Mutual Information.

CO2 Design Data Compression, Examples of Codes, Kraft Inequality, Optimal Codes, Bounds on the Optimal Code Length.

CO3 Identify the Examples of Channel Capacity, Symmetric Channels, Properties of Channel Capacity, Preview of the Channel Coding Theorem.

CO4 Analyze Introduction to block codes, Single-parity-check codes, Product codes, Repetition codes, Hamming codes.

CO5 Design Generator matrices for Convolutional codes, Generator polynomials for Convolutional codes.

Optical Communication (REC075)

CO1 Familiarize with basic concepts and theory of Optical Communication.

CO2 Demonstrate OPCOMM components assemble them and solve problems on Optical Communication system.

CO3 Able to design, implements, analyzes and maintains optical communication systems.

CO4 Gain knowledge of different source of light as well as receiver and their comparative study.

CO5 To get an idea about power budget and ultimately be an engineer with adequate knowledge in optical domain.

EIGHTH SEMESTER

Satellite and Radar Systems (REC083)

CO1 Understand the orbital and functional principles of satellite communication systems

CO2 Architect, interprets, and selects appropriate technologies for implementation of specified satellite communication systems

CO3 Analyze and evaluate a satellite link and suggest enhancements to improve the link performance. CO4 Select an appropriate modulation, multiplexing, coding and multiple access schemes for a given satellite communication link.

CO5 Specify, design, prototype and test analog and digital satellite communication systems as per given specifications.

Wireless and Mobile Communication (REC085)

CO1 Familiarize with various generations of mobile communications.

CO2 Understand the concept of cellular communication.

CO3 Understand the basics of wireless communication.

CO4 Understand GSM mobile communication standard, its architecture, logical channels, advantages and limitations.

CO5 Gain knowledge of IS-95 CDMA mobile communication standard, its architecture, logical channels, advantages and limitations.

CO6 Gain knowledge of 3G mobile standards and their comparison with 2G technologies.

Renewable Energy Resources (ROE086)

CO1 To introduce students about the various resources of non-conventional energy and the construction and working concepts of solar cell.

CO2 To introduce students about the concept of solar thermal energy and their applications.

CO3 To introduce students about the concept of geothermal energy and the principle of operation of magneto-hydrodynamics and fuel cells.

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COURSE OUTCOMES (COs)
B.TECH. (ELECTRICAL AND ELECTRONICS ENGINEERING)

THIRD SEMESTER

Electromagnetic Field Theory (KEE301)

CO 1 Apply different coordinate systems and their application in electromagnetic field theory and establish a relation between any two systems and also understand the vector calculus.

CO2 Understand the concept of static electric field. Understand the concept of current and properties of conductors. Establish boundary conditions and to calculate capacitances of different types of capacitors. CO3 Understand the concept of static magnetic field, magnetic scalar and vector potential.

CO4 Understand the forces due to magnetic field, magnetization, magnetic boundary conditions and inductors.

CO5 Understand displacement current, time varying fields, propagation and reflection of EM waves and transmission lines.

Electrical Measurements and Instrumentation (KEE302)

CO 1 Evaluate errors in measurement as well as identify and use different types of instruments for the measurement of voltage, current, power and energy.

CO2 Display the knowledge of measurement of electrical quantities resistance, inductance and capacitance with the help of bridges.

CO3 Demonstrate the working of instrument transformers as well as calculate the errors in current and potential transformers.

CO4 Manifest the working of electronic instruments like voltmeter, multi-meter, frequency meter and CRO.

CO5 Display the knowledge of transducers, their classifications and their applications for the measurement of physical quantities like motion, force, pressure, temperature, flow and liquid level.

Basic Signals and Systems (KEE303)

CO 1 Represent the various types of signals & systems and can perform mathematical operations on them.

CO2 Analyze the response of LTI system to Fourier series and Fourier transform and to evaluate their applications to network analysis.

CO3 Analyze the properties of continuous time signals and system using Laplace transform and determine the response of linear system to known inputs.

CO4 Implement the concepts of Z transform to solve complex engineering problems using difference equations.

CO5 Develop and analyze the concept of state-space models for SISO & MIMO system.

Electronics Engineering (KOE038)

CO1 Understand the concept of PN junction and special purpose diodes.

CO2 Study the application of conventional diode and semiconductor diode.

CO3 Analyze the I-V characteristics of BJT and FET.

CO4 Analyze the applications of Op-Amp as amplifiers, integrator, and differentiator.

CO5 Understand the concept of digital storage oscilloscope and compare DSO with analog oscilloscope.

Technical Communication (KAS301)

CO1 Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers.

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FOURTH SEMESTER

Digital Electronics (KEE401)

CO 1 Apply concepts of Digital Binary System and implementation of Gates.

CO2 Analyze and design of Combinational logic circuits.

CO3 Analyze and design of Sequential logic circuits with their applications.

CO4 Implement the Design procedure of Synchronous and Asynchronous Sequential Circuits.

CO5 Apply the concept of Digital Logic Families with circuit implementation.

Electrical Machines-I (KEE402)

CO 1 Analyze the various principles & concepts involved in Electromechanical Energy conversion.

CO2 Demonstrate the constructional details of DC machines as well as transformers, and principle of operation of brushless DC motor, Stepper and DC Servo motors.

CO3 Evaluate the performance and characteristics of DC Machine as motor and as well as generator.

CO4 Evaluate the performance of transformers, individually and in parallel operation.

CO5 Demonstrate and perform various connections of three phase transformers.

Network Analysis and Synthesis (KEE403)

CO1 Apply the knowledge of basic circuital law, nodal and mesh methods of circuit analysis and simplify the network using Graph Theory approach.

CO2 Analyze the AC and DC circuits using Kirchhoff's law and Network simplification theorems.

CO3 Analyze steady-state responses and transient response of DC and AC circuits using classical and Laplace transform methods.

CO4 Demonstrate the concept of complex frequency and analyze the structure and function of one and two port network. Also evaluate and analysis two-port network parameters.

CO5 Synthesize one port network and analyze different filters.

Mathematics-IV (KAS402)

COURSE OUTCOMES (COs)
B.TECH. (ELECTRICAL AND ELECTRONICS ENGINEERING)

CO1 The idea of partial differentiation and types of partial differential equations.

CO2 The idea of classification of second partial differential equations, wave, heat equation and transmission lines.

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Python Programming (KNC402)

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CO4 Able to do input/output with files in Python.

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FIFTH SEMESTER

COURSE OUTCOMES (COs)

B.TECH. (ELECTRICAL AND ELECTRONICS ENGINEERING)

Principles of Communication (REE052)

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CO-2: Able to understand the basic concept of angle modulation, methods used for modulation and demodulation of FM signals and few examples using MATLAB.

CO-3:Able to understand the fundamentals of PAM, PWM, PPM and digital modulation scheme such as PCM, their representation, generation and introduction to the concept of power spectral density.

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CO-5: Able to understand the fundamental of noise in AM and FM systems, SNR, and Figure of Merit.

Managerial Economics (RAS501)

CO1: Introduce the basic knowledge of basic concepts of economic, demand theory, elasticity's, indifference curve and various techniques of Managerial Economics.

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CO3: Introduce the basic theories of production and cost and their application applicable to the industries.

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Sociology (RAS502)

CO1: An ability to understand the relationship of society with science and engineering, and to be familiar with different social conditions and context at the work place.

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COURSE OUTCOMES (COs)
B.TECH. (ELECTRICAL AND ELECTRONICS ENGINEERING)
SIXTH SEMESTER

Cyber Security (RUC601)

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CO-2: To understand the security issues associated with various applications and associated data, various threats and be able to identify the key components of cyber security network architecture, apply cyber security architecture principles.

CO-3: To understand the process of developing the secure information system and various security issues associated with it.

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CO4: Introduce the basic concepts and laws of quality control and identify the various properties of TQM.

CO5: Explain the project management and working of PERT/CPM.

EIGHTH SEMESTER

Renewable Energy Resources (ROE086)

CO1 To introduce students about the various resources of non-conventional energy and the construction and working concepts of solar cell.

CO2 To introduce students about the concept of solar thermal energy and their applications.

CO3 To introduce students about the concept of geothermal energy and the principle of operation of magneto-hydrodynamics and fuel cells.

COURSE OUTCOMES (COs)

B.TECH. (ELECTRICAL AND ELECTRONICS ENGINEERING)

CO4 To introduce students about the concept of thermo electrical and thermionic conversions. Also, help students in understanding the importance of wind energy and their limitations.

CO5 To introduce students about the concept of bio-mass, ocean-thermal energy and to the concepts of waves and tidal waves.

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Master of Business Administration (MBA) Course Outcomes (COs)

FIRST SEMESTER

Management Concepts and Indian Ethos (KMB101)

CO1 Developing understanding of managerial practices and their perspectives.

CO2 Applying planning and managerial decision making skills.

CO3 Develop analytical and problem solving skills, based on understanding of management concepts and theories.

CO4 Comprehend and practice Indian Ethos and Value Systems.

CO5 Applying value based management and ethical practices.

Managerial Economics (KMB102)

CO 1 Students will be able to remember the concepts of micro economics and also able to understand the various micro economic principles to make effective economic decisions under conditions of risk and uncertainty.

CO2 The students would be able to understand the law of demand & supply & their elasticities, evaluate & analyze these concepts and apply them in various changing situations in industry. Students would be able to apply various techniques to forecast demand for better utilization of resources.

CO3 The students would be able to understand the production concept and how the production output changes with the change in inputs and able to analyze the effect of cost to business and their relation to analyze the volatility in the business world.

CO4 The students would be able to understand & evaluate the different market structure and their different equilibriums for industry as well as for consumers for the survival in the industry by the application of various pricing strategies.

CO5 The students would be able to analyze the macroeconomic concepts & their relation to micro economic concept & how they affect the business & economy.

Financial Accounting for Managers (KMB103)

CO 1 Understand and apply accounting concepts, principles and conventions for their routine monetary transaction.

CO2 Recognize circumstances providing for increased exposure to fraud and define preventative internal control measures.

CO3 Create and Prepare financial statements in accordance with Generally Accepted Accounting Principles.

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Master of Business Administration (MBA) Course Outcomes (COs)

CO4 Utilize the technology (such as computers, information databases) in facilitating and enhancing accounting and financial reporting processes.

CO5 Analyze, interpret and communicate the information contained in basic financial statements and explain the limitations of such statements.

CO6 Understand the basic concepts and importance of working capital management.

Business Statistics and Analytics (KMB104)

CO1 Gaining Knowledge of basic concepts/fundamentals of business statistics.

CO2 To develop practical understanding of various statistics concepts.

CO3 To compute various measures of central tendency, Measures of Dispersion, Time Series Analysis, Index Number, Correlation and Regression analysis and their implication on Business performance.

CO4 Evaluating basic concepts of probability and perform probability theoretical distributions.

CO5 Taking managerial decision and applying the Concept of Business Analytics.

Organizational Behavior (KMB105)

CO1 Comprehending the nature, functioning and design of organizations as social collectives.

CO2 To evaluate the reciprocal relationship between the organizational characteristics and managerial behavior.

CO3 Develop practical insights and problem solving capabilities for effectively managing the Organizational processes.

CO4 Analyzing the behavior of individuals and groups in organizations.

CO5 Developing conceptual understanding of change and its implementation.

Marketing Management-I (KMB 106)

CO1 Remember and Comprehend basic marketing concepts.

CO2 Understand marketing Insights on application of basic marketing concepts.

CO3 Able to Apply and develop Marketing Strategies and Plans

CO4 Understand and Analyzing Business/Consumer Markets.

CO5 Develop skills and ability Identify & evaluate Market Segments and Targeting.

Business Communication (KMB107)

CO1 Apply business communication strategies and principles to prepare effective communication for domestic and international business situations.

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Master of Business Administration (MBA) Course Outcomes (COs)

CO2 Analyze Ethical, Legal, Cultural, and Global issues affecting Business Communication.

CO3 Develop an understanding of appropriate organizational formats and channels used in business communications.

CO4 Gaining an understanding of emerging electronic modes of communication.

CO5 Developing effective verbal and non verbal communication skills.

Computer Applications and Management Information System (KMB108)

CO1 Gain in depth knowledge of working of an IT enabled organization.

CO2 Learn to use various IT tools for solving Business Problems.

CO3 Develop and implement Information Systems for Business Applications.

CO4 Learn to increase efficiency of various management processes by using IT enabled technology.

CO5 Analyze various security and ethics related issues pertaining to the increasing use of Information Technology.

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Master of Business Administration (MBA) Course Outcomes (COs)

SECOND SEMESTER

Business Environment (KMB 201)

CO1 Comprehend the forces that shape business and economic structure and develop strategies to cope with the same.

CO2 Evaluate the economic and political environmental dynamics to cope with the changing regulations affecting business and its profitability.

CO3 Analyze the competitive forces in environment and accordingly devise business policies and strategies to stay in competitive position.

CO4 Analyze the desirability of technological advancement in the current set-up and how to gain technological advancement with least cost.

CO5 Understand the international influences on domestic business and measures to be taken for successful global business operations.

Human Resource Management (KMB202)

CO1 Synthesize the role of human resources management as it supports the success of the organization including the effective development of human capital as an agent for organizational change.

CO2 Demonstrate knowledge of laws that impact behavior in relationships between employers and employees that ultimately impact the goals and strategies of the organization.

CO3 Understand the role of employee benefits and compensation as a critical component of employee performance, productivity and organizational effectiveness.

CO4 Show evidence of the ability to analyze, manage and problem solve to deal with the challenges and complexities of the practice of collective bargaining.

CO5 Demonstrate knowledge of practical application of training and employee development as it impacts organizational strategy and competitive advantage.

Business Research Methods (KMB 203)

CO1 Knowledge of concept/fundamentals for different types of research.

CO2 Applying relevant research techniques.

CO3 Understanding relevant scaling & measurement techniques and should use appropriate sampling techniques

CO4 Synthesizing different techniques of coding, editing, tabulation and analysis in doing research.

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Master of Business Administration (MBA) Course Outcomes (COs)

CO5 Evaluating statistical analysis which includes various parametric test and non parametric test and ANOVA technique and prepare report.

Corporate Financial Management (KMB 204)

CO1 Understand the different basic concepts/fundamentals of Corporate Finance.

CO2 Understand the practical application of time value of money and evaluating long term investment decisions.

CO3 Developing analytical skills to select the best source of capital, its structure on the basis of cost of capital.

CO4 Understand the use and application of different models for firm's optimum dividend payout.

CO5 Understand the recent trends of primary and secondary market and developing skills for application of various financial services.

Operations Management (KMB205)

CO1 Understand the role of Operations in overall Business Strategy of the firm - the application of OM policies and techniques to the service sector as well as manufacturing firms.

CO2 Understand and apply the concepts of Material Management, Supply Chain Management and TQM perspectives.

CO3 Identify and evaluate the key factors and their interdependence of these factors in the design of effective operating systems.

CO4 Analyze/understand the trends and challenges of Operations Management in the current business environment.

CO5 Apply techniques for effective utilization of operational resources and managing the processes to produce good quality products and services at competitive prices.

Quantitative Techniques in Management (KMB206)

CO1 Understand the basic operations research concepts and terminology involved in optimization techniques.

CO2 Understand how to interpret and solve business-related problems.

CO3 Apply certain mathematical techniques in getting the best possible solution to a problem involving limited resources.

CO4 Apply the most widely used quantitative techniques in decision making.

CO5 Identify project goals, constraints, deliverables, performance criteria, control needs, and resource requirements in order to achieve project success.

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Master of Business Administration (MBA) Course Outcomes (COs)

Legal Aspects of Business (KMB207)

CO1 Acquire a sound understanding of the legal aspects of the laws affecting businesses.

CO2 Apply basic legal knowledge to business transactions.

CO3 Communicate effectively using standard business and legal terminology.

CO4. Analyze a given business context using basic understanding of the applicable Acts and develop a suitable operational framework.

CO5. Describe current law, rules, and regulations related to settling business disputes.

Marketing Management-II (KMB208)

CO1 Understand and Analyze marketing for creating value with Product and price Strategy.

CO2 Develop aptitude to Create and Craft the Brand Positioning/Equity by Evaluating Brands and Identifying Market Segments and Targets.

CO3 Understand and Analyze marketing for delivering and communicating value with Integrated Marketing Channels and promotion strategy.

CO4 Remember and Comprehend advance marketing concepts for the New Realities and digital aspect of marketing.

CO5 Creating and developing marketing strategies and plans for Conducting marketing responsibly for long-term success.

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Master of Business Administration (MBA) Course Outcomes (COs)

THIRD SEMESTER

Strategic Management (KMB301)

CO1 Formulate organizational vision, mission, goals, and values.

CO2 Develop strategies and action plans to achieve an organization's vision, mission, and goals.

CO3 Develop powers of managerial judgment, how to assess business risk, and improve ability to make sound decisions and achieve effective outcomes.

CO4 Evaluate and revise programs and procedures in order to achieve organizational goals.

CO5 Consider the ethical dimensions of the strategic management process.

International Business Management (KMB302)

CO1 To get an overview of the key issues and concepts of International Business.

CO2 Understand how and why the world's countries differ.

CO3 Understand the monetary framework in which international business transactions are conducted.

CO4 Understand the role of International Organizations and Regional Trade blocks.

CO5 Implement the decisions for international operations in a superior manner.

Talent Management (KMBHR01)

CO1 Knowledge of Talent Management Processes.

CO2 Understanding for analysis of the impacts of Talent management in the organization.

CO3 Competency to implement Talent Management practices.

CO4 Competency to develop leadership qualities among subordinate.

CO5 Knowledge about the reward system to support Talent management.

Performance and Reward Management (KMBHR02)

CO1 Knowledge of Performance Management and Performance Appraisal.

CO2 Competency to understand the importance of importance of Performance Management.

CO3 Knowledge about the Compensation and Reward Systems.

CO4 Competency to implement the effective reward systems in the organization.

CO5 Ability to explain the relevance of competency mapping and understanding its linkage with career development.

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Master of Business Administration (MBA) Course Outcomes (COs)

Employee Relations and Labour Laws (KMBHR03)

CO1 Knowledge of Industrial Relation framework.

CO2 Competency to understand the importance of Employee Relation within the perspective of Industrial Relation.

CO3 Knowledge about relevant Laws of HR management.

CO4 Competency to interpreted and implement the Labour Laws within organization.

CO5 Competency to use Collective Bargaining and Grievance redressal Mechanism.

Sales and Retail Management (KMBMK01)

CO1 Students will develop knowledge, understanding and skills in Sales force management.

CO2 Acquainted with better understanding of implementation of sales management strategies.

CO3 Develop analytical skills for effective decision alternatives in sales management problems.

CO4 Develop the knowledge, understanding and skills in retail management.

CO5 Acquainted with better understanding of implementation of retail management strategies and develop analytical skills for effective decision alternatives in retail operations.

Consumer Behaviour and Marketing Communication (KMBMK02)

CO1 Understand the three major influences on customer choice: the process of human decision making in a marketing context; the individual customers make up; the environment in which the customer is embedded.

CO2 Develop the cognitive skills to enable the application of the above knowledge to marketing decision making and activities.

CO3 Be able to demonstrate how concepts may be applied to marketing strategy.

CO4 Apply an IMC approach in the development of an overall advertising and promotional plan.

CO5 Enhance creativity, critical thinking and analytical ability through developing an integrated marketing communication campaign.

Digital and Social Media Marketing (KMBMK03)

CO1 Students will develop an understanding of digital and social media marketing practices.

CO2 Students will develop understanding of the social media platforms.

CO3 Students will acquire the skill to acquire and engage consumers online.

CO4 Students will develop understanding of building organizational competency by way of digital marketing practices and cost considerations.

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Master of Business Administration (MBA) Course Outcomes (COs)

CO5 Students will develop understanding of the latest digital practices for marketing and promotion.

Investment Analysis and Portfolio Management (KMBFM01)

CO1 Understand about various investment avenues.

CO2 Understand the value of assets and manage investment portfolio.

CO3 Understand various Models of Investment and its application.

CO4 Understand and create various investment strategies on the basis of various market conditions.

CO5 Measure riskiness of a stock or a portfolio position.

Tax Planning and Management (KMBFM02)

CO1 Understand about various Tax provisions and Tax planning.

CO2 Understand the scope of tax planning concerning various business and managerial and strategic activities can be explored.

CO3 Have knowledge about various Tax Dates, Rates and Forms.

CO4 Measure Corporate Tax and Taxation in case of business restructuring.

CO5 Understand how GST can be calculated and managed.

Financial Market and Services (KMBFM03)

CO1 Recognize the functioning and working of various financial institutions in India thus in turn connecting it to the working of Indian economy.

CO2 Interpret the knowledge about the working of various financial instruments in the primary and secondary market in India as well as foreign market.

CO3 Classify about the working of micro finance instruments in India as well as foreign market.

CO4 Interpret the knowledge about the banking industry and demonstrate the various market demand analysis.

International Logistics (KMBIB02)

CO1 To view logistics as more than an operational function that passively executes a plan, but as a strategic function that creates value and competitive advantage.

CO2 Develop in the right way the process of organizing and conducting the proceedings relating to the transport and shipping.

CO3 Develop in the right way the process of setting up and managing warehousing operations.

CO4 Able to carry basic assessment of sea and air freight shipments, ports/infrastructure and work environment.

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Master of Business Administration (MBA) Course Outcomes (COs)

CO5 Understand the use and impact of e-commerce in logistics management.

Export Import Documentation (KMBIB03)

CO1 Identify the process of Registration process, Payment terms, Export costing and pricing.

CO2 Interpret the process of Shipment procedures, & summarize the various documents used in Shipping.

CO3 Classify the concept of various incentives, benefits and risk involved in shipping process.

CO4 Discuss the various business planning Import procedures & various export promotion schemes

CO5 Demonstrate the various export promotion schemes &Types of Export Houses.

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Master of Business Administration (MBA) Course Outcomes (COs)

FOURTH SEMESTER

Project Management (KMB401)

CO1 Students will be able to understand the characteristics of Project and Project Management.

CO2 The students will understand the managerial process along with tools & techniques used in Project management.

CO3 Students will understand the scheduling and monitoring process in Project. They will be able to apply PERT and CPM method for project scheduling.

CO4 Students will understand the perspectives in which optimum decisions are to be taken in case of risks with planned activities in project.

Entrepreneurship Development (KMB402)

CO1 Developing understanding of basic concepts of entrepreneurship.

CO2 Develop knowledge on Entrepreneurial Finance, Assistance and role of Entrepreneurial Development Agencies.

CO3 Develop understanding of converting an Idea to an opportunity and develop understanding of various funding sources.

CO4 Comprehend and develop skills to Develop a Business Plan.

CO5 Students to have a basic understanding of Launching a New Venture.

Universal Human Values and Professional Ethics (KVE401)

CO1 Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content and process of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society.

CO2 Distinguish between the Self and the Body and understand the meaning of Harmony in the Self the Co-existence of Self and Body.

CO3 Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explores their role in ensuring a harmonious society.

CO4 Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature.

CO5 Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.

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Master of Business Administration (MBA) Course Outcomes (COs)

Working Capital Management (KMBFM04)

CO1 Understand the objectives and functioning of WTO.

CO2 Investigate funds flow cycles and their impact on working capital management objectives.

CO3 Compare and contrast the relative merits of alternative working capital policies and the likely short-term and long-term impact on the firm.

CO4 Formulate appropriate working capital management policies to achieve corporate objectives.

CO5 Apply corporate cash management, accounts receivable management, bank relations, and inventory management techniques to maximize the share holders' value.

Financial Derivatives (KMBFM05)

CO1 Understand about various Derivative instruments.

CO2 Understand various future and option strategies of hedging risk.

CO3 Have knowledge about various Models and techniques and its application.

CO4 Apply various swap strategies to reduce risk.

International Trade Law (KMBIB04)

CO1 Understand the objectives and functioning of WTO.

CO2 Review and apply the various WTO agreements for effective international trade.

CO3 Analyze the forces that shape the international commercial laws.

CO4 Understand and evaluate the export import policy in India.

CO5 Analyze the recent challenges in international trade and role of international institutions.

Cross Cultural Management (KMBIB05)

CO1 Understand and apply different meanings and dimensions of “culture”.

CO2 Describe and analyze the impact of culture on business practices.

CO3 Explain and evaluate the impact of national culture on organizational cultures.

CO4 Understand the impact of culture on Human Resource Management.

CO5 Explain how leadership differs across cultures.

Strategic Human Resource Management (KMBHR04)

CO1 Understanding the dimensions of Strategic HRM.

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Master of Business Administration (MBA) Course Outcomes (COs)

CO2 Apply the learning of SHRM in organizational context.

CO3 Able to evaluate the impacts of SHRM on competitive advantages.

CO4 Desired level of expertise on organizational knowledge management through SHRM.

CO5 Understanding the International culture in SHRM.

International Human Resource Management (KMBHR05)

CO1 Understanding the Contexts of International HRM.

CO2 Knowledge about the HR Processes in International Context.

CO3 Able to evaluate the impacts of Globalization on HRM.

CO4 Desired level of expertise on organizational knowledge management through IHRM.

CO5 Understanding the International culture in IHRM.

Marketing of Services (KMBMK04)

CO1 Understand and explain the nature and scope of services marketing.

CO2 Use critical analysis to perceive service shortcomings in reference to ingredients to create service excellence.

CO3 Be able to identify critical issues related to service design, such as identifying and managing customer service experience, expectations, perceptions and outcomes.

CO4 Provide a theoretical and practical basis for assessing service performance using company examples.

CO5 Identify and discuss characteristics and challenges of managing service firms in the modern world.

Marketing Analytics (KMBMK05)

CO1 Students will develop the skill in marketing analytics.

CO2 Students will be acquainted with better understanding of real life marketing data and its analysis.

CO3 Students will develop analytical skill for effective market decision making in real life environment.

CO4 Ability to understand and analyze markets with numbers and analytic tools.

CO5 Ability to understand real life marketing data and its analysis and to use analytical skill for effective market decision making in real life environment.

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COURSE OUTCOMES (COs)
B.TECH. (MECHANICAL ENGINEERING)

THIRD SEMESTER

Thermodynamics (KME301)

CO1 Students will be able to apply energy balance to systems and control volumes, in situations involving heat and work interactions.

CO2 Students can evaluate changes in thermodynamic properties of substances.

CO3 The students will be able to evaluate the performance of energy conversion devices.

CO4 The students will be able to differentiate between high grade and low-grade energies.

CO5 To evaluate the changes in properties of substances in various processes.

Fluid Mechanics and Fluid Machines (KME302)

CO 1 To learn about the application of mass and momentum conservation laws for fluid flows.

CO2 To understand the importance of dimensional analysis.

CO3 To obtain the velocity and pressure variations in various types of simple flows.

CO4 To analyze the flow in water pumps and turbines. Students will be able to mathematically analyze simple flow situations.

CO5 They will be able to evaluate the performance of pumps and turbines.

Materials Engineering (KME303)

CO 1 Understanding of the correlation between the internal structure of materials, their mechanical properties and various methods to quantify their mechanical integrity and failure criteria.

CO2 To provide a detailed interpretation of equilibrium phase diagrams.

CO3 Learning about different phases and heat treatment methods to tailor the properties of Fe-C alloys. Student will be able to identify crystal structures for various materials and understand the defects in such structures.

CO4 Understand how to tailor material properties of ferrous and non-ferrous alloys.

CO5 How to quantify mechanical integrity and failure in materials.

Electronics Engineering (KOE038)

CO1 Understand the concept of PN junction and special purpose diodes.

CO2 Study the application of conventional diode and semiconductor diode.

CO3 Analyze the I-V characteristics of BJT and FET.

CO4 Analyze the applications of Op-Amp as amplifiers, integrator, and differentiator.

CO5 Understand the concept of digital storage oscilloscope and compare DSO with analog oscilloscope.

Technical Communication (KAS301)

CO1 Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers.

CO2 Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions.

CO3 Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience.

CO4 Technical communication skills will create a vast know-how of the application of the learning to promote their technical competence.

CO5 It would enable them to evaluate their efficacy as fluent and efficient communicators by learning the voice-dynamics.

Computer System Security (KNC301)

CO1 To discover software bugs that pose cyber security threats and to explain how to fix the bugs to mitigate such threats.

CO2 To discover cyber attack scenarios to web browsers and web servers and to explain how to mitigate such threats.

CO3 To discover and explain mobile software bugs posing cyber security threats. Explain and recreate exploits, and to explain mitigation techniques.

CO4 To articulate the urgent need for cyber security in critical computer systems, networks, and world wide web, and to explain various threat scenarios.

CO5 To articulate the well known cyber attack incidents, explain the attack scenarios, and explain mitigation techniques.

FOURTH SEMESTER

Applied Thermodynamics (KME401)

CO 1 To learn about of I law for reacting systems, heating value of fuels, gas and vapor cycles and their first law and second law efficiencies.

CO2 To understand about the properties of dry and wet air and the principles of psychrometry and also learn about gas dynamics of air flow and steam through nozzles.

CO3 To learn the about reciprocating compressors with and without inter cooling. To analyze the performance of steam turbines. The students will get a good understanding of various practical power cycles and heat pump cycles.

CO4 They will be able to analyze energy conversion in various thermal devices such as combustors, air coolers, nozzles, diffusers, steam turbines and reciprocating compressors.

CO5 They will be able to understand phenomena occurring in high speed compressible flows.

Engineering Mechanics (KME402)

CO1 To develop capacity to predict the effect of force in the course of carrying out the design functions of engineering.

CO2 To develop capacity to predict the effect of motion in the course of carrying out the design functions of engineering.

CO3 The students should be able to understand the various effect of force on the engineering design structures.

CO4 The students should be able to understand the various effect of motion on the engineering design structures.

CO5 The students should be able to understand the various effects of simple stress and strain, bending of beams and torsion in the design of engineering structures.

Manufacturing Process (KME403)

CO1 To motivate and challenge students to understand and develop an appreciation of the processes in correlation with material properties which change the shape and size of the raw materials into the desirable product by conventional manufacturing methods.

CO2 To motivate and challenge students to understand and develop an appreciation of the processes in correlation with material properties which change the shape and size of the raw materials into the desirable product by unconventional manufacturing methods.

CO3 To motivate and challenge students to understand and develop an appreciation of the processes in correlation with material properties which change the form of the raw materials into the desirable product by conventional or unconventional manufacturing methods.

CO4 Students will be able to understand the different conventional manufacturing methods employed for making different products.

CO5 Students will be able to understand the different unconventional manufacturing methods employed for making different products.

Mathematics-IV (KAS402)

CO1 The idea of partial differentiation and types of partial differential equations.

CO2 The idea of classification of second partial differential equations, wave, heat equation and transmission lines.

CO3 The basic ideas of statistics including measures of central tendency, correlation, regression and their properties.

CO4 The ideas of probability and random variables and various discrete and continuous probability distributions and their properties.

CO5 The statistical methods of studying data samples, hypothesis testing and statistical quality control, control charts and their properties.

Universal Human Values and Professional Ethics (KVE401)

CO1 Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content and process of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society.

CO2 Distinguish between the Self and the Body and understand the meaning of Harmony in the Self the Co-existence of Self and Body.

CO3 Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explores their role in ensuring a harmonious society.

CO4 Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature.

CO5 Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.

Python Programming (KNC402)

CO1 Able to read and write simple Python programs.

CO2 Able to develop Python programs with conditionals and loops.

CO3 Able to define Python functions and to use Python data structures –- lists, tuples, dictionaries.

CO4 Able to do input/output with files in Python.

CO5 Able to do searching, sorting and merging in Python.

FIFTH SEMESTER

Managerial Economics (RAS501)

CO1: Introduce the basic knowledge of basic concepts of economic, demand theory, elasticity's, indifference curve and various techniques of Managerial Economics.

CO2: Identify and model various type of demand forecasting that act on the production system and introduce the concept of supply analysis with reference to consumer requirement.

CO3: Introduce the basic theories of production and cost and their application applicable to the industries.

CO4: Introduce the basic concept and laws of various market conditions and competition theory.

CO5: Explain the basic concepts of national income, GDP and business cycles.

Sociology (RAS502)

CO1: An ability to understand the relationship of society with science and engineering, and to be familiar with different social conditions and context at the work place.

CO2: To be aware of the various stages in the evolution of productive systems in order to understand today's working scenario.

CO-3: Awareness of different labor acts and policies so that the engineers can confront any unexpected situations in the industry.

CO-4: Knowledge about the industrial problems, grievances and disputes, and the different methods and mechanisms to handle such issues.

CO-5: An ability to visualize the future in respect to industrialization and various sociological concerns.

SIXTH SEMESTER

Cyber Security (RUC601)

CO-1: To understand the core information system, its development process, information assurance (IA) principles, various threats to information system and need of information security.

CO-2: To understand the security issues associated with various applications and associated data, various threats and be able to identify the key components of cyber security network architecture, apply cyber security architecture principles.

CO-3: To understand the process of developing the secure information system and various security issues associated with it.

CO-4: To understand the need of different security policies, their development, review process and the security concerns in cloud, mobile, SCM, outsourcing etc.

CO-5: To have the awareness about information security standards, cyber crimes, Cyber Laws, Intellectual Property rights and various laws related to software's and semiconductors.

Industrial Management (RAS601)

CO1: Introduce the basic knowledge of production and productivity components of an industry and explain the various forms of industrial ownerships.

CO2: Identify and model various functions of industrial process and support condition that act on management systems and introduce the concept of human resource management.

CO3: Introduce the basic concept of work study and inventory management to the reducing and controlling cost of products.

CO4: Introduce the basic concepts and laws of quality control and identify the various properties of TQM.

CO5: Explain the project management and working of PERT/CPM.

EIGHTH SEMESTER

Renewable Energy Resources (ROE086)

CO1 To introduce students about the various resources of non-conventional energy and the construction and working concepts of solar cell.

CO2 To introduce students about the concept of solar thermal energy and their applications.

CO3 To introduce students about the concept of geothermal energy and the principle of operation of magneto-hydrodynamics and fuel cells.

CO4 To introduce students about the concept of thermo electrical and thermionic conversions. Also, help students in understanding the importance of wind energy and their limitations.

CO5 To introduce students about the concept of bio-mass, ocean-thermal energy and to the concepts of waves and tidal waves.