



ANNEXURE – I

Credit Structure for Undergraduate programs

Sr. No.	Category Code	Category	Credits
1	HSSM	Ability Enhancement Course (AEC), Indian Knowledge System (IKS), Value Education Course (VEC), Entrepreneurship/Economics/Management courses	10
2	BSC	Basic Science courses	14
3	ESC	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	16
4	PCC	Professional core courses	55
5	PEC	Professional Elective courses relevant to chosen specialization/branch	20
6	OE	Open subjects – Electives from other technical and /or emerging subjects	8
7	ELC	Project work, seminar and internship in industry or elsewhere, Industry Training and Skill Development, Capstone Course	22
8	VSEC	Vocations Skill Courses (VSC) , Skill Enhancement Courses(SEC)	10
9	CC	Co-curricular Courses (CC) such as Health and Wellness, Yoga education sports, and fitness, Cultural Activities, NSS/NCC and Fine/ Applied/ Visual/ Performing Arts	04
10	MDM	Compulsory Multidisciplinary Minor	14
		TOTAL	173

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**GROUP 1: SEMESTER I / GROUP 2: SEMESTER II**

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	BSC	AS101T	Engineering Physics & Material Sciences	2	-	-	2	15	35	50
2	BSC	AS101P	Engineering Physics & Material Sciences Lab	-	-	2	1	25	25	50
3	BSC	AS102T	Applied Mathematics – I	4	-	-	4	30	70	100
4	ESC	AS103T	Engineering Practices-I (Electrical & Electronics)	3	-	-	3	30	70	100
5	ESC	AS103P	Engineering Practices-I Lab(Electrical & Electronics)	-	-	2	1	25	25	50
6	ESC	AS104T	Logic building with C	2	-	-	2	15	35	50
7	ESC	AS104P	Logic building with C Lab	-	-	2	1	25	25	50
8	AEC	AS105P	Business Communication Skills I Lab	-	-	2	1	25	25	50
9	IKS	AS106T	Indian Knowledge Systems	2	-	-	2	15	35	50
10	SEC	AS107T	Career Development I	-	-	2	1	50	-	50
11	PCC	ME101T	Program Foundation I	2	-	-	2	15	35	50
12	CC	AS108T	Co-curricular Course - I	-	-	-	2	50	-	50
Total				15	-	10	22	320	380	700

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MECHANICAL ENGINEERING

GROUP 1: SEMESTER II / GROUP 2: SEMESTER I

S r N o	Course Category	Course Code	Course Title	Hours per Week			Credit s	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Tot al
1	BSC	AS201T	Engineering Chemistry & Environmental Science	2	-	--	2	15	35	50
2	BSC	AS201P	Engineering Chemistry & Environmental Science Lab	-	-	2	1	25	25	50
3	BSC	AS202T	Applied Mathematics-II	4	-	-	4	30	70	100
4	ESC	AS203T	Engineering Practices-II (Civil & Mechanical)	3	-	-	3	30	70	100
5	ESC	AS203P	Engineering Practices-II Lab (Civil & Mechanical)	-	-	2	1	25	25	50
6	ESC	AS204T	Problem Solving with Python	2	-	-	2	15	35	50
7	ESC	AS204P	Problem Solving with Python Lab	-	-	2	1	25	25	50
8	AEC	AS205P	Business Communication Skills II Lab		-	2	1	25	25	50
9	SEC	AS206T	Career Development II		-	2	1	50	-	50
10	PCC	ME201 T	Program Foundation II	2	-	-	2	15	35	50
11	ESC	AS207 T	Design Thinking	2	-		2	30	70	100
12	CC	AS208P	Co-curricular Course - II	-	-	-	2	50	-	50
Total				17	-	10	22	335	415	750

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**SEMESTER III**

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	ME301T	Machining Process	3	-	-	3	30	70	100
2	PCC	ME301P	Machining Process Lab	-	-	2	1	25	25	50
3	PCC	ME302T	Engineering Thermodynamics	3	1	-	4	30	70	100
4	PCC	ME303T	Materials Engineering	3	-	-	3	30	70	100
5	PCC	ME303P	Materials Engineering Lab	-	-	2	1	25	25	50
6	PCC	ME304T	Machine Drawing	3	-	-	3	15	35	50
7	PCC	ME304P	Machine Drawing Lab	-	-	2	1	25	25	50
8	SEC	ME305P	Career Development III	-	-	2	1	50	-	50
9	VEC	ME306T	Value Education Course- I	2	-	-	2	15	35	50
10	ELC	ME307P	Micro Project I*	-	-	2	1	50	-	50
Total				14	1	10	20	295	355	650
11	MDM		Multidisciplinary minor-I	2	-	-	2	15	35	50
Total				16	1	10	22	310	390	700

* Field Project or Community engagement project in the major discipline

Career Development III: Training on MS Excel

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SEMESTER IV

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	ME401T	Fluid Mechanics and Hydraulic Machines	3	-	-	3	30	70	100
2	PCC	ME401P	Fluid Mechanics and Hydraulic Machines Lab	-	-	2	1	25	25	50
3	PCC	ME402T	Strength of Materials	3	-	-	3	30	70	100
4	PCC	ME402P	Strength of Materials Lab	-	-	2	1	25	25	50
5	PCC	ME403T	Kinematics of Machines	3	-	-	3	30	70	100
6	PCC	ME404P	Mechanical Measurements Lab	-	-	2	1	25	25	50
7	OE	ME405T	Open Elective - I	2	-	-	2	15	35	50
8	VSC	ME406P	Technical Skill Development - I	2	-	-	2	50	-	50
9	VEC	ME407T	Value Education Course II	2	-	-	2	15	35	50
10	SEC	ME408P	Career Development - IV	-	-	2	1	50	-	50
11	ELC	ME409P	Micro Project II*	-	-	2	1	50	-	50
Total				15	-	10	20	345	355	700
11	MDM		Multidisciplinary minor-II	3	-	-	3	30	70	100
Total				18	-	10	23	375	425	800

* Field Project or Community engagement project in the major discipline

Technical Skill Development - I: Training on AutoCAD.

Career Development - IV: Training on quantitative aptitude

Open Elective - I	
ME405T	Entrepreneurship Development

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MECHANICAL ENGINEERING

SEMESTER V

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	ME501T	Heat Transfer	3	-	-	3	30	70	100
2	PCC	ME501P	Heat Transfer Lab	-	-	2	1	25	25	50
3	PCC	ME502T	Design of Machine Elements	3	-	-	3	30	70	100
4	PCC	ME502P	Design of Machine Elements Lab	-	-	2	1	25	25	50
5	PEC	ME503T	Professional Elective course-I	3	-	-	3	30	70	100
6	PEC	ME504T	Professional Elective course-II	4	-	-	4	30	70	100
7	PCC	ME505P	Mechatronics Lab	-	-	2	1	25	25	50
8	OE	ME506T	Open Elective - II	3	-	-	3	30	70	100
9	VSC	ME507T	Technical Skill Development - II	2	-	-	2	50	-	50
10	SEC	ME508P	Career Development - V	-	-	2	1	50	-	50
Total				18	-	8	22	325	425	750
11	MDM		Multidisciplinary minor-III	3	-	-	3	30	70	100
Total				21	-	8	25	355	495	850

Career Development - V: Training on reasoning ability

Professional Elective course-I	
ME503T(i)	Refrigeration and Air Conditioning System
ME503T(ii)	Production and Operation Management
ME503T(iii)	Design Thinking
ME503T(iv)	Finance for Professionals

Professional Elective course-II	
ME504T(i)	Fundamentals of HVAC System
ME504T(ii)	Logistics and Supply Chain Management
ME504T(iii)	Mechanical Vibrations
ME504T(iv)	Applied Industrial IoT

Technical Skill Development - II: Training on Matlab.

Open Elective - II

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ME506T Automobile Engineering

SEMESTER VI

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	ME601T	Dynamic of Machines	3	-	-	3	30	70	100
2	PCC	ME601P	Dynamics of Machines Lab	-	-	2	1	25	25	50
3	PCC	ME602T	Industrial Engineering	3	-	-	3	30	70	100
4	PEC	ME603T	Professional Elective course- III	3	-	-	3	30	70	100
5	PEC	ME604T	Professional Elective course -IV	3	-	-	3	30	70	100
6	AEC	AS601TT	Economics & Management	2	-	-	2	15	35	50
7	OE	ME605T	Open Elective- III	3	-	-	3	30	70	100
8	ELC	ME606P	Project - I	-	-	4	2	50	50	100
9	SEC	ME607P	Career Development - VI	-	-	2	1	50	-	50
Total				17	-	8	21	290	460	750
10	MDM		Multidisciplinary minor-IV	3	-	-	3	30	70	100
Total				20	-	8	24	320	530	850

Career Development - VI: Training on soft skills (Group Discussions, Interview techniques)

Professional Elective course -III	
ME603T(i)	Passive Heating and Cooling of Building
ME603T(ii)	Sustainable Production System
ME603T(iii)	Computer Aided Design
ME603T(iv)	Piping Engineering

Open Elective - III	
ME606T	Renewable Energy Resources

Professional Elective course -IV

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ME604T(i)	HVAC System Design-I
ME604T(ii)	Advances in Project and Quality Management
ME604T(iii)	Design of Mechanical Power Transmission system
ME604T(iv)	Fire and Life safety in Infrastructure

SEMESTER VII

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	PCC	ME701T	Automation & Robotics	3	-	-	3	30	70	100
2	PCC	ME701P	Automation & Robotics Lab	-	-	2	1	25	25	50
3	PCC	ME702T	Energy Conversion	3	-	-	3	30	70	100
4	PCC	ME702P	Energy Conversion Lab	-	-	2	1	25	25	50
5	PEC	ME703T	Professional Elective course-V	3	-	-	3	30	70	100
6	PEC	ME703P	Professional Elective course-V Lab	-	-	2	1	25	25	50
7	PEC	ME704T	Professional Elective course-VI	3	-	-	3	30	70	100
8	ELC	ME705P	Project - II	-	-	8	4	50	50	100
9	ELC	ME706P	Summer / Winter Internship*	-	-	-	2	50	--	50
Total				12	-	14	21	295	405	700
10	MDM		Multidisciplinary minor-V	3	-	-	3	30	70	100
Total				15	-	14	24	325	475	800

* Summer / Winter Internship: Internship (2 to 4 weeks) is to be carried out after 6th semester & its evaluation to be done in 7th sem.

Professional Elective course-V

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ME703T(i)	HVAC System Design-II
ME703T(ii)	Industrial Robotics
ME703T(iii)	Finite Element Method
ME703T(iv)	HVAC system design for buildings

Professional Elective course -V Lab	
ME703P(i)	HVAC System Design Lab
ME703P(ii)	Industrial Robotics Lab
ME703P(iii)	Finite Element Method Lab
ME703P(iv)	HVAC system design for buildings Lab

Professional Elective course -VI	
ME704T(i)	Energy Conservation in HVAC System and Components
ME704T(ii)	Smart Manufacturing and Production System
ME704T(iii)	Tool Design
ME704T(iv)	Project Management for Engineers

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**SEMESTER VIII****Option A**

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	ELC	ME801P*	Project III	-	-	-	12	300	100	400
Total				-	-	-	12	300	100	400

Project III: Project based on one semester internship in Industry/Research Institute/ National Laboratories/ Incubation Center. Minimum 90 days internship in any industry and project is to be carried out during internship.

* End semester examination will consist of evaluation of seminar & project report.

Option B

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
				L	T	P		Continual Assessment	End Sem Examination	Total
1	ELC	ME802P #	Institutional Internship	-	-	12	6	100	100	200
2	ELC	ME803P	Project – III	-	-	12	6	100	100	200
Total				-	-	24	12	200	200	400

Option B is available to students only after recommendation of the concerned Head of the department. The project and internship should contribute towards career development plan of the students.

Project – III: Project will be carried out at the institute.

Two NPTEL courses (as per choice of student) or Institutional Internship by IEDC, SVP CET.

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EXIT OPTIONS

Award of UG Certificate in Major with 44 credits and an additional 8 credits (After First Year)

EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1.	Vocational Course/ Internship for 8 week duration	Online/ Offline	8

Award of UG Diploma in Major with 84 credits and an additional 8 credits (After Second Year)

EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1.	Vocational Course/ Internship for 8 week duration	Online/ Offline	8

Award of UG Degree in Major with 127credits and an additional 8 credits (After Third Year)

EXIT COURSES			
S.N.	Course name	Mode of conduction	Credits
1.	Vocational Course/ Internship for 8 week duration	Online/ Offline	8

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MECHANICAL ENGINEERING

Multidisciplinary Minor

Minor 1 :- Management

Sr No	Sem	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
					L	T	P		Continual Assessment	End Sem Examination	Total
1	III	MDM		Introduction to Operations Research by Prof. G. Srinivasan, IIT Madras	-	-	-	2	30	70	100
2	iv	MDM		Marketing Management-I by Prof. Jayanta Chatterjee & Prof. Shashi Shekhar Mishra, IIT Kanpur	-	-	-	3	30	70	100
3	V	MDM		Operations and Supply Chain Management by Prof. G. Srinivasan, IIT Madras	-	-	-	3	30	70	100
4	VI	MDM		Financial Accounting by Prof. Varadraj Bapat, IIT Bombay OR Decision making using financial accounting by Prof. G Arun Kumar, IIT Madras OR Financial accounting by Prof. Puran Singh, IIT Mandi	-	-	-	3	30	70	100
5	VII	MDM		Principles of Management by Prof. Susmita	-	-	-	3	30	70	100

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				Muhopadhyay, Prof. S. Srinivasan, IIT Kharagpur OR Principles of Management by Prof. Usha Lenka, IIT Roorkee							
				Total			14	150	350	500	

1. Student have to complete FIVE courses
2. Please choose one course against each serial number where there are multiple courses in a serial number

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Multidisciplinary Minor

Minor 2 :- Emerging Trends

Sr No	Sem	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks		
					L	T	P		Continual Assessment	End Sem Examination	Total
1	III	MDM		Multidisciplinary Minor 1	3	-	-	3	30	70	100
2		MDM									
3		MDM									
4		MDM									
				Total				14			

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