

Indian Institute of Technology Palakkad

Curriculum



IIT PALAKKAD

Program : Master of Science
Stream : Physics
Year : 2026 Onwards

The Physics Department offers advanced theoretical as well as experimental training in Physics to students interested to pursue a career in science and technology. Along with the core courses in Physics, the program includes a set of elective courses designed specifically in accordance with the current worldwide trends of research in different streams in Physics. It also provides an opportunity for the students to take up, as a part of the course, short-term as well as extended projects on contemporary topics in different areas of the subject so that they can have a flavour of cutting-edge research.

The credit requirement of the program is as follows:

Credit requirements :

Category of the course	Credits
Program Major Core (PMC)	47
Program Major Electives (PME) /Project Based Courses	12
Open Electives (OE)	6
Humanities and Social Sciences Elective (HSE)	3
Communication Skills	1
Technical Writing	1
Total	70

The list of PMCs with their credits is below :

Sl. No.	Course code	Course Title	Credit
1	PH5007	Quantum Mechanics-I	4
2	PH5014	Mathematical Methods in Physics	3
3	PH5001	Classical Mechanics	4
4	PH5003	Electromagnetic Theory	4
4	PH5103	Mechanics and Electromagnetic theory Lab	2
5	PH5008	Quantum Mechanics II	3
6	PH5002	Atomic & Molecular Physics	3
7	PH5006	Statistical Mechanics	4
8	PH5015	Electronics & Instrumentation	4
9	PH5102	Thermal Physics and Atomic Spectroscopy Lab	2
10	PH5009	Condensed Matter Physics	4
11	PH5011	Nuclear & Particle Physics	3
12	PH5105	Advanced Physics Lab	3
13	PH5108	Scientific Computing for Physicists	1
14	PH5110	Project -I	3
		Semester Total	47

To guide the students towards arriving at a feasible ordering of courses, a course plan is proposed below. It is not mandatory to follow this plan. Multiple variations of this plan may be possible. However, students need to ensure that the credit requirements as mentioned in the table above are met. While this system allows flexibility for students to take courses in an order different from that mentioned below, the constraint that prerequisites for each course have to be cleared in advance to be able to take it, necessitates a judicious choice to complete the program within the expected time frame.

Semester I

No.	Course code	Course Title	L	T	P	C	Category
1	PH5007	Quantum Mechanics-I	3	1	0	4	PMC
2	PH5014	Mathematical Methods in Physics	3	0	0	3	PMC
3	PH5108	Scientific Computing for Physicists	0	0	2	1	PMC
4	PH5001	Classical Mechanics	3	1	0	4	PMC
5	PH5003	Electromagnetic Theory	3	1	0	4	PMC
6	PH5103	Mechanics and Electromagnetic theory Lab	0	0	3	2	PMC
7	GN5001	Communication Skills	1	0	0	1	IDC
8	GN****	Technical Writing	1	0	0	1	IDC
		Semester Total				20	

Semester II

No.	Course code	Course Title	L	T	P	C	Category
1	PH5008	Quantum Mechanics II	3	0	0	3	PMC
2	PH5002	Atomic & Molecular Physics	3	0	0	3	PMC
3	PH5006	Statistical Mechanics	3	1	0	4	PMC
4	PH5015	Electronics & Instrumentation	2	0	4	4	PMC
5		Elective (Humanities)	3	0	0	3	HSE
6	PH5102	Thermal Physics and Atomic Spectroscopy Lab	0	0	3	2	PMC
		Semester Total				19	

Semester III

No.	Course code	Course Title	L	T	P	C	Category
1	PH5009	Condensed Matter Physics	3	1	0	4	PMC
2	PH5011	Nuclear & Particle Physics	3	0	0	3	PMC
3		Elective I* * (Open)	3	0	0	3	OE
4		Elective II** (Program)	3	0	0	3	PME
5	PH5105	Advanced Physics Lab	0	0	6	3	PMC
6	PH5110	Project -I				3	PMC
		Semester Total				19	

Semester IV

No.	Course code	Course Title	L	T	P	C	Category
1		Elective III** (Open)	3	0	0	3	OE
2		Elective IV** (Program)	3	0	0	3	PME
3		Project – II/ 2 -Electives (Program)				6	PME
		Semester Total				12	

A list of approved PME's can be found at the link below;

https://docs.google.com/spreadsheets/d/1F0CAJZOkC2TU4_y3qSNWCezGZ7Ng0G9APjhcChpWqa8/edit?usp=sharing