MIT-WPU
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FACULTY OF ENGINEERING AND TECHNOLOGY

2024 - 25

B.Tech Mechanical Engineering

Programme Structure

mitwpu.edu.in

Division	Faculty of Engineering and Technology
School Name	School of Engineering and Technology
Department Name	Department of Mechanical Engineering
Program Name	B. Tech Mechanical Engineering

Course Basket

Course Type	Description
Programme Core	Courses dealing with foundations, depth and breadth of the major in which student is admitted at MIT-WPU
Programme Electives	Open electives under the programme allow students to specialise in a particular area connected to their major.
University Core	Courses that reflect the core MIT-WPU values and the mission of Life Transformation of students.
University Electives	Multidisciplinary courses across the faculties at MIT-WPU and outside the programme core.

Summary for Four Years Together

Course Type	Description
Programme Foundation	34
Programme Major	48
Programme Electives	16
Programme Capstone Project/Problem-Based Learning/Seminar and Internships	32
University Core	24
University Electives	9
TOTAL	**163**

Semester	Odd(I)	Even(II)	Total Credits
First Year	22	22	44
Second Year	22	23	45
Third Year	22	19	41
Fourth Year	14	19	33

Semester	Course Type	Course Name / Course Title	Total Credits
I	Programme Foundation	Linear Algebra and Differential Calculus	3
I	Programme Foundation	Physics	3
I	Programme Foundation	Chemistry	3
I	Programme Foundation	Biology for Engineers	2
I	Programme Major	Ideas and Innovations in Manufacturing	1
I	Programme Major	Engineering Graphics	3
I	University Core	Effective Communication	1
I	University Core	Foundations of Peace	2
I	University Core	Environment and Sustainability	1
I	University Core	Critical Thinking	1
I	University Core	Yoga-I	1
I	University Core	SLDP	1
		Total	**22**

Semester	Course Type	Course Name / Course Title	Total Credits
II	Programme Foundation	Integral Calculus	3
II	Programme Foundation	Basics of Electrical and Electronics Engineering	3
II	Programme Foundation	Programming and Problem Solving	3
II	Programme Foundation	Engineering Mechanics	3
II	Programme Major	Computer Aided Modelling	2
II	University Core	Advanced Excel	1
II	University Core	Financial Literacy	1
II	University Core	Yoga - II	1
II	University Core	Co-creation	1
II	University Core	Indian Constitution	1
II	University Core	IKS(General)	2
II	University Core	Sports	1
		Total	**22**

III	Programme Foundation	Differential Equations and Transform Techniques	4
III	Programme Major	Engineering Thermodynamics	4
III	Programme Major	Strength of Materials	3
III	Programme Major	Mechanical Engineering Software Lab	1
III	Programme Capstone Project/ Problem Based Learning/Seminar and Internships	Project Based Learning – I	1
III	University Core	Research Innovation Design Entrepreneurship (RIDE)	1
III	University Core	Spiritual and Cultural heritage: Indian Experience	2
III	University Electives	University Electives – I	3
III	University Electives	University Electives – II	3
		Total	**22**

Semester	Course Type	Course Name / Course Title	Total Credits
IV	Programme Foundation	Numerical Methods	4
IV	Programme Major	Fluid Mechanics & Machines	4
IV	Programme Major	Theory of Machines	3
IV	Programme Major	Materials Science and Engineering Metallurgy	3
IV	Programme Capstone Project/ Problem Based Learning/ Seminar and Internships	Project Based Learning – II	1
IV	University Core	Rural Immersion	1
IV	Programme Foundation	Design Thinking	1
IV	University Electives	University Electives – III	3
IV	Programme Foundation	IKS - 2	2
		Total	**22**

V	Programme Major	Heat Transfer	4
V	Programme Major	Metrology and Quality Control	3
V	Programme Major	Machine Design	4
V	Programme Major	Mechatronics	3
V	Programme Electives	Programme Elective – I	4
V	Programme Capstone Project/ Problem Based Learning/ Seminar and Internships	Project Based Learning – III	1
V	University Core	Managing Conflicts Peacefully: Tools and Techniques	2
V	Programme Capstone Project/ Problem Based Learning/ Seminar and Internships	Seminar	1
		Total	**22**

Semester	Course Type	Course Name / Course Title	Total Credits
VI	Programme Major	Dynamics of Machinery	4
VI	Programme Major	Manufacturing Science	3
VI	Programme Capstone Project/ Problem Based Learning/ Seminar and Internships	Mini Project	1
VI	University Core	Life Transformation Skills	1
VI	Programme Capstone Project/ Problem Based Learning/ Seminar and Internships	Project Based Learning – IV	1
VI	Programme Electives	Programme Elective – II	4
VI	Programme Electives	Programme Elective – III	4
VI	University Core	National Academic Immersion	2
		Total	**20**

VII	Programme Capstone Project/ Problem Based Learning/ Seminar and Internships	Internship	14
		Total	**14**

VIII	Programme Capstone Project/ Problem Based Learning/ Seminar and Internships	Capstone Project	12
VIII	Programme Major	Power Engineering	3
VIII	Programme Electives	Programme Elective – IV	4
		Total	**19**

University Electives List

Semester	Course Type	Course Name / Course Title
III	University Electives – I	Advanced Manufacturing Technology
III	University Electives – I	Energy Engineering
III	University Electives – I	Biomechanics
III	University Electives – II	Additive and Digital Manufacturing
III	University Electives – II	Optimization Techniques
III	University Electives – II	Biomedical Devices
IV	University Electives – III	Product Design and Development
IV	University Electives – III	Industrial Engineering and Management
IV	University Electives – III	Design of Experiments
IV	University Electives – III	Project Management and Operation Research,

MINOR IN MECHANICAL- (Advanced Manufacturing)

Programme Electives	Course Name / Course Title	Total Credits
Advanced Joining Technology	Robotic welding	3
	Advanced welding and simulator	3
	Advanced TIG and MIG welding	3
Advanced Machining Technology	Precision Engineering	3
	Non conventional machining	3
	Industry 4.0 and Smart manufacturing	3
Additive and Digital Manufacturing	Polymer material printing	3
	Design for additive manufacturing	3
	Reverse engineering and 3D printing applications	3

MINOR IN MECHANICAL- (E- VEHICLE TECHNOLOGY)

Programme Electives	Course Name / Course Title	Total Credits
Automotive Architecture and Testing	Automobile Architecture	3
	Vehicle Dynamics	3
	Testing and Certification of E-Vehicles	3
Battery Technology	Battery and other Energy Sources	3
	Battery Charging Technology	3
	Battery Management System	3
E-Vehicle Control and Safety	Electric Drives and Controllers	3
	Automotive Electronics	3
	Electric Vehicle: Safety and Regulations	3

*Modifications to the programmes and courses are contingent upon adherence to university guidelines and procedures. Any proposed changes must undergo a thorough review process, including consultation with relevant academic departments, approval from the appropriate administrative bodies, and compliance with accreditation standards.

Additionally, consideration will be given to feedback from students, faculty, and other stakeholders to ensure that modifications align with the overall educational objectives and mission of the university. The implementation of any approved changes will be communicated transparently to the university community, and appropriate measures will be taken to facilitate a smooth transition for all affected parties.