

DEPARTMENT OF ENGINEERING DESIGN

LIST OF PROFESSIONAL ELECTIVES

This document has been updated in May 2025.

BASKET OF ELECTIVES – Automotive Engineering Stream

Sl.No.	Course No.	Course Title
1	AM5599	Computational Techniques in Applied Mechanics
2	CE4719	Computer Applications in Traffic & Highway Engineering
3	CH5019	Mathematical Foundations of Data Science
4	CH5120	Modern Control Theory
5	CH5170	Process Optimization
6	EE4240	Image Signal Processing
7	EE4310	Digital System Design
8	EE5030	DSP Architecture & Embedded Systems
9	EE5550	Micro-Electro-Mechanical Systems
10	EE5750	Adaptive and Optimal Control
11	EE5780	Robotic Control Systems
12	MA 6180	Introduction to Algebraic Geometry
13	MA 6230	Graph Theory
14	MA2040	Probability, Statistics and Stochastic Processes
15	MA5310	Linear Algebra
16	MA5380	Topology
17	MA5410	Numerical Methods and Computing
18	MA5460	Transform Techniques
19	MA5750	Applied Statistics
20	ME4420	Unconventional Manufacturing Techniques
21	ME6020	IC Engine Combustion & Pollution
22	ME6060	Fundamentals of Combustion
23	ME6110	Combustion Technology
24	ME6280	Design & Optimization of Energy Systems
25	ME6290	Advanced Energy Conversion
26	ME6590	Renewable Energy Technology
27	ME6810	Transmission Mechanism and Manipulators
28	ME7240	Modelling and Simulation in Manufacturing
29	ME7430	Oil Hydraulics & Pneumatic Systems
30	MM4049	Materials Selection and Design
31	CE4719	Computer Applications in Traffic & Highway Engineering

BASKET OF ELECTIVES – Biomedical Design Stream

Sl. No	Course No	Course Title
1	AM3010	Introduction to Biomechanics
2	AM4010	Biomedical Signal Processing
3	AM5010	Biomechanics
4	AM5130	Quantitative Physiology
5	AM5140	Biomedical Instrumentation
6	AM5510	Biomedical Signals and Systems
7	AM5600	Computational Techniques in Applied Mechanics
8	BT3051	Data Structures and Algorithms for Biology
9	CH5019	Mathematical Foundations of Data Science
10	CH5120	Modern Control Theory
11	CH5170	Process Optimization
12	EE4240	Image Signal Processing
13	EE4310	Digital System Design
14	EE5030	DSP Architecture & Embedded Systems
15	EE5080	Introduction to Digital Signal Processing
16	EE5270	Microwave Solid State Devices
17	EE5550	Micro-Electro-Mechanical Systems
18	EE5750	Adaptive and Optimal Control
19	EE5780	Robotic Control Systems
20	MA 6180	Introduction to Algebraic Geometry
21	MA 6230	Graph Theory
22	MA2040	Probability, Statistics and Stochastic Processes
23	MA2050	Probability and Random Processes
24	MA5310	Linear Algebra
25	MA5380	Topology
26	MA5410	Numerical Methods and Computing
27	MA5460	Transform Techniques
28	MA5750	Applied Statistics
29	ME4419	Unconventional Manufacturing Techniques
30	MM4049	Materials Selection and Design

BASKET OF ELECTIVES – Both Automotive Engineering and Biomedical Design

Sl. No.	Course No.	Course Title
1	ED3040	Aesthetics in Design
2	ED3090	Introduction to System Design
3	ED3151	Industrial Automation and Robotics
4	ED3152	Precision Processes and Systems
5	ED3153	Principles of Form Design
6	ED5051	Design of Implantable Devices
7	ED5052	Fundamentals of Electromagnetic Compatibility Design
8	ED5053	Mechanics of Materials with Microstructures
9	ID5060	First Principal Tools in Engineering
10	ED5150	Advanced Mechanisms
11	ED5240	Tyre Mechanics
12	ED6007	Mechanics and Control of Robot Manipulators
13	ED5270	Motorcycle Dynamics
14	ED5290	Rapid Product Development
15	ED5310	Differential and Computational Geometry
16	ED5311	Medical Device Innovation
17	ED5312	Materials and Manufacturing for the Automotive Industry
18	ED5313	Biomedical Signal and Image Processing
19	ED5314	Design, Analysis and Control of Robot Manipulators
20	ED5315	Introduction to Field and Service Robotics
21	ED5316	Antenna Theory and Design
22	ED5317	Strategies for Managing Innovation
23	ED5318	Biomimetic Design
24	ED5319	Introduction to the Design of Heat Exchangers, Pressure Vessels & Piping
25	ED5330	Control of Automotive Systems
26	ED5511	Laser in Measurements & Micro-Manufacturing
27	ED6002	Optimisation Methods in Engineering Design
28	ED6003	Micromechanics
29	ID7010	Advanced Finite Element Analysis

Updates since the year 2020

Sl.No	Course No.	Course Title	DCC	Applicable for
1	AM5530	Advanced Fluid Mechanics	102 on 23 Jan 2020	ED-DD
2	ME6156	Design of Combustion Engines	107 on 22 Oct 2020	ED-DD
3	ED5052	Electromagnetic Compatibility for Product Design	118 on 25 Feb 2022	IDDD EV
4	CS6650	Smart Sensing for Internet of Things	126 on 18 Nov 2022	ED-DD
5	ED5018	Business Excellence and Quality Management	128 on 27 Jan 2023	ED-DD
6	ME5306	Introduction to Autonomous Vehicles	130 on 24 Mar 2023	IDDD Robotics
7	ED5020	Design of Implantable and Surgical Devices	132 on 12 May 2023	ED-DD
8	EE6200	Power Electronic Control of Electric Machines	132 on 12 May 2023	IDDD EV
9	EE6203	Power Electronics System Design	132 on 12 May 2023	IDDD EV
10	ED5350	Electric Vehicle Engineering and Development	132 on 12 May 2023	IDDD EV
11	EE5212	Digital Controller for Power Applications	132 on 12 May 2023	IDDD EV
12	ME5233	Multibody Dynamics and Applications	132 on 12 May 2023	IDDD EV
13	MM5250	Additive Manufacturing	132 on 12 May 2023	IDDD EV
14	ID5020 OR ME5233	Multi Body Dynamics & Applications	132 on 12 May 2023	IDDD EV
15	ID5101	Innovative Entrepreneur - 1 Customer Discovery	133 on 15 Jun 2023	ED-DD
16	ME6158	Engine Systems & Performance	133 on 15 Jun 2023	ED-DD
17	ID5101	Innovative Entrepreneur - 1 Customer Discovery	133 on 15 Jun 2023	ED DD
18	ME6158	Engine Systems and Performance	133 on 15 Jun 2023	ED Auto
19	ED5016	Biomedical Micro/Nano Devices and Applications	138 on 15 Nov 2023	ED-DD
20	ID6040	Introduction to Robotics	138 on 15 Nov 2023	ED-DD
21	EE3110	Probability Foundations for Electrical Engineers	139 on 13 Dec 2023	ED-DD
22	BT2022	Bio Statistics	152 on 18 Nov 2024	ED-DD