

**1.2.1(B) Minutes of relevant Academic Council/BOS meetings
highlighting the name of the New Courses introduced**

Department of Mechanical Engineering

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Department of Mechanical Engineering

Minimum Credits to be Earned: 160 (for Regular Students)

127 (for Lateral Entry Students)

First Semester							
No.	Course Code	Course	POs	Contact Hours			
				L	T	P	C
1	21HSX01	Communicative English	1,9,10,11,12	2	-	-	2
2	21MAX01	Engineering Mathematics I	1,2,3,4,12	3	-	-	3
3	21PYX01/ 21CYX01	Engineering Physics / Engineering Chemistry	1,2,7,10,12 / 1,2,6,7,12	3/3	-	-	3/3
4	21BEX01/ 21BEX06	Basics of Engineering /IT Workshop	1,2,3,6,7,9,12/ 1,5,6,9,12	3/-	-	-/3	3/1.5
5	21BEX02	Problem Solving and Programming Skills	1,2,3,5,10,12	3	-	-	3
6	21BEX03	Problem Solving and Programming Skills Lab	1,2,3,4,5,10,12	-	-	3	1.5
7	21BEX04/ 21BEX05	Engineering Drawing / Engineering Workshop	1,2,3,4,5,10,12/ 1,2,3,9,10,12	-	-	3/3	1.5/1.5
8	21PYX02/ 21CYX02	Engineering Physics Lab / Engineering Chemistry Lab	1,2,3,4,9,11/ 1,6,7,9,12	-	-	3/3	1.5/1.5
9	21HSX02	Communicative English Lab	1,9,10,11,12	-	-	3/-	1.5/-
Total				14/11	-	12/12	20/17
Second Semester							
1		Language Elective	1,9,10,11,12	2	-	-	2
2	21MAX02	Engineering Mathematics II	1,2,3,4,12	3	-	-	3
3	21CYX01/ 21PYX01	Engineering Chemistry / Engineering Physics	1,2,6,7,12/ 1,2,7,10,12	3/3	-	-	3/3
4	21BEX01/ 21BEX06	Basics of Engineering / IT Workshop	1,2,3,6,7,9,11,12/ 1,5,6,9,12	-/3	-	3/-	1.5/3
5	21BEX07	Python Programming	1,2,3,5,12	3	-	-	3
6	21BEX08	Python Programming Lab	1,2,3,4,5,12	-	-	3	1.5
7	21BEX05/ 21BEX04	Engineering Workshop / Engineering Drawing	1,2,3,9,10,12/ 1,2,3,4,5,10,12	-	-	3/3	1.5/1.5
8	21CYX02/ 21PYX02	Engineering Chemistry Lab / Engineering Physics Lab	1,6,7,9,12/ 1,2,3,4,9,11	-	-	3/3	1.5/1.5
9	21HSX02	Communicative English Lab	1,9,10,11,12	-	-	-/3	-/1.5
Total				11/14	-	12/12	17/20
Third Semester							
1	21ME301	Engineering Materials and Manufacturing Technology	1,2,9,10,12,PSO ₂	3	-	2	4
2	21ME302	Computer Aided Machine Drawing	1,2,3,5,10,12,PSO ₁	3	-	2	4
3	21ME303	Engineering Mechanics	1,2,3,10,12,PSO ₁	3	-	-	3
4	21ME304	Fluid Mechanics and Hydraulic Machines	1,2,3,7,10,12,PSO ₂	3	-	-	3
5	21ME305	Kinematics of Machinery	1,2,3, 10,12,PSO ₁	3	-	-	3
6	21ME306	Thermodynamics	1,2,3,10,12,PSO ₁	3	-	-	3
7	21ME307	Fluid Mechanics and Hydraulic Machines Lab	1,2,7,9,10,12, PSO ₂	-	-	3	1.5
8	21MA305	Computational Mathematics Lab	1,2,3,4,5,10,12	-	-	3	1.5
9	21ESX01	Employability Skills I	1,2,5,8,10,12	-	-	2	-
10	21HSX11	CC & EC Activities I	6,7,9,10,12	-	-	1	-
Total				18	-	13	23
Fourth Semester							
1	21IT306	Object Oriented Programming through Java	1,2,3,4,5,10,12	3	-	2	4
2	21ME401	Applied Thermodynamics	1,2,3,7,10,12,PSO ₂	3	-	-	3
3	21ME402	Dynamics of Machinery	1,2,3,10,12,PSO ₁	3	-	-	3
4	21ME403	Metal Cutting and Machine Tools	1,2,10,12,PSO ₂	3	-	-	3
5	21ME404	Mechanics of Solids	1,2,3,6,10,12,PSO ₁	3	-	-	3
6	21ME405	Thermal Engineering Lab	1,2,3,4,8,9,10,PSO ₂	-	-	3	1.5
7	21ME406	Mechanics of Solids Lab	1,2,3,4,10,12	-	-	3	1.5
8	21ESX01	Employability Skills I	1,2,5,8,10,12	-	-	2	2
9	21HSX11	CC & EC Activities I	6,7,9,10,12	-	-	1	1
Total				15	-	11	22

Fifth Semester							
1	21ME501	Computer Aided Design and Manufacturing	1,2,5,9,10,12, PSO1 PSO2	3	-	2	4
2	21ME502	Design of Machine Members I	1,2,3,12, PSO1	3	-	-	3
3	21ME503	Steam and Gas Turbines	1,2,3,6,7,10,12, PSO2	3	-	-	3
4	21ME504	Mechanical Measurements and Metrology	1,2,3,6,10,12	3	-	2	4
5		Elective I (Professional Elective)		3	-	-	3
6		Elective II (Open Elective I)		3	-	-	3
7	21ME507	Metal Cutting and Machine Tools Lab	1,2,3,9,10, 12,PSO2	-	-	3	1.5
8	21TPX01	Term Paper	1,2,3,4,10,12	-	-	3	1.5
9	21ESX02	Employability Skills II	1,2,5,8,10,12	-	-	2	-
10	21HSX12	CC & EC Activities II	6,7,9,10,12	-	-	1	-
11	21SIX01	Summer Internship #I	1,2,8,9,10,12	-	-	-	1
Total				18	-	13	24
Sixth Semester							
1	21ME601	Design of Machine Members II	1,2,3,12,PSO ₁	3	-	-	3
2	21ME602	Finite Element Methods	1,2,3,PSO ₁ ,PSO ₂	3	-	-	3
3	21ME603	Heat Transfer	1,2,3,7,10,12, PSO ₂	3	-	-	3
4		Elective III (Professional Elective)		3	-	2	4
5		Elective IV (Open Elective II)		3	-	-	3
6	21ME606	Heat Transfer Lab	1,2,3,4,7,10,12	-	-	3	1.5
7	21MPX01	Mini Project	All POs	-	-	3	1.5
8	21ESX02	Employability Skills II	1,6,8,10,12	-	-	2	2
9	21HSX12	CC & EC Activities II	6,7,9,10,12	-	-	1	1
10	21ATX01	Environmental Studies	1,6,7,8,12	-	-	-	-
11	21ATX02	Professional Ethics and Human Values		-	-	-	-
12	21ATX--	Audit Course		-	-	-	-
Total				15	-	11	22
Seventh Semester							
1	21PWX01	Project Work	All POs	-	-	16	8
2		Elective V (Professional Elective)		3	-	-	3
3		Elective VI (Professional Elective)		3	-	-	3
4		Elective VII (Open Elective III)		3	-	-	3
5	21SIX02	Summer Internship #II	1,2,5,6,10,12	-	-	-	1
Total				9	-	16	18
Eighth Semester							
1	21FIX01	Full Semester Internship (FSI)	1,2,5,8,9,10, PSO ₁ ,PSO ₂	-	-	-	8
2		Elective VIII (Professional Elective)		-	-	-	3
3		Elective IX (Open Elective IV)		-	-	-	3
Total				-	-	-	14
Total Credits				100	-	88	160

List of Electives

List of Electives							
Language Electives							
No.	Course Code	Course	POs	Contact Hours			
				L	T	P	C
1	21HSX03	Advanced Communicative English	1,9,10,11,12	2	-	-	2
2	21HSX04	Communicative German		2	-	-	2
3	21HSX05	Communicative French		2	-	-	2
4	21HSX06	Communicative Japanese		2	-	-	2
5	21HSX07	Communicative Spanish		2	-	-	2
6	21HSX08	Communicative Korean		2	-	-	2
7	21HSX09	Communicative Hindi		2	-	-	2
Elective I : Career Path I, II, III and Other Core Electives							
1	21MEC11	Automotive Informatics(Automotive Electronics Career Path)	1,5,6,12,PSO2	3	-	-	3
2	21MEC21	Fundamentals of Digital Manufacturing Science(Digital Manufacturing Career Path)	1,5,10,12, PSO ₂	3	-	-	3
3	21MEC31	Data Analytics & Operations Management(Smart Management Analytics Career Path)	1,2,10,11,12	3	-	-	3
4	21ME005	Alternate Fuels and Emission Control in Automotives	1,6,7,10,12	3	-	-	3
5	21ME006	Industrial Robotics and Applications	1,2,3, 12,PSO ₁	3	-	-	3
6	21ME007	Nontraditional Machining and Forming Processes	1,2,10,12,PSO ₂	3	-	-	3
7		MOOCs		3	-	-	3
Elective III : Career Path I, II, III and Other Core Electives							
1	21MEC12	Sensors & Actuators for Automotive Electronics(Automotive Electronics Career Path)	1,2,10,12,PSO2	3	-	2	4
2	21MEC22	Artificial Intelligence & Robotics(Digital Manufacturing Career Path)	2,5,10,12,PSO1	3	-	2	4
3	21MEC32	Smart Supply Chain Analytics(Smart Management Analytics Career Path)	1,2,3,5,12	3	-	2	4
4	21ME008	Additive Manufacturing	1,2,3,10,12,PSO2	4	-	-	4
5	21ME009	Mechatronics	1,2,3,4,9,10,12, PSO1	4	-	-	4
6	21ME010	Computational Fluid Dynamics	1,2,3,4,7,10,12	4	-	-	4
7		MOOCs		3	-	-	3
Elective V : Career Path I, II, III and Other Core Electives							
1	21MEC13	Automotive Instrumentation and Diagnostics (Automotive Electronics Career Path)	1,2,7,12,PSO1	3	-	-	3
2	21MEC23	3D Printing (Digital Manufacturing Career Path)	1,5,10,12,PSO ₂	3	-	-	3
3	21MEC33	Quality Assurance & Reliability Engineering for Sustainability (Smart Management Analytics Career Path)	1,3,5,10,12	3	-	-	3
4	21ME011	Automobile Engineering	1,2,6,7,12, PSO1,PSO2	3	-	-	3
5	21ME012	Design for Manufacturing	1,2,6,7,10,12, PSO2	3	-	-	3
6	21ME013	Operations Research	1,2,3,5,12	3	-	-	3
7		MOOCs		3	-	-	3

Elective VI							
1	21ME014	Refrigeration and Air Conditioning	1,2,3,7,12,PSO2	3	-	-	3
2	21ME015	Industrial IOT for Manufacturing	1,2,12,PSO1,PSO2	3	-	-	3
3	21ME016	Quality Engineering	1,2,5,8,10,12	3	-	-	3
Elective VIII							
1	21ME017	Power Plant Engineering	1,2,3,7,12,PSO2	-	-	-	3
2	21ME018	Supply Chain Management	1,2,12,PSO1,PSO2	-	-	-	3
3	21ME019	Industrial Tribology	1,2,5,8,10,12	-	-	-	3
4	21ME020	Piping & Pressure Vessel Engineering	1,2,3,5,12,PSO2	3	-	-	3
Open Electives							
1	21CE001	Disaster Management	1,2,3,6,12	3	-	-	3
2	21EE001	Electrical Installation, Safety and Auditing	1,2,3,6,12	3	-	-	3
3	21ME001	Fundamentals of Optimization Techniques	1,2,3,10,12	3	-	-	3
4	21EC001	Sensors for Engineering Applications	1,2,3,5,6,10	3	-	-	3
5	21CS001	Fundamentals of Artificial Intelligence	1,2,3,5,6,12	3	-	-	3
6	21CH001	Energy Conversion and Storage Devices	1,2,3,6,12	3	-	-	3
7	21IT001	Fundamentals of Multimedia	1,2,3,6,12	3	-	-	3
8	21BS001	Nano Materials and Technology	1,2,3,6,12	3	-	-	3
9	21DS001	Fundamentals of Data Science	1,2,3,6,12	3	-	-	3
10	21CE002	Air Pollution and Environmental Impact Assessment	1,2,3,6,7,8,10	3	-	-	3
11	21EE002	Renewable Energy Sources	1,2,3,6,7,8,10	3	-	-	3
12	21ME002	Principles of Entrepreneurship	1,2,5,6,8,10,11,12	3	-	-	3
13	21EC002	Electronics for Agriculture	1,2,3,6,10	3	-	-	3
14	21CS002	Fundamentals of Machine Learning	1,2,3,6,10	3	-	-	3
15	21CH002	Industrial Safety and Hazard Management	1,2,3,6,7,8,12	3	-	-	3
16	21IT002	Fundamentals of Cloud Computing	1,2,3,6,12	3	-	-	3
17	21BS002	Advanced Numerical Techniques	1,2,3,6,12	3	-	-	3
18	21BS003	Functional Materials and Applications	1,2,3,6,10	3	-	-	3
19	21CE003	Solid Waste Management	1,2,3,6,10	3	-	-	3
20	21EE003	Fundamentals of Electrical Vehicle Technology	1,2,3,6,7,10	3	-	-	3
21	21ME003	Industrial Engineering and Management	1,2,5,8,11,12	3	-	-	3
22	21EC003	Interfacing and Programming with Arduino	1,2,3,6,10	3	-	-	3
23	21CS003	Data Science for Engineering Applications	1,2,3,6,10	3	-	-	3
24	21CH003	Industrial Ecology for Sustainable Development	1,2,3,6,7,8,10	3	-	-	3
25	21IT003	Fundamentals of Mobile Computing	1,2,3,6,10	3	-	-	3
26	21BS004	Advanced Materials of Renewable Energy	1,2,3,6,10	3	-	-	3
27	21BS005	Applied Linear Algebra for Engineers	1,2,3,6,10	3	-	-	3
28	21CE019	Green Buildings	1,2,3,6,10	3	-	-	3
29	21EE017	Sustainable Energy	1,2,3,6,7,8,10	3	-	-	3
30	21ME004	Total Quality Management	1,2,8,10,11,12	3	-	-	3
31	21EC011	Communication Technologies	1,2,3,6,10	3	-	-	3
32	21CS020	Applications of Artificial Intelligence	1,2,3,6,10	3	-	-	3
33	21CH016	Green Technologies	1,2,3,6,10	3	-	-	3
34	21IT015	Human Computer Interaction	1,2,3,6,10	3	-	-	3
35	21BS006	Handling of Industrial waste and waste water	1,2,3,6,10	3	-	-	3
36	21OE001	Robotics and Automation	1,2,3,6,10	3	-	-	3
37	21OE002	Introduction to IoT	1,2,3,6,10	3	-	-	3
38	21OE003	Fundamentals of Image processing	1,2,3,6,10	3	-	-	3
39	21OE004	Fundamentals of Data Acquisition systems	1,2,3,6,10	3	-	-	3
40	21OE005	Airport Operations Management	1,2,3,6,10	3	-	-	3
41	21OE006	Fundamentals of Embedded Systems	1,2,3,6,10	3	-	-	3
42	21OE007	Remote Sensing and GIS	1,2,3,6,10	3	-	-	3
43	21OE008	Big Data Analytics	1,2,3,6,10	3	-	-	3
44	21OE009	Fundamentals of Cyber Security	1,2,3,6,10	3	-	-	3
45	21OE010	Smart Cities	1,2,3,6,10	3	-	-	3
46	21OE011	Nano Materials and Thin Film Technology	1,2,3,6,10	3	-	-	3
47	21CSMC1	Cloud computing	1,2,3,6,10	3	-	-	3
48	21CSMC2	Ethical Hacking	1,2,3,6,10	3	-	-	3
49	21CSMC3	Fundamentals of Web Development	1,2,3,5,6,10	4	-	-	4
50	21OE012	Business Intelligence & Analytics	1,2,3,5,6,10	3	-	-	3
51	21OE013	Introduction To Industry 4.0 And Industrial IoT	1,2,3,6,10	3	-	-	3
52	21OE014	Natural Language Processing	1,2,3,6,10	3	-	-	3

Commented [DG1]: New Course approved in 18th Academic Council Meeting, 13-7-22.

Audit Course		
1	21AT001	Communication Etiquette in Workplaces
2	21AT002	Contemporary India: Economy, Policy and Society
3	21AT003	Design The Thinking
4	21AT004	Ethics and Integrity
5	21AT005	Indian Heritage and Culture
6	21AT006	Intellectual Property Rights and Patents
7	21AT007	Introduction to Journalism
8	21AT008	Mass Media Communication
9	21AT009	Science, Technology and Development
10	21AT010	Social Responsibility
11	21AT011	The Art of Photography and Film Making
12	21AT012	Gender Equality for Sustainability
13	21AT013	Women in Leadership
14	21AT014	Introduction to Research Methodology
15	21AT015	Climate Change and Circular Economy

B.Tech. (Honors)**Domain I-Automobile Technology and Systems**

1	21MEH11	Alternative Energy Sources for Automobiles	1,6,7,12,PSO2	4	-	-	4
2	21MEH12	Automobile body and Chassis Systems	1,6,7,12,PSO2	4	-	-	4
3	21MEH13	Automotive Transmission Systems	1,2,3, 12,PSO2	4	-	-	4
4	21MEH14	Vehicle Aero Dynamics	1,3,6,12,PSO1	4	-	-	4

Domain II- Application of Vibro-dynamics and lubrication in Modern Engineering

1	21MEH21	Dynamics of Systems	1,2,6,12,PSO1	4	-	-	4
2	21MEH22	Mechanical Vibrations	1,2,6,12,PSO1	4	-	-	4
3	21MEH23	Modern Concepts of Engineering Design	1,2,6,12,PSO1	4	-	-	4
4	21MEH24	Theory of Lubrication	1,2,12,PSO1, PSO2	4	-	-	4

Domain III-Manufacturing Automation and Inspection

1	21MEH31	Welding Technology	1,5,6,12,PSO1	4	-	-	4
2	21MEH32	Precision Engineering	1,2,6,7,PSO2	4	-	-	4
3	21MEH33	Automation in Manufacturing	1,2,6,12,PSO2	4	-	-	4
4	21MEH34	Non-Destructive Testing Methods	1,2,6,12,PSO2	4	-	-	4

Domain IV-Production & Operations Strategy

1	21MEH41	Maintenance Engineering	1,5,12,PSO2	4	-	-	4
2	21MEH42	Production Operations and Management	1,5,11,PSO2	4	-	-	4
3	21MEH43	Advanced Assessment systems of Industrial Processes	1,2,3,4,11	4	-	-	4
4	21MEH44	Enterprise Resource Planning	1,6,9,11,PSO2	4	-	-	4

B.Tech. (Minors)**Energy Science & Technology**

1	21CHM11	Foundation of Energy Science and Technology	1,2,3,5,7,12	4	-	-	4
2	21CHM12	Energy Generation from Waste	1,2,3,4,5	4	-	-	4
3	21CHM13	Energy Storage Systems	1,2,3,6,7	4	-	-	4
4	21CHM14	Hydrogen Energy and Fuel Cells	1,2,3,7,12	4	-	-	4

Nano Science & Technology

1	21CHM21	Introduction and Characterization of Nano Materials	1,2,3,7,12	4	-	-	4
2	21CHM22	Carbon NanoStructures and Applications	1,3,4,5,12	4	-	-	4
3	21CHM23	Energy, Environment & Biomedical Nanotechnology	1,2,3,7,12	4	-	-	4
4	21CHM24	Industrial Applications of Nano Technology	2,3,5,7,12	4	-	-	4

Environment Engineering

1	21CEM11	Watershed Engineering	6,7,8,10,12	4	-	-	4
2	21CEM12	Industrial Pollution Control and Engineering	3,6,7,8,12	4	-	-	4
3	21CEM13	Solid and Hazardous Waste Management	1,3,6,7,12	4	-	-	4
4	21CEM14	Ecology and Environmental Assessment	1,3,6,7,12	4	-	-	4

Artificial Intelligence & Machine Learning

1	21CSM11	Fundamentals of AI & Machine Learning	1,2,5,10,12	4	-	-	4
2	21CSM12	Feature Engineering for Machine Learning	1,2,5,10,12	4	-	-	4
3	21CSM13	Exploratory Data Analytics	1,2,5,10,12	4	-	-	4
4	21CSM14	Deep Learning	1,2,5,10,12	4	-	-	4

Cyber Security

1	21CSM21	Fundamentals of Security	1,2,5,10,12	4	-	-	4
2	21CSM22	Management of Information Security	1,2,5,10,12	4	-	-	4
3	21CSM23	Cyber Security	1,2,5,10,12	4	-	-	4
4	21CSM24	Cloud Security	1,2,5,10,12	4	-	-	4

Data Science & Analytics

1	21CSM31	Data Cleaning	1,2,5,10,12	4	-	-	4
2	21CSM32	Data Engineering	1,2,5,10,12	4	-	-	4
3	21CSM33	Text Analytics	1,2,5,10,12	4	-	-	4
4	21CSM34	Social Network and Semantic Analysis	1,2,5,10,12	4	-	-	4

Computer Systems Programming

1	21CSM41	Programming Fundamentals	1,2,5,10,12	4	-	-	4
2	21CSM41	Data Structures & Algorithms	1,2,5,10,12	4	-	-	4
3	21CSM41	Fundamentals of Databases	1,2,5,10,12	4	-	-	4
4	21CSM41	Fundamentals of Computer Networks & Operating Systems	1,2,5,10,12	4	-	-	4

Digital IC Design							
1	21ECM11	Fundamentals of VLSI Design	1,2,3,10,12	4	-	-	4
2	21ECM12	Digital Design using HDL	1,2,3,10,12	4	-	-	4
3	21ECM13	FPGA Technology	1,2,3,10,12	4	-	-	4
4	21ECM14	Analog and Mixed Signal Design	1,2,3,10,12	4	-	-	4
Industrial Automation							
1	21ECM21	Microcontrollers and Interfacing	1,2,3,10,12	4	-	-	4
2	21ECM22	Sensors and Data Acquisition System	1,2,3,10,12	4	-	-	4
3	21ECM23	Fundamentals of Labview	1,2,3,10,12	4	-	-	4
4	21ECM24	Medical Robotics	1,2,3,10,12	4	-	-	4
Communications and Networking							
1	21ECM31	Principles of communications	1,2,3,10,12	4	-	-	4
2	21ECM32	Coding Theory and Practice	1,2,3,10,12	4	-	-	4
3	21ECM33	Ad-hoc and wireless sensor Networks	1,2,3,10,12	4	-	-	4
4	21ECM34	Fundamentals of Multimedia Networking	1,2,3,10,12	4	-	-	4
Avionics							
1	21ECM41	Principles of Aerodynamics	1,2,3,10,12	4	-	-	4
2	21ECM42	Aircraft Electrical Systems	1,2,3,10,12	4	-	-	4
3	21ECM43	Aircraft Instrument Systems	1,2,3,10,12	4	-	-	4
4	21ECM44	Aircraft Communication and Navigational systems	1,2,3,10,12	4	-	-	4
Geographic Information System							
1	21ECM51	Sensors and Sensing Technology	1,2,3,10,12	4	-	-	4
2	21ECM52	Geographic Information Systems	1,2,3,10,12	4	-	-	4
3	21ECM53	Digital Image Processing	1,2,3,10,12	4	-	-	4
4	21ECM54	Lidar Systems	1,2,3,10,12	4	-	-	4
Electric Vehicles Technology							
1	21EEM11	Introduction to Electric Vehicles Technologies	1,2,3,10,12	4	-	-	4
2	21EEM12	Electrical Drives and Controllers for Electric Vehicles	1,2,3,10,12	4	-	-	4
3	21EEM13	Charging Technology in Electric Vehicles	1,2,3,10,12	4	-	-	4
4	21EEM14	Computer Vision in Electric Vehicles	1,2,3,10,12	4	-	-	4
Smart City Management							
1	21EEM21	Fundamentals of Smart City	1,2,3,10,12	4	-	-	4
2	21EEM22	Smart City Infrastructure	1,2,3,10,12	4	-	-	4
3	21EEM23	Computational Methods for Smart City Management	1,2,3,10,12	4	-	-	4
4	21EEM24	Communication Technologies and Mobility for smart city	1,2,3,10,12	4	-	-	4
Industrial Applications and Control							
1	21EEM31	Modelling and Simulations of Industrial Applications	1,2,3,10,12	4	-	-	4
2	21EEM32	Industrial Sensors and Actuators	1,2,3,10,12	4	-	-	4
3	21EEM33	Programmable Logic Controllers	1,2,3,10,12	4	-	-	4
4	21EEM34	Control Design for Industrial Applications	1,2,3,10,12	4	-	-	4
Cloud Application Development							
1	21ITM11	Introduction to Cloud Computing	1,2,3,10,12	4	-	-	4
2	21ITM12	Introduction to Web Development with HTML, CSS, JavaScript	1,2,3,10,12	4	-	-	4
3	21ITM13	Developing Cloud Native Applications	1,2,3,10,12	4	-	-	4
4	21ITM14	Developing Cloud Apps with Node.js and React	1,2,3,10,12	4	-	-	4
Mechanical Engineering							
1	21MEM01	Materials and Manufacturing Processes	1,2,3,10,12	4	-	-	4
2	21MEM02	Fundamentals of Thermal Engineering	1,2,3,10,12	4	-	-	4
3	21MEM03	Basic Elements of Machine design	1,2,3,10,12	4	-	-	4
4	21MEM04	Industrial Engineering & Operations Management	1,2,3,10,12	4	-	-	4
5	21MEM05	Modern Manufacturing Systems	1,2,3,10,12	4	-	-	4

Department of Mechanical Engineering

Minimum Credits to be Earned: 160 (for Regular Students)
127 (for Lateral Entry Students)

First Semester							
S.No	Course Code	Course	POs	Contact Hours			
				L	T	P	C
1	23CYX02	Engineering Chemistry	1,2,6,7,12	3	-	-	3
2	23MAX01	Linear Algebra & Calculus	1,2,3,4,12	3	-	-	3
3	23BEX02	Basic Civil & Mechanical Engineering	1,2,3,6,7,8,12	3	-	-	3
4	23BEX03	Introduction to Programming	1,2,3,5,10,12	3	-	-	3
5	23HSX01	Communicative English	1,9,10,11,12	2	-	-	2
6	23CYX04	Engineering Chemistry Lab	1,6,7,9,12	-	-	2	1
7	23BEX06	Engineering Workshop	1,2,3,9,10,12	-	-	3	1.5
8	23BEX07	Computer Programming Lab	1,2,3,4,12	-	-	3	1.5
9	23HSX02	Communicative English Lab	1,9,10,11,12	-	-	2	1
10	23HSX11	ECA (Yoga/Sports)		-	-	1	0.5
11	23HSX12	CCA (NSS/NCC/Community Service)		-	-	1	0.5
Total				14	0	12	20
Second Semester							
1	23PYX01	Engineering Physics	1,2,7,10,12	3	-	-	3
2	23MAX02	Differential Equations & Vector Calculus	1,2,3,4,12	3	-	-	3
3	23BEX01	Basic Electrical & Electronics Engineering	1,2,3,6,12	3	-	-	3
4	23ME201	Engineering Mechanics	1,2,3,10,12, PSO ₁	3	-	-	3
5	23BEX04	Engineering Graphics	1,2,3,4,5,10,12	2	-	2	3
6	23PYX02	Engineering Physics Lab	1,2,3,4,9,11	-	-	2	1
7	23BEX05	Electrical & Electronics Engineering Workshop	1,2,3,4,5,6,9,12	-	-	3	1.5
8	23ME202	Engineering Mechanics Lab	1,2,6,9,10, PSO ₁	-	-	3	1.5
9	23BEX08	IT Workshop	1,2,3,4,9,12	-	-	2	1
Total				14	0	12	20
Third Semester							
1	23ME301	Engineering Materials and Manufacturing Technology	1,2,9,10,12, PSO ₂	3	-	2	4
2	23ME302	Computer Aided Machine Drawing	1,2,3,5,10,12, PSO ₁	3	-	2	4
3	23ME303	Fundamentals of Python Programming	1,2,5,10,12	2	-	2	3
4	23ME304	Fluid Mechanics and Hydraulic Machines	1,2,3,7,10,12, PSO ₂	3	-	-	3
5	23ME305	Kinematics of Machinery	1,2,3,10,12, PSO ₁	3	-	-	3
6	23ME306	Thermodynamics	1,2,10,12, PSO ₂	3	-	-	3
7	23ME307	Fluid Mechanics and Hydraulic Machines Lab	1,2,7,9,10,12, PSO ₂	-	-	3	1.5
8	23MA305	Computational Mathematics Lab	1,2,3,4,5,10,12	-	-	3	1.5
9	23ESX01	Employability Skills I	1,2,5,8,10,12	-	-	2	-
Total				18	-	13	23
Fourth Semester							
1	23IT306	Object Oriented Programming through Java	1,2,3,4,5,10,12	3	-	2	4
2	23ME401	Applied Thermodynamics	1,2,3,7,10,12, PSO ₂	3	-	-	3
3	23ME402	Dynamics of Machinery	1,2,3,10,12, PSO ₁	3	-	-	3
4	23ME403	Metal Cutting and Machine Tools	1,2,10,12, PSO ₂	3	-	-	3
5	23ME404	Mechanics of Solids	1,2,3,6,10,12, PSO ₁	3	-	-	3
6	23ME405	Thermal Engineering Lab	1,3,8,9,10, PSO ₂	-	-	3	1.5
7	23ME406	Mechanics of Solids Lab	1,2,3,4,10,12	-	-	3	1.5
8	23ESX01	Employability Skills I	1,2,5,8,10,12	-	-	2	2
Total				15	-	10	21
Fifth Semester							
1	23ME501	CAD & CAM	1,2,5,9,10,12, PSO ₁ , PSO ₂	3	-	2	4
2	23ME502	Design of Machine Elements I	1,2,3,12, PSO ₁	3	-	-	3
3	23ME503	Steam and Gas Turbines	1,2,3,6,7,10,12, PSO ₂	3	-	-	3
4	23ME504	Mechanical Measurements and Metrology	1,2,3,6,10,12	3	-	2	4
5		Elective I (Professional Elective)		3	-	-	3
6		Elective II (Open Elective I)		3	-	-	3
7	23ME507	Metal Cutting and Machine Tools Lab	1,2,3,4, 10,12, PSO ₂	-	-	3	1.5

Commented [DG1]: New course approved in 20th Academic Council Meeting, 15/6/24.

8	23TPX01	Term Paper	1,2,3,4,10,12	-	-	3	1.5
9	23ESX02	Employability Skills II	1,2,5,8,10,12	-	-	2	-
10	23SIX01	Summer Internship #I	1,2,8,10,12	-	-	-	1
Total				18	-	12	24
Sixth Semester							
1	23ME601	Design of Machine Elements II	1,2,3,12, PSO ₁	3	-	-	3
2	23ME602	Finite Element Methods	1,2,3, PSO ₁ , PSO ₂	3	-	-	3
3	23ME603	Heat Transfer	1,2,3,7,10,12, PSO ₂	3	-	-	3
4		Elective III (Professional Elective)		3	-	2	4
5		Elective IV (Open Elective II)		3	-	-	3
6	23ME606	Heat Transfer Lab	1,2,3,4,7,10,12	-	-	3	1.5
7	23MPX01	Mini Project	All POs	-	-	3	1.5
8	23ESX02	Employability Skills II	1,2,5,8,10,12	-	-	2	2
9	23ATX01	Environmental Studies	1,6,7,10,12	-	-	-	-
10	23ATX02	Professional Ethics and Human Values		-	-	-	-
11	23ATX--	Audit Course		-	-	-	-
Total				15	-	10	21
Seventh Semester							
1	23PWX01	Project Work	All POs	-	-	16	8
2		Elective V (Professional Elective)		3	-	-	3
3		Elective VI (Professional Elective)		3	-	-	3
4		Elective VII (Open Elective III)		3	-	-	3
5	23SIX02	Summer Internship #II	1,2,5,6,10,12	-	-	-	1
Total				9	-	16	18
Eighth Semester							
1	23FIX01	Full Semester Internship (FSI)	1,2,5,8,9,10, PSO ₁ , PSO ₂	-	-	-	8
2		Elective VIII (Professional Elective)		-	-	-	3
3		Elective IX (Open Elective IV)		-	-	-	2
Total				-	-	-	13
Total Credits				100	-	85	160

List of Electives

List of Electives							
Language Electives							
No.	Course Code	Course	POs	Contact Hours			
				L	T	P	C
1	23HSX03	Advanced Communicative English	1,9,10,11,12	2	-	-	2
2	23HSX04	Communicative German		2	-	-	2
3	23HSX05	Communicative French		2	-	-	2
4	23HSX06	Communicative Japanese		2	-	-	2
5	23HSX07	Communicative Spanish		2	-	-	2
6	23HSX08	Communicative Korean		2	-	-	2
7	23HSX09	Communicative Hindi		2	-	-	2
Elective I : Career Path I, II, III and Other Core Electives							
1	23MEC11	Automotive Informatics (Automotive Electronics Career Path)	1,5,6,12,PSO ₂	3	-	-	3
2	23MEC21	Smart Manufacturing for Industry 4.0 (Digital Manufacturing Career Path)	1,5,12, PSO ₂	3	-	-	3
3	23MEC31	Fundamentals of Business Analytics (Smart Business Analytics Career Path)	1,3,5,6,8,12	3	-	-	3
4	23ME005	Alternate Fuels and Emission Control in Automotives	1,6,7,10,12	3	-	-	3
5	23ME006	Industrial Robotics and Applications	1,2,3, 12,PSO ₁	3	-	-	3
6	23ME020	Piping & Pressure Vessel Engineering	1,2,3,5,12,PSO ₂	3	-	-	3
Elective III : Career Path I, II, III and Other Core Electives							
1	23MEC12	Sensors & Actuators for Automotive Electronics (Automotive Electronics Career Path)	1,2,10,12,PSO ₂	3	-	2	4
2	23MEC22	Digital Technologies in Manufacturing (Digital Manufacturing Career Path)	1,5,12,PSO ₂	3	-	2	4
3	23MEC32	Industrial Data Analytics using Machine Learning (Smart Business Analytics Career Path)	1,2,3,4,6,8	3	-	2	4
4	23ME008	Additive Manufacturing	1,2,3,4,7,10, PSO ₂	3	-	2	4
5	23ME009	Mechatronics	1,2,3,4,9,PSO ₁	3	-	2	4
6	23ME010	Computational Fluid Dynamics	1,2,3,4,5,PSO ₂	3	-	2	4
Elective V : Career Path I, II, III and Other Core Electives							
1	23MEC13	Automotive Instrumentation & Diagnostics (Automotive Electronics Career Path)	1,2,7,PSO ₁	3	-	-	3
2	23MEC23	Artificial Intelligence in Manufacturing (Digital Manufacturing Career Path)	1,5,12,PSO ₂	3	-	-	3
3	23MEC33	Smart Supply Chain Analytics (Smart Business Analytics Career Path)	1,3,5,7,9,11,12	3	-	-	3
4	23ME011	Automobile Engineering	1,3,6,12,PSO ₂	3	-	-	3
5	23ME012	Design for Manufacturing	1,2,3,6,7,10,12, PSO ₂	3	-	-	3
6	23ME013	Operations Research	1,2,3,5,12	3	-	-	3
7	23ME004	Total Quality Management	1,2,8,10,11,12	-	-	-	3
Elective VI							
1	23ME014	Refrigeration and Air Conditioning	1,2,3,5,7,10,12, PSO ₂	3	-	-	3
2	23ME015	Industrial IOT for Manufacturing	1,2, PSO ₁ ,PSO ₂	3	-	-	3
3	23ME016	Quality Engineering	1,2,5,8,10,12	3	-	-	3
4							
Elective VIII							
1	23ME017	Power Plant Engineering	1,2,3,6,7,10,12, PSO ₂	3	-	-	3
2	23ME018	Supply Chain Management	1,2,5,10,11,12	3	-	-	3
3	23ME019	Industrial Tribology	1,2,3,12,PSO ₂	3	-	-	3

Open Electives							
1	2300001	Disaster Management	1,2,3,6,12	3	-	-	3
2	2300002	Electrical Installation, Safety and Auditing	1,2,3,6,12	3	-	-	3
3	2300003	Fundamentals of Optimization Techniques	1,2,3,10,12	3	-	-	3
4	2300004	Sensors for Engineering Applications	1,2,3,5,6,10	3	-	-	3
5	2300005	Fundamentals of Artificial Intelligence	1,2,3,5,6,12	3	-	-	3
6	2300006	Energy Conversion and Storage Devices	1,2,3,6,12	3	-	-	3
7	2300007	Fundamentals of Multimedia	1,2,3,6,12	3	-	-	3
8	2300008	Nano Materials and Technology	1,2,3,6,12	3	-	-	3
9	2300009	Fundamentals of Data Science	1,2,3,6,12	3	-	-	3
10	2300010	Air Pollution and Environmental Impact Assessment	1,2,3,6,7,8,10	3	-	-	3
11	2300011	Renewable Energy Sources	1,2,3,6,7,8,10	3	-	-	3
12	2300012	Principles of Entrepreneurship	1,2,5,6,8,10, 11,12	3	-	-	3
13	2300013	Electronics for Agriculture	1,2,3,6,10	3	-	-	3
14	2300014	Industrial Safety and Hazard Management					
15	2300015	Basics of Cloud Computing	1,2,3,6,7,8,12	3	-	-	3
16	2300016	Advanced Numerical Techniques	1,2,3,6,12	3	-	-	3
17	2300017	Functional Materials and Applications	1,2,3,6,12	3	-	-	3
18	2300018	Solid Waste Management	1,2,3,6,10	3	-	-	3
19	2300019	Fundamentals of Electrical Vehicle Technology	1,2,3,6,10	3	-	-	3
20	2300020	Industrial Engineering and Management	1,2,3,6,7,10	3	-	-	3
21	2300021	Interfacing and Programming with Arduino	1,2,5,8,11,12	3	-	-	3
22	2300022	Industrial Ecology for Sustainable Development	1,2,3,6,10	3	-	-	3
23	2300023	Fundamentals of Mobile Computing	1,2,3,6,10	3	-	-	3
24	2300024	Advanced Materials of Renewable Energy	1,2,3,6,7,8,10	3	-	-	3
25	2300025	Applied Linear Algebra for Engineers	1,2,3,6,10	3	-	-	3
26	2300026	Green Buildings	1,2,3,6,10	3	-	-	3
27	2300027	Sustainable Energy	1,2,3,6,10	3	-	-	3
28	2300028	Total Quality Management	1,2,3,6,10	3	-	-	3
29	2300029	Communication Technologies	1,2,3,6,7,8,10	3	-	-	3
30	2300030	Applications of Artificial Intelligence	1,2,8,10,11,12	3	-	-	3
31	2300031	Green Technologies	1,2,3,5,10	3	-	-	3
32	2300032	Human Computer Interaction	1,2,3,6,10	3	-	-	3
33	2300033	Handling of Industrial waste and wastewater	1,2,3,7,8,10	3	-	-	3
34	2300034	Robotics and Automation	1,2,3,5,10	3	-	-	3
35	2300035	Introduction to IoT	1,2,3,6,10	3	-	-	3
36	2300036	Fundamentals of Image processing	1,2,3,5,10	3	-	-	3
37	2300037	Fundamentals of Data Acquisition systems	1,2,3,5,10	3	-	-	3
38	2300038	Airport Operations Management	1,2,3,5,10	3	-	-	3
39	2300039	Fundamentals of Embedded Systems	1,2,3,5,10	3	-	-	3
40	2300040	Remote Sensing and GIS	1,2,3,6,10	3	-	-	3
41	2300041	Big Data Analytics	1,2,3,5,10	3	-	-	3
42	2300042	Fundamentals of Cyber Security	1,2,3,5,10	3	-	-	3
43	2300043	Smart Cities	1,2,3,5,10	3	-	-	3
44	2300044	Nano Materials and Thin Film Technology	1,2,3,5,10	3	-	-	3
45	2300045	Cloud computing	1,2,3,5,10	3	-	-	3
46	2300046	Ethical Hacking	1,2,3,5,10	3	-	-	3
47	2300047	Fundamentals of Web Development	1,2,3,5,10	3	-	-	3
48	2300048	Business Intelligence & Analytics	1,2,3,5,10	3	-	-	3
49	2300049	Introduction To Industry 4.0 And Industrial IoT	1,2,3,5,6,10	4	-	-	4
50	2300050	Introduction to NLP	1,2,3,5,6,10	3	-	-	3
51	2300051	Data Structure and Algorithms using Java	1,2,3,6,10	3	-	-	3
52	2300052	The Joy of Computing Using Python	1,2,3,6,10	3	-	-	3
53	2300053	Programming in Modern C++	1,2,3,6,10	3	-	-	3
54	2300054	Data Analytics with python	1,2,3,6,10	3	-	-	3
55	2300055	Safety in Construction	1,2,3,6,10	3	-	-	3
Audit Course							
1	23AT001	Communication Etiquette in Workplaces					
2	23AT002	Contemporary India: Economy, Policy and Society					
3	23AT003	Design Thinking					
4	23AT004	Ethics and Integrity					
5	23AT005	Indian Heritage and Culture					
6	23AT006	Intellectual Property Rights and Patents					
7	23AT007	Introduction to Journalism					
8	23AT008	Mass Media Communication					

Sequential Open Electives							
		Track –I : Industrial Safety Engineering		3	-	-	3
1	2300311	Principles of Safety Management	1,3,6,8,10,12, PSO ₂	3	-	-	3
2	2300312	Occupational Health and Industrial Hygiene	1,3,6,8,10,12	3	-	-	3
3	2300313	Safety in Engineering Industries	1,3,6,8,10,12, PSO ₂	3	-	-	3
4	2300314	Reliability Engineering and Integrated Management Systems	1,3,6,8,10,12, PSO ₂	3	-	-	3
		Track-2: AI and ML for Mechanical Engineers		3	-	-	3
1	2300321	Fundamentals of Artificial Intelligence and Machine Learning	1,2,3,4,5	3	-	-	3
2	2300322	Fundamentals of Data Science	1,2,3,4,5,12	3	-	-	3
3	2300323	Applications of Machine Learning in Mechanical Engineering	1,2,3,4,5,PSO ₁ , PSO ₂	3	-	-	3
4	2300324	Data Science for Mechanical System	1,2,3,4,5,11,12	3	-	-	3
		Track-3: Innovation and Entrepreneurship		3	-	-	3
1	2300331	Entrepreneurship Theory And Practice	1,2,5,8,11,12	3	-	-	3
2	2300332	Design Thinking and Innovation Management	1,3,5,7,9,11,12	3	-	-	3
3	2300333	Product Design &Innovation	1,3,9,10,11,12	3	-	-	3
4	2300334	Business Analytics for Entrepreneurship	1,2,7,11,12	3	-	-	3
Audit Course							
1	23AT001	Communication Etiquette in Workplaces					
2	23AT002	Contemporary India: Economy, Policy and Society					
3	23AT003	Design Thinking					
4	23AT004	Ethics and Integrity					
5	23AT005	Indian Heritage and Culture					
6	23AT006	Intellectual Property Rights and Patents					
7	23AT007	Introduction to Journalism					
8	23AT008	Mass Media Communication					
9	23AT009	Science, Technology and Development					
10	23AT010	Social Responsibility					
11	23AT011	The Art of Photography and Film Making					
12	23AT012	Gender Equality for Sustainability					
13	23AT013	Women in Leadership					
14	23AT014	Introduction to Research Methodology					
15	23AT015	Climate Change and Circular Economy					

B.Tech. (Honors)							
Domain I-Automobile Technology and Systems							
1	23MEH11	Alternative Energy Sources for Automobiles	1,7,10,12, PSO ₂	4	-	-	4
2	23MEH12	Automobile body and Chassis Systems	1,6,7,10,12, PSO ₂	4	-	-	4
3	23MEH13	Automotive Transmission Systems	1,2,3,10,12, PSO ₂	4	-	-	4
4	23MEH14	Vehicle Aero Dynamics	1,3,7,10,12, PSO ₂	4	-	-	4
Domain II- Application of Vibro-dynamics and lubrication in Modern Engineering							
1	23MEH21	Dynamics of Systems	1,2,3,12, PSO ₁	4	-	-	4
2	23MEH22	Mechanical Vibrations	1,2,3,12, PSO ₁	4	-	-	4
3	23MEH23	Modern Concepts of Engineering Design	1,2,3,5, PSO ₁	4	-	-	4
4	23MEH24	Theory of Lubrication	1,2,3,12, PSO ₁	4	-	-	4
Domain III-Manufacturing Automation and Inspection							
1	23MEH31	Welding Technology	1,5,10,12, PSO ₂	4	-	-	4
2	23MEH32	Precision Engineering	1,2,8,10,12, PSO ₂	4	-	-	4
3	23MEH33	Automation in Manufacturing	1,2,10,12, PSO ₂	4	-	-	4
4	23MEH34	Non-Destructive Testing Methods	1,2,3,12, PSO ₂	4	-	-	4
Domain IV-Production & Operations Strategy							
1	23MEH41	Maintenance Engineering	1,5,6,12, PSO ₂	4	-	-	4
2	23MEH42	Production Operations and Management	1,5,6,11, PSO ₂	4	-	-	4
3	23MEH43	Advanced Assessment systems of Industrial Processes	1,2,3,4,11, PSO ₂	4	-	-	4
4	23MEH44	Enterprise Resource Planning	1,6,9,11, PSO ₂	4	-	-	4
B.Tech. (Minors)							
Energy Science & Technology							
1	23CHM11	Foundation of Energy Science and Technology	1,2,3,5,7, PSO ₂	4	-	-	4
2	23CHM12	Energy Generation from Waste	1,2,3,4, PSO ₂	4	-	-	4
3	23CHM13	Energy Storage Systems	1,2,3,6,7, PSO ₂	4	-	-	4
4	23CHM14	Hydrogen Energy and Fuel Cells	1,2,3,7, PSO ₂	4	-	-	4
Nano Science & Technology							
1	23CHM21	Introduction and Characterization of Nano Materials	1,2,3,7,12	4	-	-	4
2	23CHM22	Carbon Nano Structures and Applications	1,2,3,5,6	4	-	-	4
3	23CHM23	Energy, Environment & Biomedical Nanotechnology	1,2,3,7,12	4	-	-	4
4	23CHM24	Industrial Applications of Nano Technology	2,3,5,7,12	4	-	-	4
Environment Engineering							
1	23CEM11	Watershed Engineering	1,2,6,7,12	4	-	-	4
2	23CEM12	Industrial Pollution Control and Engineering	1,3,6,7,8,12	4	-	-	4
3	23CEM13	Solid and Hazardous Waste Management	1,3,6,7,12	4	-	-	4
4	23CEM14	Ecology and Environmental Assessment	1,3,6,7,12	4	-	-	4
Artificial Intelligence & Machine Learning							
1	23CSM11	Fundamentals of AI & Machine Learning	1,2,5,10,12	4	-	-	4
2	23CSM12	Feature Engineering for Machine Learning	1,2,5,10,12	4	-	-	4
3	23CSM13	Exploratory Data Analytics	1,2,5,10,12	4	-	-	4
4	23CSM14	Deep Learning	1,2,5,10,12	4	-	-	4
Cyber Security							
1	23CSM21	Fundamentals of Security	1,2,5,10,12	4	-	-	4
2	23CSM22	Management of Information Security	1,2,5,10,12	4	-	-	4
3	23CSM23	Cyber Security	1,2,5,10,12	4	-	-	4
4	23CSM24	Cloud Security	1,2,5,10,12	4	-	-	4
Data Science & Analytics							
1	23CSM31	Data Cleaning	1,2,5,10,12	4	-	-	4
2	23CSM32	Data Engineering	1,2,5,10,12	4	-	-	4
3	23CSM33	Text Analytics	1,2,5,10,12	4	-	-	4
4	23CSM34	Social Network and Semantic Analysis	1,2,5,10,12	4	-	-	4
Computer Systems Programming							
1	23CSM41	Programming Fundamentals	1,2,5,10,12	4	-	-	4
2	23CSM41	Data Structures & Algorithms	1,2,5,10,12	4	-	-	4
3	23CSM41	Fundamentals of Databases	1,2,5,10,12	4	-	-	4
4	23CSM41	Fundamentals of Computer Networks & Operating Systems	1,2,5,10,12	4	-	-	4

Digital IC Design							
1	23ECM11	Fundamentals of VLSI Design	1,2,3,10,12	4	-	-	4
2	23ECM12	Digital Design using HDL	1,2,3,10,12	4	-	-	4
3	23ECM13	FPGA Technology	1,2,3,10,12	4	-	-	4
4	23ECM14	Analog and Mixed Signal Design	1,2,3,10,12	4	-	-	4
Industrial Automation							
1	23ECM21	Microcontrollers and Interfacing	1,2,3,10,12	4	-	-	4
2	23ECM22	Sensors and Data Acquisition System	1,2,3,10,12	4	-	-	4
3	23ECM23	Fundamentals of Labview	1,2,3,10,12	4	-	-	4
4	23ECM24	Medical Robotics	1,2,3,10,12	4	-	-	4
Communications and Networking							
1	23ECM31	Principles of communications	1,2,3,10,12	4	-	-	4
2	23ECM32	Coding Theory and Practice	1,2,3,10,12	4	-	-	4
3	23ECM33	Ad-hoc and wireless sensor Networks	1,2,3,10,12	4	-	-	4
4	23ECM34	Fundamentals of Multimedia Networking	1,2,3,10,12	4	-	-	4
Avionics							
1	23ECM41	Principles of Aerodynamics	1,2,3,6,10,12	4	-	-	4
2	23ECM42	Aircraft Electrical Systems	1,2,3,6,10,12	4	-	-	4
3	23ECM43	Aircraft Instrument Systems	1,2,3,6,10,12	4	-	-	4
4	23ECM44	Aircraft Communication and Navigational systems	1,2,3,6,10,12	4	-	-	4
Geographic Information System							
1	23ECM51	Sensors and Sensing Technology	1,2,3,10,12	4	-	-	4
2	23ECM52	Geographic Information Systems	1,2,3,10,12	4	-	-	4
3	23ECM53	Digital Image Processing	1,2,3,10,12	4	-	-	4
4	23ECM54	Lidar Systems	1,2,3,10,12	4	-	-	4
Electric Vehicles Technology							
1	23EEM11	Introduction to Electric Vehicles Technologies	1,2,3,6,10,12	4	-	-	4
2	23EEM12	Electrical Drives and Controllers for Electric Vehicles	1,2,3,6,10,12	4	-	-	4
3	23EEM13	Charging Technology in Electric Vehicles	1,2,3,6,10,12	4	-	-	4
4	23EEM14	Computer Vision in Electric Vehicles	1,2,3,6,10,12	4	-	-	4
Smart City Management							
1	23EEM21	Fundamentals of Smart City	1,2,3,6,10,12	4	-	-	4
2	23EEM22	Smart City Infrastructure	1,2,3,6,10,12	4	-	-	4
3	23EEM23	Computational Methods for Smart City Management	1,2,3,6,10,12	4	-	-	4
4	23EEM24	Communication Technologies and Mobility for smart city	1,2,3,6,10,12	4	-	-	4
Industrial Applications and Control							
1	23EEM31	Modelling and Simulations of Industrial Applications	1,2,3,6,10,12	4	-	-	4
2	23EEM32	Industrial Sensors and Actuators	1,2,3,6,10,12	4	-	-	4
3	23EEM33	Programmable Logic Controllers	1,2,3,6,10,12	4	-	-	4
4	23EEM34	Control Design for Industrial Applications	1,2,3,6,10,12	4	-	-	4
Cloud Application Development							
1	23ITM11	Introduction to Cloud Computing	1,2,5,10,12	4	-	-	4
2	23ITM12	Introduction to Web Development with HTML, CSS, JavaScript	1,2,5,10,12	4	-	-	4
3	23ITM13	Developing Cloud Native Applications	1,2,5,10,12	4	-	-	4
4	23ITM14	Developing Cloud Apps with Node.js and React	1,2,5,10,12	4	-	-	4
Mechanical Engineering							
1	23MEM01	Materials and Manufacturing Processes	1,2,3,6,10,12	4	-	-	4
2	23MEM02	Fundamentals of Thermal Engineering	1,2,3,6,10,12	4	-	-	4
3	23MEM03	Basic Elements of Machine design	1,2,3,6,10,12	4	-	-	4
4	23MEM04	Industrial Engineering & Operations Management	1,2,3,6,10,12	4	-	-	4
5	23MEM05	Modern Manufacturing Systems	1,2,3,6,10,12	4	-	-	4

MINUTES OF THE 18th ACADEMIC COUNCIL MEETING

Media : Zoom (Online Meeting)
Date : 13.07.2022 (Wednesday)
Time : 03:00 PM – 05:00 PM

MEMBERS PRESENT

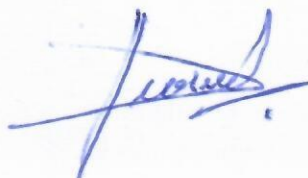
Dr. C. L. V. R. S. V. Prasad	- Chairman (Principal)
Dr. KVSG Murali Krishna	- Member
Dr. B. Bala Krishna	- Member
Dr. R.Rajeswara Rao	- Member
Dr. A.Venugopal	- Member
Dr. K. V. L. Subramaniam	- Member
Dr. P. Mallikarjuna Rao	- Member
Dr. P. K. Jain	- Member
Chair Person (BoS : Civil Engg.)	- Member
Chair Person (BoS : EEE)	- Member
Chair Person (BoS : Mech Engg.)	- Member
Chair Person (BoS : ECE)	- Member
Chair Person (BoS : CSE)	- Member
Chair Person (BoS : Chem Engg.)	- Member
Chair Person (BoS : IT)	- Member
Chair Person (BoS : BS&H)	- Member
Dr.S.N.Dash(CDC-Head)	- Member
Dr.G.Sasi Kumar(Asso.Dean-Student Affairs)	- Member
Dr.P.S.Venkata Narayana(Asso.Dean-R&D)	- Member
Dr.T.Prabhakar (Controller of Examinations)	- Member
Dr. L.Govinda Rao(IQAC Coordinator)	- Member
Dr. M.V.Nageswara Rao(Asso.Dean-Academics)	- Member Secretary

GRANT OF LEAVE OF ABSENCE

Mr. V. Paradesi Naidu	- Member
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Chairman welcomed all the members of the academic council and requested for the grant leave of absence for the above referred members. **(Item #1).**

Subsequently, the Chairman presented the action taken report for the 17th academic council meeting and received the confirmation for the minutes of 17th academic council meeting held on 11th Sep 2021 from all the esteemed members. **(Item #2&3).**



Chairman presented the details of the overall Operations and performance of the Institution (Academic-Operations, Ranking, Achievements, Placements and Research) **(Item #4).**

Academic council members appreciated the efforts and initiatives taken up by the institute for the overall development and the ranking achieved. Congratulated the students who achieved credential in curricular and co-curricular activities.

ITEM No.: 5

Ratification of Semester end result for regular and supplementary examination for the academic year 2020-21(II, IV, VI semesters) and 2021-22 (I, III, VI, VII, VII, VIII semesters) held during September 2021 to July 2022 for Students in B. Tech. Programs.

Chairman presented the results declared for the regular and supplementary examinations pertaining to semesters mentioned above for the students admitted during the different academic years under Academic Regulation AR16, AR19, AR20 and AR 21 and requested for the ratification of the results which were declared by the College academic committee in the presence of the JNTUK representative.

The members after the detailed review, ratified the results of all the regular and supply examinations declared by the college academic committee as per the **Annexure I.**

ITEM No.: 6

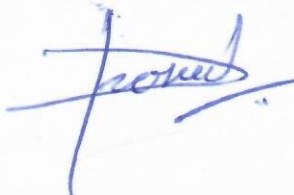
Ratification of results of 2nd phase semester end exams for all the COVID-19 infected students during 2021-22.

Chairman presented the list of students infected with COVID-19 and could not appear for the 7th semester examinations. These students were permitted to appear in the 2nd phase as per the university directions considering it as a first attempt.

The members after the detailed review, ratified the Class and CGPA declared by the college academic committee as per the **Annexure II.**

ITEM No.: 7

Ratification of the PC eligibility list of the students admitted during the Academic Year 2018-19 and earlier batches who have successfully acquired the graduation requirements for the award of B. Tech. Degree as per the respective academic regulations at the time of admission.



Chairman presented the (semester-wise & branch-wise) results of the 2018 admitted batch for all the semesters' i.e from 1st to 8th semesters under Academic Regulation AR16 and who have acquired the graduation requirements and eligible for the issue of Provisional certificate. Further, details of the students who have acquired graduation requirements and eligible for the issue of PCs pertaining to the batches admitted earlier to 2018 are presented.

The members reviewed the results (1st semester to 8th semester) of 2018 admitted batch students and approved the PC eligibility list of the student who will be getting graduated by July 2022 as per the academic regulations AR16. Apart from this, the PC eligible students from the earlier admitted students who have acquired graduation requirements were also approved as per the **Annexure III**.

ITEM No.: 8

Ratification of the AR21 regulations for UG and PG programs that are approved by circulation wide the circulars dated 15-11-2021, 30-12-2021 & 30-03-2022 (In compliance with the JNTUK common guidelines)

Chairman presented the Academic Regulations 2021 (AR21) and Curriculum recommended by the respective BoS and which are in line with JNTUK common guidelines majorly in the context of incorporating the changes relate to the marks division between internal and External marks (30+70), Absolute grading in the place of Hybrid grading and Award of Class of degree (Division/Class) for UG and PG programs.

The members after deliberation ratified the Academic Regulations 2021 (AR21), Curriculum for UG and PG programs as per **Annexure IV & V**.

ITEM NO.:9

Approval of course structure, 3rd & 4th semesters syllabus for the new programs B.Tech CSE(AIML) and B.Tech CSE(AIDS) as per Academic Regulations 2021.

Chairman presented the recommendations of the Board of Studies CSE(AIDS) and CSE (AIML)) with regard to the course structure and detailed Syllabi for 3rd and 4th semesters as per AR21 for the B. Tech. (Regular), B. Tech. (Honors) and B. Tech (Minor) Programs for the ratification of Academic Council

Members after deliberation ratified the syllabi for the 3rd and 4th semesters as per the **Annexure VI & VII**.



ITEM NO.:10

Ratification of the syllabus for the 7th and 8th semesters as per AR19 and AR20 academic regulations

Chairman presented the recommendations of all the seven Board of Studies with regard to the detailed Syllabi for 7th and 8th semesters under the Academic Regulation AR 19 and AR 20 for the B. Tech. (Regular), B. Tech. (Honors) and B. Tech (Minor) Programs for the ratification of Academic Council

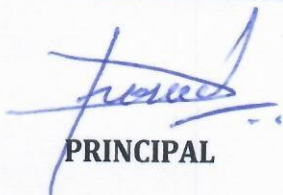
Members after deliberation ratified the syllabi for the 7th and 8th semesters as per the **Annexure VIII to XIV**

ITEM NO.:11

Ratification for readmitted students under transitory Regulations

As per the transitory regulations, with regard to the students re-admitted under, AR19/AR20 moving from AR16/AR19, Board of Studies of the respective departments discussed the issues case to case and recommended the substitute courses balancing the credit requirements. The details of the students are presented by the chairman before the council for formal ratification

Members ratified the recommendations of the respective BoS as per the **Annexure XV**



PRINCIPAL

Encl. (a) Annexure A (b) Annexure B (c) Annexure C (d) Annexure D

Copy to:

- All Members of the Academic Council
- Autonomous Coordinator (Institute Level)
- Assoc.Dean(Academics)
- Controller of Examinations (CoE)
- File

MINUTES OF THE 18th ACADEMIC COUNCIL MEETING

Annexure IV:

http://www.gmr.it.org/Autonomy_Regulations_UGPrograms_2021.pdf

Annexure V:

http://www.gmr.it.org/Autonomy_Regulations_PGPrograms_2021.pdf

Annexure VI:

http://www.gmr.it.org/resources/CSE-AI&DS_Course_Structure.pdf

Annexure VII:

http://www.gmr.it.org/resources/CSE-AI&ML_Course_structure.pdf

Annexure VIII: CIVIL Engineering

http://www.gmr.it.org/resources/B.Tech_Civil_Syllabus_AR19.pdf

http://www.gmr.it.org/resources/B.Tech_Civil_Syllabus_AR20.pdf

Annexure IX: CHEMIAL Engineering

http://www.gmr.it.org/resources/B.Tech_Chem_Syllabus_AR20.pdf

http://www.gmr.it.org/resources/B.Tech_Chem_Syllabus_AR19.pdf

Annexure X: Computer Science Engineering

http://www.gmr.it.org/resources/B.Tech_CSE_Syllabus_AR20.pdf

http://www.gmr.it.org/resources/B.Tech_CSE_Syllabus_AR19.pdf

Annexure XI: Information Technology

http://www.gmr.it.org/resources/B.Tech_IT_Syllabus_AR20.pdf

http://www.gmr.it.org/resources/B.Tech_IT_Syllabus_AR19.pdf

Annexure XII: Electronics and Communication Engineering

http://www.gmr.it.org/resources/B.Tech_ECE_Syllabus_AR20.pdf

http://www.gmr.it.org/resources/B.Tech_ECE_Syllabus_AR19.pdf

Annexure XIII: Electrical and Electronics Engineering

http://www.gmr.it.org/resources/B.Tech_EEE_Syllabus_AR20.pdf

http://www.gmr.it.org/resources/B.Tech_EEE_Syllabus_AR19.pdf

Annexure XIV: Electrical and Electronics Engineering

http://www.gmr.it.org/resources/B.Tech_Mech_Syllabus_AR20.pdf

http://www.gmr.it.org/resources/B.Tech_Mech_Syllabus_AR19.pdf

MINUTES OF THE 20th ACADEMIC COUNCIL MEETING

Media : Zoom (Online Meeting)
Date : 15.06.2024 (Saturday)
Time : 03:00 PM – 05:00 PM

MEMBERS PRESENT

Dr. C. L. V. R. S. V. Prasad	- Chairman (Principal)
Dr. D. Rajya Lakshmi	- Member
Mr.B.Chandra Bhushana Rao	- Member
Dr. G. Jayasuma	- Member
Dr. A. Venu Gopal	- Member
Dr. P. Mallikarjuna Rao	- Member
Dr. P. K. Jain	- Member
Chair Person (BoS : Civil Engg.)	- Member
Chair Person (BoS : EEE)	- Member
Chair Person (BoS : Chem & Mech Engg.)	- Member
Chair Person (BoS : ECE)	- Member
Chair Person (BoS : CSE)	- Member
Chair Person (BoS : IT)	- Member
Chair Person (BoS : BS&H)	- Member
Chair Person (BoS : AIML,AIDS)	- Member
Dr.S.N.Dash(CDC-Head)	- Member
Dr.V.Rambabu (Asso.Dean-Student Affairs)	- Member
Dr. K.Ravindranadh (Asso.Dean-R&D)	- Member
Dr.T.Prabhakar (Controller of Examinations)	- Member
Dr.P.N.L.Pavani (Head -IQAC)	- Member
Dr. M.V.Nageswara Rao(Asso.Dean-Academics)	- Member Secretary

GRANT OF LEAVE OF ABSENCE

Dr. K. V. L. Subramaniam	- Member
Mr. V. Paradesi Naidu	- Member

Chairman welcomed all the members of the academic council and requested for the grant leave of absence for the above referred members. **(Item #1).**

Member Secretary presented the action taken report for the 19th academic council meeting and received the confirmation for the minutes of 19th academic council meeting held on 06th June 2023 from all the esteemed members.

Also presented the action taken report for the approvals taken by circulation on 20.11.2023 and received the confirmation from all the esteemed members. **(Item #2 &3).**

Member Secretary presented the details of the overall Operations and performance of the Institution (Academic-Operations, Ranking, Achievements, Placements and Research) **(Item #4).**

Academic council members appreciated the efforts and initiatives taken up by the institute for the overall development and the ranking achieved. Congratulated the students who achieved credential in curricular and co-curricular activities.

ITEM No.: 5

Ratification of Semester end result for regular and supplementary examination for the academic year 2023-24 (II, IV, VI, VIII semesters) and 2023-24 (I, III, V, VII semesters) held during June 2023 to June 2024 for Students in B. Tech. and M.Tech Programs.

Member Secretary presented the results declared for the regular and supplementary examinations pertaining to semesters mentioned above for the students admitted during the different academic years under Academic Regulation AR16, AR19, AR20, AR21 and AR 23 and requested for the ratification of the results which were declared by the College academic committee in the presence of the JNTUGV representative.

- The members, after the detailed review, ratified the results of all the regular and supply examinations declared by the college academic committee as per the **Annexure I.**

ITEM No.: 6

Ratification of the PC eligibility list of the UG students admitted during the Academic Year 2020-21 & earlier batches who have successfully acquired the graduation requirements for the award of B. Tech. Degree with Honours , B.Tech. Degree with Minors in Computer Science and Engineering , and B.Tech. Degree as per the respective academic regulations at the time of admission.

Ratification of the PC eligibility list of the PG students admitted during the Academic Year 2021-2022 who have successfully acquired the graduation requirements for the award of M.Tech. Degree as per the respective academic regulations at the time of admission.

Member Secretary presented the (semester-wise & branch-wise) UG results of the 2020 admitted batch for all the semesters i.e from 1st to 8th semesters under Academic Regulation AR20 and who have acquired the graduation requirements and eligible for the issue of Provisional certificate.

Further, details of the students who have acquired graduation requirements and eligible for the issue of PCs pertaining to the batches admitted earlier to 2020 are presented.

The members reviewed the results (1st semester to 8th semester) of 2020 admitted batch students and approved the PC eligibility list of the student who will be graduating by June 2024 as per the academic regulations AR20. Apart from this, the PC eligible students from the earlier admitted students who have acquired graduation requirements were also approved as per the **Annexure II**.

Member Secretary also presented the (semester-wise & Specialisation-wise) results PG students admitted in the academic year 2021-22 for all the semesters' i.e from 1st to 4th semesters and who have fulfilled the M.Tech requirements and eligible for the issue of Provisional certificate.

The members reviewed the results (1st semester to 4th semester) of 2021 admitted batch PG students and approved the PC eligibility list of the students who will be graduating by June 2024 as per the **Annexure II**.

ITEM NO.:7

Ratification of the syllabus for the 7th & 8th semesters of CSE-AIML & CSE-AIDS as per AR21 academic regulations

HOD-CSE presented the recommendations of the Board of Studies (meeting held on 16th March 2024) of CSE-(Artificial Intelligence and Machine Learning) and CSE-(Artificial Intelligence and Data Science) regarding the detailed Syllabi for 7th & 8th semesters for AR21 regulations B. Tech. (Regular), B. Tech. (Honors) and B. Tech (Minor) Programs requesting for the ratification from the members of Academic Council

Members after deliberation ratified the syllabi for the 7th and 8th semesters as per the **Annexure III**.

ITEM NO.:08

Approval of the AR-23 Academic Regulations for 3rd, 4th, 5th, 6th, 7th and 8th semesters.

The member secretary presented the detailed course structure and syllabus from III to VIII semesters of AR23 regulations. The syllabus and course structure of I and II semesters are in line with the common guidelines suggested by JNTUGV.

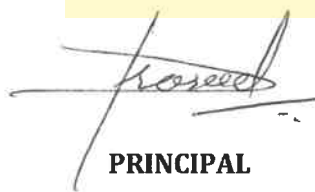
However, keeping in view the following points related the JNTUGV suggested course structure:

1. More academic load during 7th semester (21 credits)
2. Mandated FSI during 8th semester for all the students
3. No clear separation of credits for project work and FSI in 8th semester
4. Suggested FSI through online/virtual mode

All the respective BoS have recommended implementing the course structure of III to VIII semesters of AR21 which was Approved and ratified by AC during the meeting dated 13th July 2022 with the following changes to have credit balance.

- CC&EC activities which were available from III to VI semesters are removed as CC&EC activities were already pursued in the I and II semesters.
- One credit is reduced in the Open Elective of VIII semester
- Minor modifications in the syllabus in a few courses.

Members deliberated and ratified the course structure and syllabus for AR23 regulations as recommended by the respective BoS for all the eight UG programs. Details are attached in **Annexure-IV**



PRINCIPAL



Encl. Annexure I to IV

Copy to:

- All Members of the Academic Council
- Assoc.Dean(Academics)
- Controller of Examinations (CoE)
- File

**PC Eligibility for
B.Tech Degree with Minors in Computer Science and Engineering**

S.No	Department	Registered	Eligible for B.Tech Degree with Minors in Computer Science and Engineering
1	Civil Engineering	13	9
2	Electrical and Electronics Engineering	10	10
3	Mechanical Engineering	9	9
4	Electronics and Communication Engineering	30	26
5	Chemical Engineering	3	2
Total		65	56

PC Eligibility - PG Students 2021 Admitted Batch

S.No.	Admitted Batch	PC Eligible Students	Eligibility Academic Year
1	2021 Admitted Batch	08	2023-24

Annexure – III

Syllabus for 7th & 8th semesters of CSE-AIML & CSE-AIDS

https://gmrit.edu.in/PDFs/curriculum/B.Tech_AIDS_Syllabus_AR21.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_AIML_Syllabus_AR21.pdf

Annexure – III

Academic Regulations (AR-23) for 3rd, 4th, 5th, 6th, 7th and 8th semesters

https://gmrit.edu.in/PDFs/curriculum/B.Tech_AIDS_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_AIML_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_Civil_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_EEE_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_CSE_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_ECE_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_Mech_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_IT_Syllabus_AR23.pdf