

MECHATRONICS ROBOTICS ENGINEERING, B.A.SC. (CLASS OF 2028)

First Year 2024-2025

Code	Title	Units
MREN 103	Mechatronics and Robotics Design I	4.00
MREN 178	Data Structures and Algorithms	4.00
APSC 101	Engineering Design & Practice	3.20
APSC 102	Experimentation	2.00
APSC 111	Physics I	3.30
APSC 112	Physics II	3.30
APSC 131	Chemistry of Engineering Materials and Processes	3.30
APSC 143	Introduction to Computer Programming for Engineers	3.30
APSC 162	Engineering Graphics	2.50
APSC 171	Calculus I	3.30
APSC 172	Calculus II	3.30
APSC 174	Introduction To Linear Algebra	3.30
APSC 182	Applied Engineering Mechanics	1.70
APSC 199	Engineering Communications 1	0.50
Total Units		41.00

Second Year 2025-2026

Code	Title	Units
MREN 203	Mechatronics and Robotics Design II	4.00
MREN 223	Signals and Systems	4.00
MREN 230	Thermodynamics and Heat Transfer	3.75
MREN 241	Fluid Mechanics and Fluid Power	3.75
ELEC 221	Electric Circuits	4.25
ELEC 252	Electronics I	4.25
ELEC 271	Digital Systems	4.00
ELEC 274	Computer Architecture	4.00
MECH 221	Solid Mechanics I	3.50
MTHE 228	Complex Analysis	3.50
MECH 229	Kinematics and Dynamics	3.50
MTHE 237	Differential Equations for Engineering Science	3.50
Total Units		46.00

Third Year 2026-2027

Code	Title	Units
APSC 221	Economic and Business Practice	3.00
MREN 303	Mechatronics and Robotics Design III	4.00

MREN 318	Sensors and Electric Actuators	4.50
MREN 320	Industrial Automation	3.50
MREN 348	Introduction to Robotics	4.00
ELEC 326	Probability & Random Processes	3.50
ELEC 371	Microprocessor Interfacing and Embedded Systems	4.00
ELEC 372	Numerical Methods and Optimization	3.50
ELEC 353	Electronics II	4.25
ELEC 373	Computer Networks	3.50
MECH 350	Automatic Control	3.50
Plus choose one (1) Complementary Studies course		3.00
Total Units		44.25

Fourth Year 2027-2028

Code	Title	Units
MREN 403	Mechatronics and Robotics Design IV	8.00
MREN 410	Intelligent Machines and Autonomous Systems	3.50

Two Complementary Studies courses

Three Free Technical Electives (Any FEAS course at the 200, 300 or 400 level (timetabling permitting), or permission of the program)

Five Primary Technical Electives (recommended Concentrations below):

Automation

ELEC 431	Power Electronics
ELEC 436	Electric Machines and Control
MECH 465	Computer Aided Design
MECH 457	Additive Manufacturing
MECH 423	Introduction To Microsystems
ELEC 475	Computer Vision with Deep Learning

Robotics

ELEC 436	Electric Machines and Control
ELEC 444	Modeling and Computer Control of Mechatronic Systems
ELEC 472	Artificial Intelligence
ELEC 475	Computer Vision with Deep Learning
ELEC 446	Mobile Robotics
CMPE 454	Computer Graphics

Biomedical

ELEC 408	Biomedical Signal and Image Processing
MECH 393	Biomechanical Product Development



MECH 394 Frontiers in Biomechanical Engineering

MECH 478 Biomaterials

MECH 495 Ergonomics And Design

MECH 496 Musculoskeletal Biomechanics

Intelligent Systems

ELEC 425 Machine Learning and Deep Learning

CMPE 351 Advanced Data Analytics

ELEC 472 Artificial Intelligence

CMPE 325 Human-Computer Interaction

CMPE 452 Neural Networks and Genetic Algorithms

ELEC 475 Computer Vision with Deep Learning