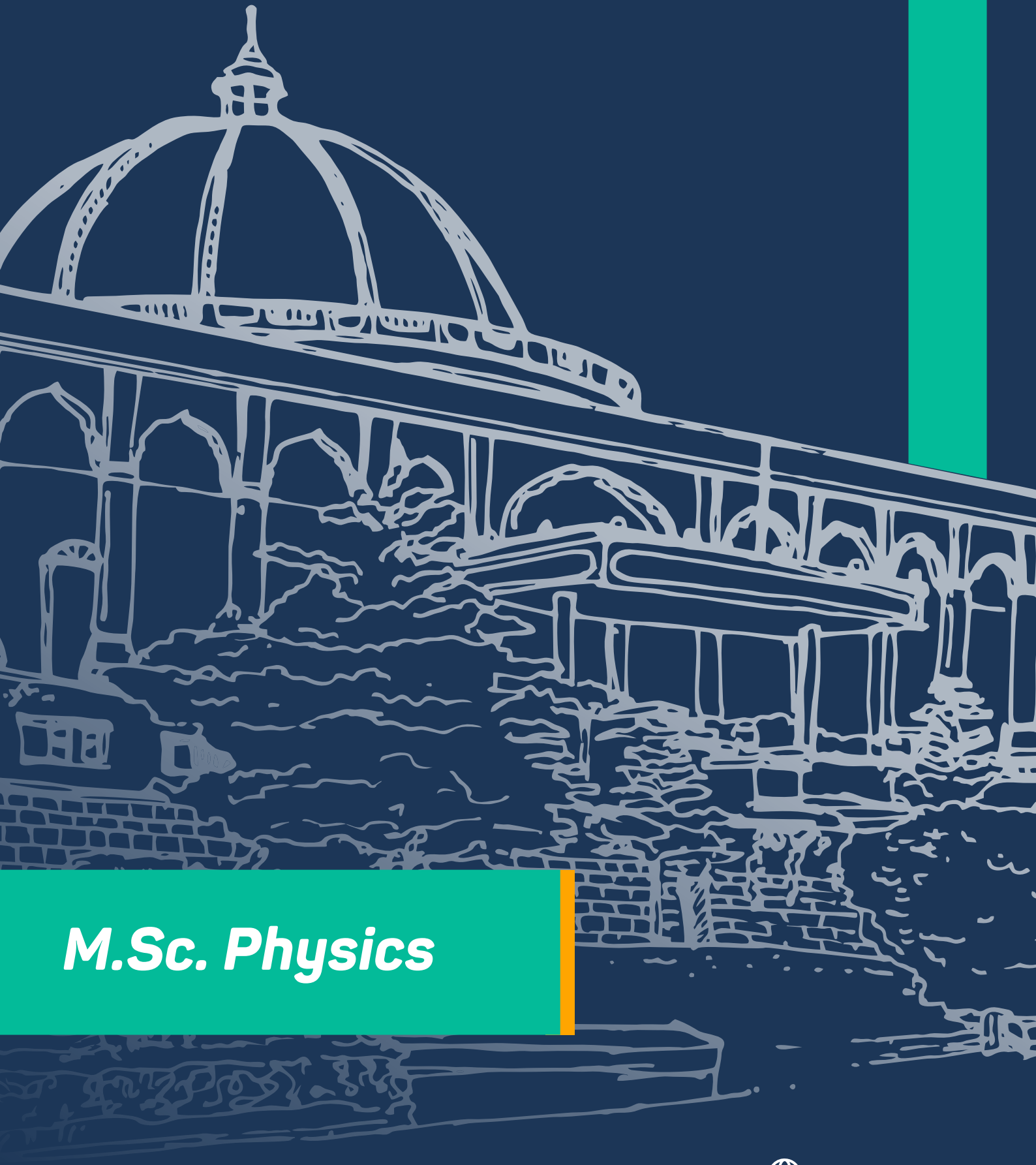
MIT-WPU
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FACULTY OF SCIENCE AND HEALTH SCIENCE



M.Sc. Physics

Programme Structure

mitwpu.edu.in

Division	Faculty of Science & Health Science
School Name	School of Science and Environmental Studies
Department Name	Department of Physics
Programme Name	M.Sc. Physics

CREDIT DISTRIBUTION

Course Type	Description
Programme Foundation (PC)	Courses dealing with the foundations, depth and breadth of the major in which the student is admitted at MIT-WPU.
Programme Electives (PE)	Open electives under the programme allow students to specialise in a particular area connected to their major.
Programme Major (PM)	This encompasses the specialised, in-depth coursework within a specific major. It focuses on the core concepts and skills relevant to that particular field of study.
Programme Foundation (PF)	These courses provide the essential background knowledge and skills needed to succeed in the chosen programme.
University Core (UC)	Courses that reflect the core MIT-WPU values and the mission of Life Transformation of students.
University Electives (UE)	Multidisciplinary courses across the faculties at MIT-WPU and outside the programme core.

Course Basket	% Credit Allotment	Credits Assigned
University Core (UC)	06	5
Research Methodology (RM)	05	4
Programme Foundation (PF)	18	16
Programme Major (Theory and Laboratory) (PM)	30	26
Programme Electives (PE)	18	16
Project / Internship (PR)	18	16
On-Job Training - OJT (PR)	05	04
Total	**100**	**87**

Semester	Odd (I)	Even (II)	Total Credits
First Year	21	22	43
Second Year	24	20	44

SEMESTER I

Semester	Course Type	Course Name / Course Title	Total Credits
I	PF	Classical Mechanics	3
I	PF	Mathematical Methods in Physics	4
I	PE	Programme Elective – 01	4
I	PF	General Physics Laboratory	2
I	PM	Research Methodology	4
I	PM	Introduction to Computer-Aided Designing (CAD)	1
I	UC	Scientific Studies of Mind, Matter, Spirit and Consciousness	2
I	UC	Yoga	1
		Total Credits:	**21**

ELECTIVE BASKET - 01

Track	Elective Basket	Name of the Course
I	Photonics	Optics
II	Astrophysics	Introduction to Astrophysics and Astronomy
III	Computational Physics	Introduction to Computational Physics
IV	Devices and Design	Fundamentals of Semiconductor Devices

SEMESTER II

Semester	Course Type	Course Name / Course Title	Total Credits
II	PF	Electrodynamics	3
II	PF	Quantum Mechanics	4
II	PM	Statistical Mechanics	3
II	PM	Electronics	3
II	PE	Programme Elective – 02	4
II	PM	Advanced Physics Laboratory – I	2
II	PM	Optical System Design	1
II	UC	Peace Building: Global Initiative	2
		Total Credits:	**22**

ELECTIVE BASKET - 02

Track	Elective Basket	Name of the Course
I	Photonics	Optoelectronics
II	Astrophysics	Stellar and Galactic Physics
III	Computational Physics	Computational Modelling in Physics
IV	Devices and Design	Device Fabrication and Characterisation

SEMESTER III

Semester	Course Type	Course Name / Course Title	Total Credits
III	PM	Condensed Matter Physics	3
III	PM	Atomic and Molecular Physics	3
III	PM	Nuclear and Particle Physics	3
III	PE	Programme Elective – 03	4
III	PM	Advanced Physics Laboratory – II	2
III	PM	Advanced Multiphysics Simulation	1
III	PR	Project	4
III	PR	On-Job Training (OJT) / Internship	4
		Total Credits:	**24**

ELECTIVE BASKET - 03

Track	Elective Basket	Name of the Course
I	Photonics	Laser Physics
II	Astrophysics	General Theory of Relativity and Cosmology
III	Computational Physics	AI & ML in Physics
IV	Devices and Design	Semiconductor Device and Process Simulation

SEMESTER IV

Semester	Course Type	Course Name / Course Title	Total Credits
IV	PM	Scientific Communication and Presentation Skills*	2
IV	PM	Entrepreneurship and Innovation in Physics*	2
IV	PE	Programme Elective – 04	4
IV	PR	Internship	12
		Total Credits:	**20**

*Note: In hybrid mode/ Peer to peer learning/ Seminar/ Online mode/ MOOC (1 credit = 15 h) platforms.

ELECTIVE BASKET - 04

Track	Elective Basket	Name of the Course
I	Photonics	Biophotonics and Holography
II	Astrophysics	Observational Astronomy and Techniques
III	Computational Physics	Quantum Information and Computing
IV	Devices and Design	Advanced Semiconductor Devices

*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.