



FACULTY OF  
ENGINEERING AND  
TECHNOLOGY



2024 - 25

**B.Tech. Bioengineering**

Programme Structure

<b>Division</b>	Faculty of Engineering and Technology
<b>School Name</b>	Engineering and Technology
<b>Department Name</b>	Chemical Bioengg. and Material Science
<b>Programme Name</b>	Bioengineering

## 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 MITWPU 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	Physics	3
I	Programme Foundation	Ideas and Innovations in Manufacturing	1
I	Programme Foundation	Chemistry	3
I	Programme Foundation	Engineering Graphics	3
I	Programme Foundation	Programming and Problem Solving	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	Mathematics for Bioengineers-I	3
II	Programme Foundation	Engineering Mechanics	3
II	Programme Foundation	Basics of Electrical and Electronics Engineering	3
II	Programme Major	Cell and Molecular Biology	4
II	Programme Major	Introduction to Chemical Engineering Practices	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 Major	Human Anatomy and Physiology	3
III	Programme Foundation	Mathematics for Bioengineers-II	3
III	Programme Major	Biochemical Process Calculations	3
III	Programme Major	Microbiology and Microbial Techniques	3
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 Major	Biochemistry	3
IV	Programme Major	Heat and Fluid Flow	4
IV	Programme Major	Strength of Materials	2
IV	Programme Foundation	Physiology for Engineers	3
IV	Programme Foundation	Probability and Statistics for Bioengineers	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	4
V	Programme Major	Numerical Methods for Bioengineers	3
V	Programme Major	Genetics	3
V	Programme Major	Fundamentals of Proteomics	3
V	Programme Major	Biothermodynamics	3
V	Programme Foundation	Unit Operations for Bioengineers	1
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	4
VI	Programme Major	Biomaterials	3
VI	Programme Major	Industrial Biotechnology	2
VI	Programme Major	Biological Transport Phenomena	2
VI	Programme Major	Bioreaction Engineering Principles	3
VI	Programme Capstone Project/Problem Based Learning/Seminar and Internships	Mini Project	3

Semester	Course Type	Course Name / Course Title	Total Credits
VII	Programme Electives	Programme Elective	4
VII	Programme Capstone Project/Problem Based Learning/Seminar and Internships	Internship	12
VIII	Programme Electives	Programme Elective	4
VIII	Programme Major	Project Management and Economics	2
VIII	Programme Major	Bioethics, Biosafety and Regulatory Affairs	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.