KIET GROUP OF INSTITUTIONS, DELHI-NCR, GHAZIABAD
DEPARTMENT OF B. TECH. I YEAR & APPLIED SCIENCES
COs WITH BLOOMS, B. TECH. I YEAR (2021-22)

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Engineering Physics: (KAS 101T/201T)			
S. No.	**Course Outcome/ Unit**		
After completion of the course, the student will be able to:			
1	Apply Einstein's postulates in relativistic mechanics with introduction of classical mechanics.	Apply	Conceptual, Procedural
2	Apply concepts of Maxwell's equations for the propagation of electromagnetic waves.	Apply	Conceptual, Procedural
3	Apply concepts of Modern Physics in various quantum mechanical phenomenons.	Apply	Conceptual, Procedural
4	Apply concepts of wave nature of light to study interference and diffraction.	Apply	Conceptual, Procedural
5	Apply concept of Stimulated Emission of Radiation and Total Internal Reflection to study laser and optical fiber communication respectively.	Apply	Conceptual, Procedural

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Engineering Chemistry: (KAS 102T/202T)			
S. No.	**Course Outcome/ Unit**		
After completion of the course, the student will be able to:			
1	Articulate the theoretical principles of molecular bonding, Structure and Applications of Liquid crystals, Graphite, Fullerenes and Nanomaterials.	Apply	Conceptual, Procedural
2	Apply the fundamental concepts of spectral techniques for molecular structure identification.	Apply	Conceptual, Procedural
3	Apply thermodynamic functions with electrochemical reactions in perspective of corrosion, study phase rule for heterogenous system.	Apply	Conceptual, Procedural
4	Analyze the water and fuel samples by chemical techniques.	Analyze	Conceptual, Procedural
5	Use the fundamental knowledge of polymer and organometallic compounds for industrial applications.	Apply	Conceptual, Procedural

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Engineering Mathematics-I: (KAS 103T)			
S. No.	**Course Outcome/ Unit**		
After completion of the course, the student will be able to:			
1	Determine Eigen values, Eigen vectors, diagonal matrix and apply the concept of rank to solve linear simultaneous equations.	Apply	Conceptual, Procedural
2	Apply the concept of limit, continuity & differentiability to study Rolle's theorem, Lagrange's Mean Value Theorem, Cauchy's mean value theorem, Leibnitz Theorem and curve tracing.	Apply	Conceptual, Procedural
3	Determine extrema, series expansion , error approximation of functions and Jacobians using the concept of partial differentiation.	Apply	Conceptual, Procedural
4	Calculate area, volume, centre of mass and centre of gravity using multiple integral concepts & tools.	Apply	Conceptual, Procedural
5	Apply the concept of Vector Calculus to determine directional derivative, line, surface and volume integrals.	Apply	Conceptual, Procedural

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Engineering Mathematics-II: (KAS 203T)			
S. No.	**Course Outcome/ Unit**		
After completion of the course, the student will be able to:			
1	Apply the concept of constant coefficient to solve LDE of nth order and to solve LDE with variable coefficient of 2nd order	Apply	Conceptual, Procedural
2	Apply the concept of Beta and Gamma functions for evaluating surface areas and volumes	Apply	Conceptual, Procedural
3	Apply the concept of convergence of sequence and series to expand the function in Fourier series.	Apply	Conceptual, Procedural
4	Apply the concept of Limit, Continuity and differentiability for analyticity, Harmonic function and to find image of function using conformal transformation	Apply	Conceptual, Procedural
5	Apply the concept of Cauchy Integral theorem, Cauchy Integral formula , singularity and calculus of residue to evaluate contour contour integrations	Apply	Conceptual, Procedural

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Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Basic Electrical Engineering: (KEE 101T/201T)			
S. No.	**Course Outcome/ Unit**		
After completion of the course, the student will be able to:			
1	Understand the concepts of electric circuit solutions with DC supply using various network theorems	Understand	Conceptual
2	Apply the concepts of electrical circuits with AC supply in single and three phase system	Apply	Conceptual, Procedural
3	Analyze the equivalent circuit and performance of single phase AC transformer	Analyze	Conceptual, Procedural
4	Illustrate the working principle of induction motors, synchronous machines and DC machines	Analyze	Conceptual, Procedural
5	Describe the components of electrical system installations	Understand	Factual, Procedural
Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Emerging Domain in Electronics Engineering (KEC 101T/ 201T)			
S. No.	**Course Outcome/ Unit**		
After completion of the course, the student will be able to:			
1	Remember and Understand the concept of PN Junction Diodes, BJT, FET and MOSFET, ICs and OPAMP, numbers systems Boolean Functions and logic gates, components of IoT, principles of sensors and fundamentals of Communication system.	Remember, Understand	Factual, Conceptual
2	i. Apply the concept of Number system and Boolean Functions to minimize them using K-Map. ii. Analyze and implement Boolean functions using Basic and universal gates.	Apply, Analyze	Conceptual, Procedural
3	i. Apply the concept of Diodes and Transistors to study rectifiers, clippers clampers, regulators and amplifiers. ii. Analyze the circuits based on diodes, BJTs and FETs.	Apply, Analyze	Conceptual
4	i. Apply the concept of OPAMP to study the operation of amplifiers, summers, differentiators, integrators etc. ii. Analyze the circuits based on OPAMPs.	Apply, Analyze	Conceptual
5	Compare and Design different types of circuits based on Diodes, Transistors and OPAMPs.	Evaluate	Conceptual, Procedural

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Programming for Problem Solving: (KCS 101T/ 201T)			
S. No.	**Course Outcome/ Unit**		
After completion of the course, the student will be able to:			
1	Understand algorithms and flow chart for the different types of problems	Understand	Conceptual
2	Translate the algorithms to programs & execution (in C language).	Apply	Conceptual, Procedural
3	Implement conditional branching, iteration, and recursion	Apply	Conceptual, Procedural
4	Decompose a problem into functions and synthesize a complete program using divide and conquer approach.	Analyze	Conceptual, Procedural
5	Use arrays, pointers and structures to develop algorithms and programs.	Apply	Conceptual, Procedural

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Fundamental of Mechanical Engineering and Mechatronics (KME 101T/ 201T)			
S. No.	**Course Outcome**		
After completion of the course, the student will be able to:			
1	Apply the basic concept of stress and strain, factor of safety and beams for safe design.	Apply	Conceptual
2	Understand the basic component and working of internal combustion engines; And apply concepts of heat engine, heat pump and refrigerator system for calculation of COP.	Apply	Conceptual
3	Apply the basic concept of fluid mechanics and understand the working of turbines and pumps.	Apply	Conceptual
4	Understand the working principle of different measuring instrument with the knowledge of accuracy, error, calibration, limit, fit, tolerance and control system.	Understand	Conceptual
5	Understand concept of mechatronics with their advantages, scope and Industrial application, different types of mechanical actuation system; types of hydraulic and pneumatic systems.	Understand	Factual

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Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Engineering Physics Lab: (KAS 151P/ 251P)			
S. No.	Course Outcome/ Unit		
After completion of the course, the student will be able to:			
1	Apply the concept of Interference to determine the wavelength of light in Newton's ring experiment.	Apply	Conceptual, Procedural
2	Apply the concept of diffraction to study the spectrum for determining the wavelength of mercury light.	Apply	Conceptual, Procedural
3	Apply the concept of Hall's effect to find the physical parameters such as Hall's coefficient, carrier concentration, mobility of charge carriers etc.	Apply	Conceptual, Procedural
4	Apply the concept of black body radiation to verify from Stefan's law.	Apply	Conceptual, Procedural
5	Apply the concept of optical rotation to find the specific rotation of an optically active substance.	Apply	Conceptual, Procedural

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Engineering Chemistry Lab: (KAS 152P/252P)			
S. No.	Course Outcome/ Unit		
After completion of the course, the student will be able to:			
1	Use different analytical instruments for chemical analysis.	Apply	Conceptual, Procedural
2	Analyze molecular /system properties such as surface tension, viscosity and conductance of solution, using viscometer and stalagmometer.	Analyze	Conceptual, Procedural
3	Apply titrimetric analysis for estimation of the hardness of water, chloride content and iron content.	Apply	Conceptual, Procedural
4	Synthesize polymers used in daily life utensils.	Analyze	Conceptual, Procedural
5	Estimation of sample concentration with the help of instruments.	Analyze	Conceptual, Procedural

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Basic Electrical Engineering Lab: (KEE 151P/251P)			
S. No.	Course Outcome/ Unit		
After completion of the course, the student will be able to:			
1	Conduct experiments illustrating the application of KVL/KCL and network theorems to DC electrical circuits.	Apply	Conceptual
2	Demonstrate the behavior of AC circuits connected to single phase AC supply and measure power in single phase as well as three phase electrical circuits.	Apply	Conceptual
3	Perform experiment illustrating BH curve of magnetic materials.	Analyze	Conceptual
4	Calculate efficiency of a single phase transformer and DC machine.	Apply	Conceptual
5	Perform experiments on speed measurement and reversal of direction of three phase induction motor and Identify the type of DC and AC machines based on their construction.	Analyze	Conceptual

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Course 2 - Electronics Engineering Lab (KEC 151P/ 251P)			
S. No.	Course Outcome/ Unit		
After completion of the course, the student will be able to:			
1	To remember and understand basic Lab Equipment's and Components like CRO, Multimeter, and Function Generator, Power supply- Active, Passive Components and Bread Board.	Remember, Understand	Factual
2	To understand Characteristics of PN Junction diode, Zener diode and BJT.	Understand	Factual, Conceptual
3	To understand and apply concept of Operational Amplifier for implementing Adder and Subtractor.	Understand, Apply	Factual, Conceptual
4	To understand Truth Table of Various Logic Gate.	Understand	Factual, Conceptual
5	Identification of various types of Printed Circuit Boards (PCB) and soldering Techniques and transformer winding	Apply, Analyze	Conceptual, Procedural

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Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Programming for Problem Solving Lab: (KCS 151P/ 251P)			
S. No.	**Course Outcome/ Unit**		
After completion of the course, the student will be able to:			
1	Design algorithm and flowchart for arithmetic and logical relation-based problems.	Apply	Conceptual, Procedural
2	Convert the algorithms and flow chart to programs for the execution (in C language).	Apply	Conceptual, Procedural
3	Find the patterns based on conditional branching, iteration, and recursion.	Apply	Conceptual, Procedural
4	Simplify the solution of Complex problem by using the concept of function in dividing and Conquer approach.	Analysis	Conceptual, Procedural
5	Implement the concept of storing of data and records in the memory using arrays, pointers and structures.	Apply	Conceptual, Procedural

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
English Language Lab (KAS-154P/ 254P)			
S. No.	**Course Outcome/ Unit**		
After completion of the course, the student will be able to:			
1	Understand the basic objective of the course by being acquainted with specific dimensions of communication skills i.e. Reading, Writing, Listening, Thinking and Speaking.	Understand	Conceptual, Procedural
2	Create substantial base by the formation of strong professional vocabulary for its application at different platforms and through numerous modes as Comprehension, reading, writing and speaking etc.	Create	Conceptual, Procedural
3	Apply it at their work place for writing purposes such as Presentation/official drafting/administrative communication and use it for document/project/report/research paper writing.	Apply	Conceptual, Procedural
4	Evaluate the correct and error-free writing by being well-versed in rules of English grammar and cultivate relevant technical style of communication & presentation at their work place and also for academic uses.	Evaluate	Conceptual, Procedural
5	Apply it for practical and oral presentation purposes by being honed up in presentation skills and voice-dynamics. They will apply techniques for developing interpersonal communication skills and positive attitude leading to their professional competence.	Apply, Create	Conceptual, Procedural

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Engineering Graphics and Design Lab (KCE 151P/ 251P)			
S. No.	**Course Outcome/ Unit**		
After completion of the course, the student will be able to:			
1	Understand the visual aspects of engineering design.	Understand	Conceptual, Procedural
2	Apply modern engineering tools necessary for engineering practice.	Apply	Conceptual, Procedural
3	Analyze Isometric views.	Analyze	Conceptual, Procedural
4	Understand engineering graphics standards and effective communication through graphics.	Understand	Conceptual, Procedural
5	Apply computer-aided geometric design, solid modelling and creating working drawings.	Create	Conceptual, Procedural

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Mechanical Worshop Lab: (KWS 151P/ 251P)			
S. No.	**Course Outcome/ Unit**		
After completion of the course, the student will be able to:			
1	Understand various engineering materials, tools, machines and measuring equipments.	Understand	Procedural
2	Apply the knowledge of lathe and CNC machine for performing related operations.	Apply	Procedural
3	Apply the knowledge of manufacturing in fitting and carpentry shop for performing related operations.	Apply	Procedural
4	Apply the knowledge of welding, moulding, casting and gas cutting for performing related operations.	Apply	Procedural
5	Apply the knowledge of 3D printing manufacturing technique	Apply	Procedural

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Soft Skill I - (KNC-101)			
S. No.	**Course Outcome / Unit**		
After completion of the course, the student will be able to:			
1	Apply the correct usage of grammar and the fundamental inputs of communication skills in making speech delivery, individual conference and group communication.	Apply	Factual, Conceptual
2	Evaluate the process and impact of persuasion, negotiation and interpersonal communication to obtain professional excellence at the workplace.	Evaluate	Conceptual, Procedural

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Soft Skill I - (KNC-201)			
S. No.	**Course Outcome / Unit**		
After completion of the course, the student will be able to:			
1	Apply the effective LSRW skills for enhanced Conversational and Social Skills in order to excel in the professional domain.	Apply	Factual, Conceptual, Procedural
2	Evaluate the dynamics of Motivational Skills to align the required Workplace Skills in tandem with Creativity and Critical thinking for being competent in Soft Skills.	Evaluate	Factual, Conceptual, Procedural

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Artificial Intelligence for Engineering - (KMC-101/KMC-201)			
S. No.	**Course Outcome / Unit**		
After completion of the course, the student will be able to:			
1	Understand the evolution and various approaches of AI	Understand	Factual
2	Understand data storage, processing, visualization, and its use in regression, Clustering etc.	Understand	Factual
3	Understand natural language processing and chatbots	Understand	Factual
4	Understand the concepts of neural networks	Understand	Factual
5	Understand the concepts of face, object, speech recognition and robots	Understand	Factual

Course Outcomes		Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
Emerging Technology for Engineering - (KMC-102)			
S. No.	**Course Outcome / Unit**		
After completion of the course, the student will be able to:			
1	Understand the concepts of internet of things, smart cities and industrial internet of thing	Remember, Understand	Factual, Conceptual
2	Understand the concepts of cloud computing	Remember, Understand	Factual, Conceptual
3	Understand the concepts of block chain, cryptocurrencies, smart contracts	Remember, Understand	Conceptual
4	Understand design principles, tools, trends in 3 D printing and drones	Understand, Apply	Conceptual
5	Understand augmented reality (AR), virtual reality (VR), 5G technology, brain computer interface and human brain	Apply, Analyze	Factual, Conceptual