



**FACULTY OF  
ENGINEERING AND  
TECHNOLOGY**



**2024 - 25**

# **B.Tech. Materials Science & Engineering**

**Programme Structure**

<b>Division</b>	Faculty of Engineering and Technology
<b>School Name</b>	School of Engineering and Technology
<b>Department Name</b>	Department of Material Science Engineering
<b>Programme Name</b>	Materials Science and Engineering

## Category-wise Credit Distribution

<b>Category</b>	<b>Credits</b>
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

## Course Basket

<b>Course Type</b>	<b>Description</b>
Programme Core	Courses dealing with foundations, depth and breadth of the major in which a 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.

Semester	Course Type	Course Name / Course Title	Total Credits
I	University Core	Effective Communication	1
I	University Core	Critical Thinking	1
I	University Core	Environment and Sustainability	1
I	University Core	Foundations of Peace	2
I	University Core	Yoga - I	1
I	University Core	SLDP	1
I	Programme Foundation	Linear Algebra and Differential Calculus	3
I	Programme Foundation	Chemistry	3
I	Programme Foundation	Engineering Mechanics	3
I	Programme Foundation	Programming and Problem Solving	3
I	Programme Foundation	Engineering Graphics	3
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
II	Programme Foundation	Physics	3
II	Programme Foundation	Ideas and Innovations in Manufacturing	1
II	Programme Foundation	Integral Calculus	3
II	Programme Foundation	Basics of Electrical and Electronics Engineering	3
II	Programme Major	Introduction to Materials Science and Engineering	4

Semester	Course Type	Course Name / Course Title	Total Credits
III	University Core	Research Innovation Design Entrepreneurship (RIDE)	1
III	University Core	Spiritual & Cultural Heritage; Indian Experience	2
III	University Electives	UE - I	3
III	University Electives	UE-II	3
III	Programme Capstone Project/Problem Based Learning/Seminar and Internships	Project Based Learning - I	1
III	Programme Foundation	Inorganic and Organic Chemistry	3
III	Programme Major	Mechanics of Materials	2
III	Programme Major	Synthesis of Materials	3
III	Programme Major	Structure and Property Relationship	2
III	Programme Major	Chemical Engineering Principles	1
IV	University Electives	UE-III	3
IV	University Core	Rural Immersion	1
IV	Programme Capstone Project/Problem Based Learning/Seminar and Internships	Project Based Learning - II	1
IV	University Core	Life Transformation Skills	1
IV	Programme Foundation	Differential Equations and Transform Techniques	4
IV	Programme Major	Materials Characterization	3
IV	Programme Major	Thermodynamics and Kinetics of Materials	2
IV	Programme Major	Polymers	3
IV	Programme Major	Electronics, Optical and Magnetic Properties of Materials	3
IV	Programme Foundation	IKS-2	2

Semester	Course Type	Course Name / Course Title	Total Credits
V	University Core	Managing Conflicts Peacefully: Tools and Techniques	2
V	Programme Capstone Project/Problem Based Learning/Seminar and Internships	Project Based Learning - III	1
V	Programme Electives	Programme Elective - I	4
V	Programme Major	Introduction to Materials Modelling and Simulation	4
V	Programme Major	Functional Materials -I	4
V	Programme Major	Biomaterials	4
V	Programme Capstone Project/Problem Based Learning/Seminar and Internships	Seminar	1
VI	Programme Capstone Project/Problem Based Learning/Seminar and Internships	Project Based Learning - IV	1
VI	University Core	National Academic Immersion	2
VI	Programme Electives	Programme Elective - II	4
VI	Programme Major	Functional Materials -II	4
VI	Programme Major	Materials Processing and Manufacturing Techniques	4
VI	Programme Major	Materials Design	3
VI	Programme Capstone Project/Problem Based Learning/Seminar and Internships	Mini Project	3
VII	Programme Electives	Programme Elective - III	4
VII	Programme Capstone Project/Problem Based Learning/Seminar and Internships	Internship	12

Semester	Course Type	Course Name / Course Title	Total Credits
VIII	Programme Electives	Programme Elective - IV	4
VIII	Programme Major	Materials Life Cycle	2
VIII	Programme Capstone Project/Problem Based Learning/Seminar and Internships	Capstone Project	12

\*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.