

I SEMESTER (Common to all specialized Programmes under one stream)

I SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching and Learning Scheme					Examination				Credits	
					Classroom Instruction (CI) hours per semester		Laboratory Instruction (LI) hours Per semester	Term work & self-learning in hours	Teaching-Learning hours per semester = CI + LI+TW+SL	Duration in hours	CIE Marks	SEE Marks	Total Marks		
					L	T	P	TW+SL							
1	MAT/PCC	1Mxx101	Mathematic stream Specific		42	0	0	48	90	3	50	50	100	3	
2	PCC	1MME102	ADVANCED MATERIALS AND PROCESSING		42	0	0	48	90	3	50	50	100	3	
3	PCC	1MME103	INDUSTRIAL INTERNET OF THINGS		42	0	0	48	90	3	50	50	100	3	
4	IPCC	1MME104x	Integrated Professional Core Course-I		42	0	28	48	120	3	50	50	100	4	
5	PEC	1MME105x	Professional Elective Course-I		42	0	0	48	90	3	50	50	100	3	
6	PEC	1MME106x	Professional Elective Course-II		42	0	0	48	90	2	50	50	100	3	
7	PCCL	1MMEL107x	Professional Core Courses Labs		--	--	28	2	30	03	50	50	100	1	
8	NCMC	1MRMI108	Research Methodology and IPR		Online course (online.vtu.ac.in)									PP	
									Total	600	--	350	350	700	20

Professional Elective Courses (PECs): Professional Elective Courses – PEC–I and PEC–II – are common to all branches of specialization within a particular Engineering stream. Students may choose the most appropriate elective based on their field of specialization and academic requirements. **Note: The number of courses listed under each PEC group may exceed four, depending on the specializations under one stream.**

Integrated Professional Core Courses (IPCC): The 1Mxx104x Group comprises specialization-specific core courses that are integrated with a practical component, ensuring application-oriented learning aligned with industry and research needs. The number of courses in the group depends on the number of specializations offered under a particular engineering stream.

Integrated Professional Core Course (IPCC)		Professional Elective Courses-I	
Code	Title of the Course	Code	Title of the Course
1MME104A	ADVANCED DESIGN AND STRUCTURAL ANALYSIS	1MME105A	ADVANCED STRUCTURAL DYNAMICS AND VIBRATION CONTROL
1MME104B	ADVANCED MANUFACTURING PROCESSES & DIGITAL FACTORY	1MME105B	MICRO AND NANO MANUFACTURING TECHNOLOGIES
1MME104C	COMPUTATIONAL FLUID DYNAMICS & ENERGY SYSTEMS	1MME105C	ADVANCED COMBUSTION AND EMISSION CONTROL
1MME104D	ADVANCED MATERIALS ENGINEERING & CHARACTERIZATION	1MME105D	NANOSTRUCTURED MATERIALS AND SURFACE ENGINEERING
1MME104E	ROBOTICS, AI, AND MECHATRONIC SYSTEMS	1MME105E	CYBER-PHYSICAL SYSTEMS IN MECHANICAL ENGINEERING

Professional Elective Courses-II		Professional Core Courses Lab (PCCL)	
Code	Title of the Course	Code	Title of the Course
1MME106A	DESIGN FOR RELIABILITY AND LIFECYCLE ENGINEERING	1MMEL107A	AI AND ROBOTICS LABORATORY
1MME106B	LEAN MANUFACTURING AND SUSTAINABLE PRODUCTION SYSTEMS	1MMEL107B	MANUFACTURING AUTOMATION LAB (CNC/CIM)
1MME106C	HEAT TRANSFER IN MULTIPHASE AND MICRO-SCALE SYSTEMS	1MMEL107C	PRODUCT DESIGN VISUALIZATION ENGINEERING LAB
1MME106D	HIGH-TEMPERATURE MATERIALS AND CREEP MECHANICS	1MMEL107D	ENGINEERING COMPUTATIONAL LAB
1MME106E	BIOMECHANICS AND BIOMEDICAL APPLICATIONS		