	Meerut Institute of Engineering and Technology, Meerut															
			Statements of Course Outcomes (COs) and Mapping with Proc BKL # K1 – Remember, K2 – Understand, K3 – Apply	gram Ou K4 – An	itcomes alvze, K	s (POs) (5 – Eva	: B Tec	<u>h - I Yea</u> (6 – Cre	r : 2023 ate	<u>3-24</u>						
			Statement of Course Outcomes (COs)	Кх	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
S. No.	Sub Code	СОх	Statement of Course Outcomes (COs) Upon completion of topic concerned, students will be able to :	Blooms Knowledge Level	Engineering knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The Engineer and Society	Environment & sustainability	Ethics	Individual and team work	Communications	Project management and finance	Life Long Learning
		CO-1	Understand the concepts of quantum mechanics.	K2	3	2										3
		CO-2	Derive the expression for EM-wave using Maxwells equations.	К3	3	3	2									3
	1/ 201 hysics	CO-3	Describe the different phenomena of light and its applications.	K2	3	3										3
1	BAS10 Engg P	CO-4	Understand the concepts and applications of fiber optics and LASER.	K2	3	3	3									3
		CO-5	Understand the properties and applications of superconducting materials and nano materials.	K2	3	2	3									3
			BAS101/ 201		3.00	2.60	2.67									3.00
		CO-1	Make use of optical methods to determine the properties of light.	K2	3	2						2	3			2
	q	CO-2	Assess the properties of semi conductor using electrical methods.	K3	2		2					2	3			2
2	51/ 251 ysics La	CO-3	Determine specific resistance of material using Carey Foster's bridge method.	K3	3							2	3			2
L	BAS1! Engg Ph	CO-4	Examine the Stefan's law using electrical method.	K2	2	2						2				
	Н	CO-5	Intrepret variation of magnetic field for a current carrying circular coil and ferro magnetic materials.	K3	3		2					2				
			BAS151/ 251		2.60	2.00	2.00					2.00	3.00			2.00

		CO-1	Understand atomic and molecular structure, chemistry of advanced Materials and green chemistry.	K2	3								2
		CO-2	Apply spectroscopic techniques and stereochemistry to identify the compounds, elements etc.	K3	3	2							
	2/ 202 Iemistry	CO-3	Apply concepts of electrochemistry, batteries, corrosion and chemistry of engineering Materials like cement.	K3	3	2							2
3	BAS10 Engg Ch	CO-4	Apply concepts of impurities & hardness of water and boiler troubles used in industry & to analyse coal for its calorific values.	К3	3	2	2		2	2			2
		CO-5	Understand polymers, polymerization, polymer blends, polymer composites and organometallic compounds.	K2	3				2	2			2
			BAS102/ 202		3.00	2.00	2.00		2.00	2.00			2.00
		CO-1	Perform experiments with different analytical instruments for chemical properties.	K3	2				2	2	2		2
		CO-2	Compare molecular / system properties such as surface tension, viscosity with water.	K3	2								
	2/ 252 mistry Lab	CO-3	Measure alkalinity, hardness and chloride content of water.	K2	3	2	2		2	2	2		2
4	BAS15 Engg Chei	CO-4	Determine the iron content and available chlorine in given sample.	K3	2					2			
		CO-5	Know the fundamental concepts of the preparation of phenol formaldehyde & urea formaldehyde resin	K2	2	2			2	2			2
			BAS152/ 252		2.20	2.00	2.00		2.00	2.00	2.00		2.00
		CO-1	Apply the concept of matrices for solving linear simultaneous equations	K3	3	3	3						3
		CO-2	Apply the concept of differentiation in successive derivatives,Lebnitz theorem,partial and total derivative.	K3	3	3	3						3

	103 1aths-I	CO-3	Apply partial differentiation for evaluating extreme values, expansion of function and Jacobian, approximation of errors.	K3	3	3	3					3
5	BAS Engg N	CO-4	Apply the methods of multiple integral and concept of beta and gamma functions for finding area, volume and mass	K3	3	3	3					3
		CO-5	Apply the concept of vector for evaluating directional derivatives, line, surface and volume integrals	K3	3	3	3					3
			BAS103		3.00	3.00	3.00					3.00
		CO-1	Translate the algorithms to programs & perform its execution in C language.	К3	3							3
	ing	CO-2	Implement conditional branching, instructions along with operators.	К3	3	3	3					3
4	11/ 201 blem Solv	CO-3	Use looping control instructions, arrays and structures to develop programs.	К3	3	3	3					3
0	BCS10 g for Prot	CO-4	Decompose a problem into functions and synthesize a complete program.	К3	3	3	3					3
	Pro	CO-5	Utilize pointer, file handling, dynamic memory allocation to solve problems.	К3	3	3	3					3
			BCS101/ 201		3.00	3.00	3.00					3.00
		CO-1	Solve simple problems based on arithmetic expressions using operators.	КЗ	2	2	2					
	g Lab	CO-2	Implement conditional branching instructions to develop programs.	К3	3	3	3					
_	1/ 251 n Solvin	CO-3	Use looping control instructions and functions to solve complex problems.	К3	3	3	3					3
/	BCS15	CO-4	Design solutions by using arrays and structures to develop programs.	К3	3	3	3					3
	Prog fo	CO-5	Utilize pointer, file handling, dynamic memory allocation to solve problems.	К3	3	3	3					3
			BCS151/ 251		2.80	2.80	2.80					3.00

		CO-1	Apply Kirchhoff's laws in solving DC Circuits.	K3	3	3	3					2
		CO-2	Understand the steady state behaviour of single phase and three phase AC circuits.	K2	3	3	3					2
	1 /201 rical Engg	CO-3	Identify the application areas of a single phase two winding transformer and calculate their efficiency.	K2	3	2	3					2
8	BEE10 Isic Elect	CO-4	Elaborate the working principle of AC and DC machines with their applications.	K2	3	2						2
	Ba	CO-5	Explain the working of low voltage electrical installation equipment.	K2	3	2						3
			BEE101/ 201		3.00	2.40	3.00					2.20
		CO-1	PERFORM EXPERIMENT ILLUSTRATING B-H CURVE OF MAGNETIC MATERIALS.	K2	2	2	2	2				
	g Lab	CO-2	APPLY KVL/KCL AND NETWORK THEOREMS IN DC CIRCUITS.	К3	2	2	2	2	2			2
	I/ 251 Igineerin	CO-3	DEMONSTRATE THE BEHAVIOUR OF SINGLE PHASE AND THREE PHASE AC CIRCUITS.	K3	3	2	2	2	2			2
9	BEE151 Electrical E	CO-4	CALCULATE EFFICIENCY OF TRANSFORMER AND ELECTRICAL MACHINES.	К3	3	2	2	2	2			2
	Basic I	CO-5	DETERMINE ENERGY CONSUMPTION (kWH) USING SINGLE PHASE INDUCTION TYPE ENERGY METER.	K3	3	2	2	2				2
			BEE151/ 251		2.60	2.00	2.00	2.00	2.00			2.00
				<u>.</u>								
		CO-1	Apply the concept of P-N junction and devices in Electronic circuits.	К3	3		2				2	2
	; Engg	CO-2	Explain the concept of BJT, FET and MOFET.	K2	2							2
10	1/ 201 Electronics	CO-3	Apply the concept of Operational amplifier to design linear and non-linear applications.	К3	3		2					2
10	BEC10 entals of	CO-4	Perform number systems conversions, binary arithmetic and minimize logic functions.	К3	3							2

	Fundan	CO-5	Describe the fundamentals of communication technologies.	K2	2							2	
			BEC101/ 201		2.60		2.00					2.00	2.00
		CO-1	Demonstrate the active & Passive components, PCBs & lab instruments.	К2	3						2	2	2
	ab	CO-2	Test the conditions of truth tables for logic gates.	K2	3	3					2	2	2
11	1/ 251 lics Engg L	CO-3	Examine the functioning of diode application circuits.	K2	3	3	3				2	2	2
	BEC15 ic Electron	CO-4	Demonstrate the functioning of OP-AMP based circuits.	K2	3	3	3				2	2	2
	Bas	CO-5	Conclude the characteristics of different semiconductor devices with their applications.	K2	3	3	3				2	2	2
			BEC151/ 251		3.00	3.00	3.00				2.00	2.00	2.00
		CO-1	Apply the concept of force resolution and stress and strain to solve basic problems.	K3	3	2			2				2
	jgg.	CO-1 CO-2	Apply the concept of force resolution and stress and strain to solve basic problems. Understand the construction and working of internal combustion engines, electric vehicle and hybrid vehicles.	K3 K2	3 3	2			2				2
12	11 / 201 Ianical Engg.	CO-1 CO-2 CO-3	Apply the concept of force resolution and stress and strain to solve basic problems. Understand the construction and working of internal combustion engines, electric vehicle and hybrid vehicles. Explain the construction and working of refrigerator, heat pump and air conditioner.	K3 K2 K2	3 3 3	2 2 2 2			2 2 2 2				2 2 2 2
12	BME 101 / 201 . of Mechanical Engg.	CO-1 CO-2 CO-3 CO-4	Apply the concept of force resolution and stress and strain to solve basic problems. Understand the construction and working of internal combustion engines, electric vehicle and hybrid vehicles. Explain the construction and working of refrigerator, heat pump and air conditioner. Understand fluid properties, conservation laws and hydraulic machinery used in real life.	K3 K2 K2 K2	3 3 3 3	2 2 2 2 2			2 2 2 2 2				2 2 2 2 2
12	BME 101 / 201 Fun. of Mechanical Engg.	CO-1 CO-2 CO-3 CO-4 CO-5	Apply the concept of force resolution and stress and strain to solve basic problems. Understand the construction and working of internal combustion engines, electric vehicle and hybrid vehicles. Explain the construction and working of refrigerator, heat pump and air conditioner. Understand fluid properties, conservation laws and hydraulic machinery used in real life. Understand the working principle of different measuring instrument and mechatronics with their advantages, scope and Industrial application.	K3 K2 K2 K2 K2	3 3 3 3 3 3	2 2 2 2 2 2 2		2	2 2 2 2 2 2				2 2 2 2 2 2
12	BME 101 / 201 Fun. of Mechanical Engg.	CO-1 CO-2 CO-3 CO-4 CO-5	Apply the concept of force resolution and stress and strain to solve basic problems. Understand the construction and working of internal combustion engines, electric vehicle and hybrid vehicles. Explain the construction and working of refrigerator, heat pump and air conditioner. Understand fluid properties, conservation laws and hydraulic machinery used in real life. Understand the working principle of different measuring instrument and mechatronics with their advantages, scope and Industrial application.	K3 K2 K2 K2 K2	3 3 3 3 3 3.00	2 2 2 2 2 2 2 2.00		2	2 2 2 2 2 2 2 2 2.00				2 2 2 2 2 2 2 2.00
12	BME 101 / 201 Fun. of Mechanical Engg.	CO-1 CO-2 CO-3 CO-4 CO-5 CO-1	Apply the concept of force resolution and stress and strain to solve basic problems. Understand the construction and working of internal combustion engines, electric vehicle and hybrid vehicles. Explain the construction and working of refrigerator, heat pump and air conditioner. Understand fluid properties, conservation laws and hydraulic machinery used in real life. Understand the working principle of different measuring instrument and mechatronics with their advantages, scope and Industrial application. BME101/201 Use various engineering materials, tools, machines and measuring equipments.	K3 K2 K2 K2 K2 K3	3 3 3 3 3 3 3.00 2	2 2 2 2 2 2 2 2.00		2	2 2 2 2 2 2 2 2 2 2 00 2	2	2		2 2 2 2 2 2 2 2.00 2

12	51/ 251) Practice	CO-3	Perform manufacturing operations on components in fitting and carpentry shop.	К3	2				2		2	2			2
15	BWS1! Workshop	CO-4	Perform operations in welding, moulding and casting	K3	3				2	2	2	2			2
	MEV	CO-5	Fabricate a job by 3D printing manufacturing technique.	K3	2			2	2		2	3			2
			BWS151/ 251		2.40			2.00	2.00	2.00	2.00	2.40			2.00
		CO-1	Use scales and draw projections of objects.	K2	3								2		
	n Lab	CO-2	Explain views of solids and their sectional surfaces.	K2	3	2							2		
1/	51/ 251 s & Desig	CO-3	Analyze and draw isometric projections of objects.	K3	3								2		
14	BCE15 Graphics	CO-4	Demonstrate orthographic representation of perspective views using modern tools.	K2	3		2	3				2	2		
	Engg	CO-5	Apply AutoCAD software for creation of engineering drawing and models.	K3	3		2	3				2	2		2
														1 /	
			BCE151/ 251		3.00	2.00	2.00	3.00				2.00	2.00		2.00
			BCE151/ 251		3.00	2.00	2.00	3.00				2.00	2.00		2.00
		CO-1	Apply the mathematical concepts for solving differential equations	K3	3.00 3	<mark>2.00</mark> 3	2.00	3.00				2.00	2.00		2.00
		CO-1 CO-2	BCE151/251 Apply the mathematical concepts for solving differential equations Apply the concept of Laplace Transform to solve differential equations	K3 K3	3.00	2.00 3 3	2.00 3 3	3.00				2.00	2.00		2.00 3 3
15	AS203 aths-II	CO-1 CO-2 CO-3	BCE151/251 Apply the mathematical concepts for solving differential equations Apply the concept of Laplace Transform to solve differential equations Apply the concept of convergence in sequence, series and expansion of the function by Fourier series.	K3 K3 K3	3.00 3 3 3	2.00 3 3 3	2.00 3 3 3	3.00				2.00	2.00		2.00 3 3 3
15	BAS203 Maths-II	CO-1 CO-2 CO-3 CO-4	BCE151/251 Apply the mathematical concepts for solving differential equations Apply the concept of Laplace Transform to solve differential equations Apply the concept of convergence in sequence, series and expansion of the function by Fourier series. Apply the working methods of complex functions to find analytic functions	K3 K3 K3 K3	3.00 3 3 3 3 3	2.00 3 3 3 3	2.00 3 3 3 3	3.00				2.00	2.00		2.00 3 3 3 3
15	BAS203 Maths-II	CO-1 CO-2 CO-3 CO-4 CO-5	BCE151/251 Apply the mathematical concepts for solving differential equations Apply the concept of Laplace Transform to solve differential equations Apply the concept of convergence in sequence, series and expansion of the function by Fourier series. Apply the working methods of complex functions to find analytic functions Apply the concept of Taylor's series and Laurent's series for complex function and evaluation of integrals	K3 K3 K3 K3 K3	3.00 3 3 3 3 3 3 3	2.00 3 3 3 3 3 3	2.00 3 3 3 3 3 3	3.00				2.00	2.00		2.00 3 3 3 3 3 3

		CO-1	Understand the concept of sentence formation and usefulness of enriched vocabulary.	К2			2	2				3		3
		CO-2	Apply the skills of active listening and speaking on professional grounds.	К3				2		2		3		3
16	i/ BAS205 Skills	CO-3	Read as well as write clear and well structured official and business documents.	K3		2		2			2	3		3
	BAS105 Soft	CO-4	Acquire the skills necessary to deliver impactful presentations.	K3									2	3
		CO-5	Equip themselves with work-place skills necessary to be a successful professional.	K3							2		3	3
			BAS105			2.00	2.00	2.00		2.00	2.00	3.00	2.50	3.00
		CO-1	Make use of converstional skills for effective group talks and interviews.	K3							2	2		2
		CO-2	Develop communication and presentation skills for technical papers/project reports/proposals in seminars/conferences/workshops/theme presentations.	K2								2		2
17	S155/ 255 Language Lab	CO-3	Build conversational skills for public/individual speaking /conferencing/role play/JAM /arguementation.	K2								2		2
	BA English	CO-4	Make use of comprehension skills based on reading and listening practical's on model audio.	К3								2		2
		CO-5	Execution social skills for a given work station.	K3								2		2
			BAS155/ 255								2.00	2.00		2.00
		CO-1	Understand basic concepts related to ecosystem, EIA and the need of sustainable development.	К2				2	3	3				

	y	CO-2	Understand about natural resources and impacts of human actions on natural resources.	К2			2	3	2			
10	BAS204 and Ecolog	CO-3	Develop critical thinking for environmental pollution and environmental protection.	K4			2	3	2			
18	BAS104/ nvironment	CO-4	Understand various current environmental issues and concerns of National and global importance.	K2			2	3	2	2		
	Er	CO-5	Develop sensitive attitude to adopt sustainability as a practice in life, society and industry.	K3			2	3	3	2		2
			BAS104/ 204				2.00	3.00	2.40	2.00		2.00