

AKAL UNIVERSITY

TALWANDI SABO

(Estd. under Punjab State Act No. 25 of 2015)



TALWANDI SABO

Syllabus

For

Master of Science (Hons.) in Physics

(2024-2026)

DEPARTMENT OF PHYSICS

FACULTY OF SCIENCES

SYLLABI AND COURSES OF READING FOR MASTER OF SCIENCE (HONOURS) IN PHYSICS (2024-2026)
SEMESTER: I
SCHEME OF TEACHING and EXAMINATION

NATURE OF COURSE	COURSE CODE	COURSE NAME/TITLE	SCHEDULE OF TEACHING			CREDITS	MARKS		
			L	T	P		INT	MCQ/PRACTICAL FILE	END SEM EXAMINATION THEORY
Core	PHY06C101	Mathematical Physics-I	5	-	-	5	20	20	60
Core	PHY06C102	Classical Mechanics	5	-	-	5	20	20	60
Core	PHY06C103	Quantum Mechanics-I	5	-	-	5	20	20	60
Core	PHY06C104	Electronics-I	5	-	-	5	20	20	60
Laboratory	PHY06L101	Physics Laboratory-I	-	-	6	3	10	10	30
		TOTAL: 450	20	-	6	23	90	90	270

Abbreviations; L-Lecture, T-Tutorial, P-Practical, INT-Internal, MCQ-Multiple Choice Questions

SYLLABI AND COURSES OF READING FOR MASTER OF SCIENCE (HONOURS) IN PHYSICS (2024-2026)
SEMESTER: II
SCHEME OF TEACHING and EXAMINATION

NATURE OF COURSE	COURSE CODE	COURSE NAME/TITLE	SCHEDULE OF TEACHING			CREDITS	MARKS		
			L	T	P		INT	MCQ/PRACTICAL FILE	END SEM EXAMINATION THEORY
Core	PHY06C201	Mathematical Physics-II	5	-	-	5	20	20	60
Core	PHY06C202	Statistical Physics	5	-	-	5	20	20	60
Core	PHY06C203	Quantum Mechanics-II	5	-	-	5	20	20	60
Core	PHY06C204	Electronics-II	5	-	-	5	20	20	60
Laboratory	PHY06L201	Physics Laboratory-II	-	-	6	3	10	10	30
Laboratory	PHY06L202	Computational Physics Laboratory	-	-	6	3	10	10	30
		TOTAL: 500	20	-	12	26	100	100	300

Abbreviations; L-Lecture, T-Tutorial, P-Practical, INT-Internal, MCQ-Multiple Choice Questions

SYLLABI AND COURSES OF READING FOR MASTER OF SCIENCE (HONOURS) IN PHYSICS (2024-2026)
SEMESTER: III
SCHEME OF TEACHING and EXAMINATION

NATURE OF COURSE	COURSE CODE	COURSE NAME/TITLE	SCHEDULE OF TEACHING			CREDITS	MARKS		
			L	T	P		INT	MCQ/PRACTICAL FILE	END SEM EXAMINATION THEORY
Core	PHY06C301	Electrodynamics	5	-	-	5	20	20	60
Core	PHY06C302	Nuclear Physics	5	-	-	5	20	20	60
DSE*	-	* Choose any two DSE Papers (Listed below)	5	-	-	5	20	20	60
DSE*	-		5	-	-	5	20	20	60
Laboratory	PHY06L301	Physics Laboratory-III	-	-	6	3	10	10	30
TOTAL: 450			20	-	6	23	90	90	270

Abbreviations; L-Lecture, T-Tutorial, P-Practical, INT-Internal, MCQ-Multiple Choice Questions

* DSE: Choose any two from following Discipline Specific Elective (DSE) subjects:

- | | |
|---|---------------------------------|
| 1. Condensed Matter Physics-I (PHY06E301) | 2. Particle Physics (PHY06E302) |
| 3. Reactor Physics (PHY06E303) | 4. Plasma Physics (PHY06E304) |
| 5. Materials Science (PHY06E305) | |

Students may opt one course with five credits from Swayam or NPTEL portals as a DSE course. The department shall provide a list of courses available on the above portals in the beginning of 3rd and 4th semester.

SYLLABI AND COURSES OF READING FOR MASTER OF SCIENCE (HONOURS) IN PHYSICS (2024-2026)
SEMESTER: IV
SCHEME OF TEACHING and EXAMINATION

NATURE OF COURSE	COURSE CODE	COURSE NAME/TITLE	SCHEDULE OF TEACHING			CREDITS	MARKS		
			L	T	P		INT	MCQ/ PRACTICAL FILE	END SEM EXAMINATION THEORY
Core	PHY06C401	Characterization Techniques in Physics	5	-	-	5	20	20	60
Core	PHY06C402	Atomics and Molecular Physics	5	-	-	5	20	20	60
DSE*	-	* Choose any two DSE Papers (Listed below)	5	-	-	5	20	20	60
DSE*	-		5	-	-	5	20	20	60
Laboratory	PHY06L401	Physics Laboratory-IV	-	-	6	3	10	10	30
DSE**	-	** Choose any one DSE Papers (Listed below)	5	-	-	5	20	20	60
OR									
Dissertation	PHY06D401	Dissertation**	5	-	-		-	-	100
Total : 550			25		6	28	110/90	110/90	330/370

Abbreviations; L-Lecture, T-Tutorial, P-Practical, INT-Internal, MCQ-Multiple Choice Questions

* DSE: Choose any two from following Discipline Specific Elective (DSE) subjects:

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Experimental Techniques in Nuclear and Particle Physics (PHY06E401) 3. Astrophysics (PHY06E403) 5. High Energy Physics (PHY06E405) | <ol style="list-style-type: none"> 2. Condensed Matter Physics-II (PHY06E402) 4. Nanoscience and Technology (PHY06E404) 6. Gravitation and Cosmology (PHY06E406) |
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** A number of students, based on their performance in semester I & semester II, may be allotted Dissertation (PHY06D401) in semester IV, and other students will opt an additional DSE course not opted earlier.

Students may opt one course with five credits from Swayam or NPTEL portals as a DSE course. The department shall provide a list of courses available on the above portals in the beginning of 3rd and 4th semester.