SECOND YEAR

Basic Electronics Engineering (KOE038): C201 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C201.1	Understand the concept of PN junction and special purpose diodes.	K2
C201.2	Study the application of conventional diode and semiconductor diode.	K2
C201.3	Analyze the IV characteristics of BJT and FET.	K2
C201.4	Analyze the of OpAmp, amplifiers, integrator, and differentiator.	K3
C201.5	Understand the concept of digital storage oscilloscope and compare of DSO with analog oscilloscope	K2

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C201.1												2
C201.2	2			2								2
C201.3	2			2								2
C201.4	2			2								2
C201.5	2		2	2	2							2
C201	**2**		**2**	**2**	**2**							**2**

CO	PSO1	PSO2	PSO3	PSO4
C201.1	1			
C201.2		2	2	
C201.3		2	1	
C201.4	2		2	
C201.5	2			
C201	**2**	**2**	**2**	

Fluid Mechanics and Fluid Machines (KME302): C202 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C202.1	To learn about the application of mass and momentum conservation laws for fluid flows.	K1
C202.2	To understand the importance of dimensional analysis.	K2
C202.3	To obtain the velocity and pressure variations in various types of simple flows.	K3
C202.4	To analyze the flow of water in Pelton wheel, Francis and Kaplan turbines.	K4
C202.5	To analyze the flow of water in centrifugal and reciprocating pumps.	K4

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C202.1	3	3	2	2	2	2	2		2		1	2
C202.2	3	3	3	2	2			2				2
C202.3	3	3	3	2	2	2					2	2

C202.4	3	3	3	3	2	2	2	2			2	2
C202.5	3	3	3	2	2			3	2	2	3	2
C202	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**

CO	PSO1	PSO2	PSO3	PSO4
C202.1	2	2	2	
C202.2	2	2	2	
C202.3	2	2	2	
C202.4	2	2	2	
C202.5	2	2	2	2
C202	**2**	**2**	**2**	**2**

Materials Engineering (KME303): C203 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C203.1	Recall the importance of engineering materials, general principles and nomenclature of crystallography as applied to engineering materials' crystal structures and crystal imperfections .Classify and explain the mechanical properties of materials.	K1&K2
C203.2	Provides Classify and Explain the theories of failures. Recall the importance of non-destructive testing methods and their principles.	K2
C203.3	Provides Apply the laws of solidification to metals & composites and interpretation phase diagrams.	K3
C203.4	Provides Analyse the effect of temperature on heat treatment processes in various manufacturing processes. It also includes the comparative study of microstructures of various ferrous and non-ferrous mat metals.	K4
C203.5	Provide Classify and Explain the engineering materials and their properties.	K5&K6

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C203.1	3	2	2									**3**
C203.2	3	2	2			1						**3**
C203.3	3	3	3		2	1						**3**
C203.4	3	3	3	3	2	2						**3**
C203.5	3	3	3	3	3	2						**3**
C203	**3**	**3**	**3**	**3**	**2**	**2**						**3**

CO	PSO1	PSO2	PSO3	PSO4
C203.1	3	2	3	
C203.2	3	2	3	
C203.3	3	2	3	
C203.4	2	3	3	
C203.5	3	2	3	
C203.6	3	3	3	
C203	**3**	**3**	**3**	

Technical Communication (KAS301): C204 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C204.1	Provides an overview of the basics of communication which is essential for all the students and professionals to face the challenges of communicating effectively and efficiently.	K1, K2
C204.2	Emphasizes on the enhancement of the knowledge of vocabulary, grammar, sentence and paragraph development etc. so as to make the students deft in writing skills.	K3
C204.3	Discusses in detail about a variety of technical documents namely letters, reports, proposals etc. to enable the students to handle all writing tasks in their academic and professional life with ease and confidence.	K2, K4
C204.4	Attempts to introduce various techniques to improve confidence and effectiveness for making presentations and for working in teams.	K3
C204.5	Aims at extending awareness among students and provides them with some information and significant opinion on topics outside their main area of study through prescribed value based text readings.	K4

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C204.1						2	2	3	3	3	2	3
C204.2						1	2	3	3	3	3	3
C204.3						2	2	3	2	3	3	3
C204.4						2	1	3	3	3	3	3
C204.5						1	2	3	3	3	3	3
C204						**2**	**2**	**3**	**3**	**3**	**3**	**3**

CO	PSO1	PSO2	PSO3	PSO4
C204.1				2
C204.2				2
C204.3				2
C204.4				2
C204.5				2
C204				**2**

Computer System Security (KNC301): C205 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C205.1	To discover software bugs that pose cyber security threats and to explain how to fix the bugs to mitigate such threats	K1, K2
C205.2	To discover cyber-attack scenarios to web browsers and web servers and to explain how to mitigate such threats	K2
C205.3	To discover and explain mobile software bugs posing cyber security threats, explain and recreate exploits, and to explain mitigation techniques.	K3

C205.4	To articulate the urgent need for cyber security in critical computer systems, networks, and world wide web, and to explain various threat scenarios	K4
C205.5	To articulate the well-knowncyber-attack incidents, explain the attack scenarios, and explain mitigation techniques.	K5, K6

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C205.1			3		3		3	3				3
C205.2			3		3		3	3				3
C205.3			3		3		3	3				3
C205.4			3		3		3	3				3
C205.5			3		3		3	3				3
C205			**3**		**3**		**3**	**3**				**3**

CO	PSO1	PSO2	PSO3	PSO4
C205.1				3
C205.2				3
C205.3				3
C205.4				3
C205.5				3
C205				**3**

Thermodynamics (KME301): C206 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C206.1	Understand and analyse the basic concepts of thermodynamics, Zeroth law of thermodynamics and their application to solve engineering problems.	K2, K4
C206.2	Develop indepth knowledge on first and second law of thermodynamics and applies it to solve various thermodynamic problems.	K2,K3
C206.3	Apply the basics of entropy, availability and evaluate the irreversibility of various thermodynamic problems.	K3
C206.4	Evaluate the properties of pure substance and analyse the steam power plant.	K5
C206.5	Recalls the working of various refrigeration cycles and illustrates their performance.	K1,K2

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C206.1	3	2	2	2								2
C206.2	3	3	2	2								2
C206.3	3	3	2	2								2
C206.4	3	2	2	2								2
C206.5	3	2	2	2								2
C206	**3**	**2**	**2**	**2**								**2**

CO	PSO1	PSO2	PSO3	PSO4
C206.1		**3**		
C206.2		**3**		
C206.3		**3**		
C206.4		**3**		
C206.5		**3**		
C206		**3**		

Fluid Mechanics Lab (KME351): C208 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C208.1	To apply the moment of momentum equation and evaluate the force exerted by jet on vane.	3,5
C208.2	To recognize the metacentric height and to determine its value.	2,5
C208.3	To determine the coefficient of discharge for venturimeter&orificemeter and to analyse the obtained values.	2,4
C208.4	To determine the energy losses in pipe and analyse the obtained results.	2,4
C208.5	To apply the Darcy's Weisbach formula and further to determine the friction factor.	2,3

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C208.1	3	3	3	3	2	2			2	2		2
C208.2	3	3	3	3	2	2			2		2	2
C208.3	3	3	3	3	2	2			2			2
C208.4	3	3	3	3	2	2			2		2	2
C208.5	3	3	3	3	2	2			2	2		2
C208	**3**	**3**	**3**	**2**	**2**	**2**			**2**	**2**	**2**	**2**

CO	PSO1	PSO2	PSO3	PSO4
C208.1	2	2	2	
C208.2	2	2	2	
C208.3	2	2	2	
C208.4	2	2	2	
C208.5	2	2	2	
C208	**2**	**2**	**2**	

Material Testing Lab (KME352): C209 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C209.1	Students recall and understand the necessity of material's study and material testing procedures.	K1 & K2
C209.2	Students will be able to select and explain the test of a given specimen.	K2
C209.3	Students will be able to execute test and processes for quality identification.	K3

C209.4	Students will be able to analyze and relate the test results of a material.	K4
C209.5	Students will be able to evaluate and justify the results.	K5

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C209.1	3	2	2									3
C209.2	3	2	2									3
C209.3	3	3	3	3								3
C209.4	3	3	3	3	3							3
C209.5	3	3	3	3	3							3
C209	**3**	**3**	**3**	**3**	**3**							**3**

CO	PSO1	PSO2	PSO3	PSO4
C209.1	2	2	3	
C209.2	2	2	3	
C209.3	2	2	3	
C209.4	2	2	3	
C209.5	2	2	3	
C209	**2**	**2**	**3**	

Computer Aided Machine Drawing I Lab (KME353): C210 Year of Study: 2019-20

Code	Course Outcome	Bloom Taxonomy Level
C210.1	Students should be able to define and explain different machine components.	K1, K2
C210.2	Students should be able to draw and understand machine components an drawing.	K2
C210.3	Students should be able to differentiate different machine components in a drawing.	K4
C210.4	Students should be able to use computer (Auto CAD software) in 2D drawing.	K3
C210.5	Students should be able to draw and understand assembly drawing.	K2

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C210.1	3											
C210.2	3			2								
C210.3	3			2						2		
C210.4	3	2	2	2	3	2			2	2		2
C210.5	3	2	2			2			2	2		2
C210	**3**	**2**	**2**	**2**	**3**	**2**			**2**	**2**		**2**

CO	PSO1	PSO2	PSO3	PSO4
C210.1	3		1	
C210.2	3		2	

C210.3	3		2	
C210.4	3		2	2
C210.5	3		2	2
C210	**3**		**2**	**2**

Mini Project or Internship Assessment (KME354): C211 Year of Study: 2019-20

Code	Course Outcome	Bloom Taxonomy Level
C211.1	Learn, practice and acquire the skills necessary to deliver effective presentation with clarity and impact.	**K1**
C211.2	Recognize presentation weak spots and areas for improvement.	**K1**
C211.3	Evaluate structured presentation methodology to prepare presentation material and effective visual aids.	**K5**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C211.1					2					3		2
C211.2					2					3		2
C211.3					2					3		2
C211					**2**					**3**		**2**

CO	PSO1	PSO2	PSO3	PSO4
C211.1				2
C211.2				2
C211.3				2
C211				**2**

Mathematics IV (KAS402): C212 Year of Study: 2019-20

Code	Course Outcome	Bloom Taxonomy Level
C212.1	To understand the methods of finding the solution of linear and nonlinear partial differential equations of higher order with constant coefficient.	K2
C212.2	To develop knowledge of partial differential equation and their applications.	K6,K4
C212.3	Acquires knowledge of the basic ideas of statistics including measures of central tendency, correlation, regression and their properties.	K1,K2
C212.4	Demonstrates the understanding of probability, random variables and discrete and continuous probability distributions with their properties.	K5,K6
C212.5	Acquires knowledge about methods of studying data samples, hypothesis testing and statistics quality control charts with their properties.	K3,K6

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C212.1	3	3	2	3	3	3						3
C212.2	3	2	2	3	3	1						3
C212.3	3	3	3	3	2	1			2	2	1	3

C212.4	3	3	2	3	1	1			1	1	2	3
C212.5	3	3	3	3	2	2	1		1	2	1	2
C212	**3**	**3**	**2**	**3**	**2**	**2**	**1**		**1**	**2**	**1**	**3**

CO	PSO1	PSO2	PSO3	PSO4
C212.1	1	1	1	1
C212.2	1	1	1	1
C212.3	1	1	1	1
C212.4	1	1	1	1
C212.5	1	1	1	1
C212	**1**	**1**	**1**	**1**

Universal Human Values (KVE401): C213 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C213.1	To discuss a holistic vision towards life through Self Exploration and to appreciate the essential complementarities between Values & Skills ensuring sustained happiness and prosperity, the core aspirations of all human beings.	K1, K2
C213.2	To understand human being as a co-existence of the sentient "I" and the material "Body" and the correct appraisal of Physical Needs and the meaning of prosperity in detail.	K2, K4
C213.3	To interpret 9 feelings (values) in relationship to ensure justice and to make programmes to achieve comprehensive human goals like EducationRight Understanding, HealthEducation, JusticePreservation, ProductionWork and ExchangeStorage, leading towards an Undivided Society ("AkhandSamaj").	K2, K3, K4, K5
C213.4	To relate and visualize interconnectedness and mutual fulfilment among the four orders of nature, recyclability and self-regulation in nature.	K2, K3, K4, K5
C213.5	To acquire competence in professional ethics. Ability to identify and develop more people and eco-friendly appropriate technologies and management patterns.	K3, K5

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C213.1						1	1	3				3
C213.2						2		3				3
C213.3						3	2	3	3		2	3
C213.4						3	3	3				3
C213.5						3		3	3		3	3
C213						**1**	**1**	**3**				**3**

CO	PSO1	PSO2	PSO3	PSO4
C213.1			3	
C213.2			3	
C213.3			3	

C213.4			3	
C213.5			3	
C213			**3**	

Python Programming (KNC401): C214 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C214.1	To read and write simple Python programs.	K1, K2
C214.2	To develop Python programs with conditionals and loops.	K2, K4
C214.3	To define Python functions and to use Python data structures –lists, tuples, dictionaries.	K3
C214.4	To do input/output with files in Python.	K2
C214.5	To do searching ,sorting and merging in Python	K2, K4

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C214.1	3	3	1						3			3
C214.2	3	3	1						3			3
C214.3	3	3	1						3			3
C214.4	3	3	1						3			3
C214.5	3	3	1						3			3
C214	**3**	**3**	**1**						**3**			**3**

CO	PSO1	PSO2	PSO3	PSO4
C214.1			1	2
C214.2			1	2
C214.3			1	2
C214.4			1	2
C214.5			1	2
C214			**1**	**2**

Applied Thermodynamics (KME401): C215 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C215.1	To understand the working of different power cycle and principle of jet propulsion.	K1, K2
C215.2	Describe the various types of boiler and condensers.	K1, K2
C215.3	Differentiate between Otto, diesel, dual, Rankine and Brayton cycle.	K3
C215.4	Evaluates the performance of boilers, steam nozzles, steam turbines and gas turbines and reciprocating compressor.	K4, K5

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C215.1	3	2	2	2								2
C215.2	3	3	2	2								2

C215.3	3	3	2	2								2
C215.4	3	2	2	2								2
C215.5	3	2	2	2								2
C215	**3**	**2**	**2**	**2**								**2**

CO	PSO1	PSO2	PSO3	PSO4
C215.1		3		
C215.2		3		
C215.3		3		
C215.4		3		
C215.5		3		
C215		**3**		

Manufacturing Processes (KME403): C217 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C217.1	Define and explain the Conventional Manufacturing Processes and to learn Casting, Moulding, Hot & Cold Working Processes, Extrusion and Sheet forming.	K1, K3
C217.2	Apply the knowledge of Metal Cutting, Forces acting on Tool Face, Coolants, Chips Formation , Lathe, Milling , Drilling & Machines.	K3
C217.3	To understand various Grinding operations, surface grinder, cylindrical grinder and centre less grinder. Super finishing operations and applications.	K4
C217.4	To learn and explain Metal Joining Methods Welding, Arc Welding, TIG & MIG Welding, Resistance, seam, spot and projection welding. with its applications and challenges.	K5
C217.5	To understand different unconventional manufacturing methods for making different products. These are Abrasive Jet Machining, EDM, Electro Chemical Milling, Lase Beam Machining, Plasma Arc Machining etc.	K5

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C217.1	3				2				2			
C217.2	3								3			
C217.3	3	3	2		3				3			
C217.4	1				2						2	
C217.5	3				2						2	
C217	**3**	**3**	**2**		**2**				**3**		**2**	

CO	PSO1	PSO2	PSO3	PSO4
C217.1	3			
C217.2	2			
C217.3				
C217.4				3

C217.5				3
C217	**3**			**3**

Engineering Mechanics (KME402): C218 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C218.1	Students will able to understand and analyse the concept of different force system, law of friction, different types of structures.	K2, K4, K5
C218.2	Students will able to analyse and apply the conditions of equilibrium, torsional and bending equations.	K2, K3
C218.3	Students will understand, apply and evaluate the centroid and centre of gravity of rigid body and lamina, moment of inertia of symmetrical and unsymmetrical body	K2, K3, K5
C218.4	Students will able to design shaft and beam by the use of torsional and bending equations.	K5, K6
C218.5	Students will understand and remember the sign convection of shear force and bending moment, transmissibility principle, law of motion, free body diagram, D'Alembert's principle, and instantaneous method.	K1, K2

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C218.1	3	2	1	2	2		2					3
C218.2	3	3	2	2	2							3
C218.3	3	3	3	3	2							2
C218.4	3	2	3	2	2							3
C218.5	3	3	2	3	2							3
C218	**3**	**3**	**2**	**2**	**2**		**2**					**2**

CO	PSO1	PSO2	PSO3	PSO4
C218.1	3			
C218.2	3			
C218.3	3			
C218.4	3			
C218.5	3			
C218	3			

Applied Thermodynamics Lab (KME451): C219 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C219.1	Students are able to understand basic Boiler mountings and accessories.	K1,K2
C219.2	Get knowledge of working of fire tube boilers and their applications.	K1
C219.3	Get knowledge of working of water tube boilers and their applications.	K1
C219.4	Get knowledge of working of steam engine.	K1
C219.5	Get knowledge of working of Internal combustion engines and use in automobiles.	K1
C219.6	Get knowledge of working of steam turbine.	K1

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C219.1	3		2									
C219.2	3		2									
C219.3	3		2									
C219.4	3		2									
C219.5	3		2									
C219	**3**		**2**									

CO	PSO1	PSO2	PSO3	PSO4
C219.1		3		
C219.2		3		
C219.3		3		
C219.4		3		
C219.5		3		
C219.6		3		
C219		**3**		

Manufacturing Processes Lab (KME452): C220 **Year of Study: 2019-20**

Code	Course Outcome	Bloom Taxonomy Level
C220.1	Students will perform experiments on Lathe Machine and its wide other Applications.	K1 & K2
C220.2	Students will work on Shaper and Slotter machines and will learn its working principle.	K4
C220.3	Students will work on Drilling Machine and learn the Drilling Jig. Students shall make the job on Surface Grinding machines.	K5
C220.4	Students to work on Milling Machine. Will see different milling Cutters and Will do indexing on Indexing Plate.	K4
C220.5	Students shall do experiments on Pattern Making, Casting and Welding.	K4

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C220.1	3	2	2									3
C220.2	3	2	2									3
C220.3	3	3	3	3								3
C220.4	3	3	3	3	3							3
C220.5	3	3	3	3	3							3
C220	**3**	**3**	**3**	**3**	**3**							**3**

CO	PSO1	PSO2	PSO3	PSO4
C220.1	2	3	3	
C220.2	2	3	3	
C220.3	2	2	3	
C220.4	2	3	3	
C220.5	2	3	3	

C220	**2**	**3**	**3**	

Computer Aided Machine DrawingII Lab (KME453): C221 Year of Study: 2019-20

Code	Course Outcome	Bloom Taxonomy Level
C221.1	Students should be able to remember and understand conventional representation used in machine drawing.	K1, K2
C221.2	Students should be able to define basic definitions used in Limits, Fits and Tolerances.	K1
C221.3	Students should be able to differentiate different machine components in machine drawing.	K4
C221.4	Students should be able to use softwares in part modelling of machine components.	K3
C221.5	Students should be able to draw and understand part and assembly drawing.	K2

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C221.1	3											
C221.2	3			2								
C221.3	3			2						2		
C221.4	3	2	2	2	3	2			2	2		2
C221.5	3	2	2			2			2	2		2
C221	**3**	**2**	**2**	**2**	**3**	**2**			**2**	**2**		**2**

CO	PSO1	PSO2	PSO3	PSO4
C221.1	3		1	
C221.2	3		2	
C221.3	3		2	
C221.4	3		2	2
C221.5	3		2	2
C221	**3**		**2**	**2**