

# BE(Hons) Mechanical Engineering - 2023

With Minor in Aerospace Engineering

## 1<sup>st</sup> Year Engineering

S1	ENGR101 Foundations of Engineering	EMTH118 Engineering Mathematics 1A	PHYS101 Engineering Physics A	CHEM111 Chemical Principles and Processes
S2	ENGR102 Engineering Mechanics	EMTH119 Engineering Mathematics 1B	COSC 131 Introduction to Programming for Engineers	Elective
ENGR100 Academic Writing Assessment				

## 2<sup>nd</sup> Year Engineering

S1	ENME201 Design Communication	ENME202 Stress, Strain and Deformation in Machine Elements	ENME215 Engineering Thermodynamics	EMTH210 Engineering Mathematics 2
S2	ENME203 Dynamics and Vibrations	ENME207 Materials Science and Engineering	ENME221 Engineering Design and Manufacture	EMTH271 Mathematical Modelling and Computation 2
ENME199 Workshop Training Course for Mechanical and Mechatronics Engineering				

## 3<sup>rd</sup> Year Engineering

S1	ENME301 Engineering Design and Production Management	ENME303 Controls and Vibrations	ENME307 Performance of Engineering Materials	ENME314 Fluid Mechanics
S2	ENME302 Computational and Applied Mechanical Analysis	ENME362 (in lieu of ENME311) Aerospace Engineering Design	ENME315 Heat Transfer	ENME313 Electro Technology for Mechanical Engineers

## 4<sup>th</sup> Year Engineering

S1	ENME 408 Honours R&D Project with Aerospace Topic	ENME 401 Mechanical Systems Design with Aerospace Focus	Aerospace Minor Elective from list below (either semester)	ELECTIVE
S2		ENME 418 Engineering Management and Professional Practice for Mechanical Engineers	Aerospace Minor Elective from list below (either semester)	ELECTIVE

### CONTROLS AND ROBOTICS

ENME403 Linear Systems Control and System Identification (S1)  
ENME423 Instrumentation and Sensors (S1)  
ENMT482 Robotics (S2)

### SPECIAL TOPICS - 2023

ENME481 Materials that Shape Civilizations (S1)  
ENME484 Industry 4.0 Intelligent Manufacturing (\*\*)  
ENME487 Biomaterials (S2)

### Final Year Electives

### MATERIALS ENGINEERING

ENME407 Advanced Materials Science and Engineering (S1)  
ENME417 Adv Composite, Polymeric and Ceramic Materials (\*\*)  
ENME427 Engineering Failure Analysis and Prevention (S2)

### DYNAMICS, VIBRATIONS AND ACOUSTICS

ENME402 Acoustics and Vibrations (S1)  
ENME412 Advanced Vibrations (\*\*)

### THERMO-FLUIDS-ENERGY

ENGR401 Computational Fluid Mechanics (S2)  
ENME404 Aero and Ground Vehicle Dynamics (S1)  
ENME405 Energy Systems Engineering (S2)  
ENME460 Propulsion (S2)  
ENME465 HVAC Engineering (S1)

### DESIGN AND MANUFACTURING

ENME406 Eng Product Design & Analysis (S2)  
ENME411 Advanced Mech System Design (S2)

### MINOR IN AEROSPACE ENGINEERING

ENME404 Aero and GV Dynamics (S1)  
ENME460 Aerospace Propulsion (S2)  
ENGR401 Computational Fluid Mechanics (S2)  
ENME486 Special Topic: Aerospace Structures (S1)