Master of Science in Physics

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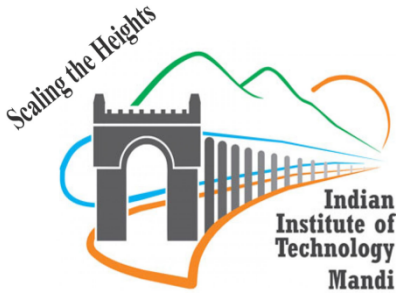
Integrated-Doctor of Philosophy in Physics



	M.Sc. (Physics)	I-Ph.D. (Physics)
Programme Level	Post Graduate	Post Graduate
Year of Commencement	2017	2015
Minimum Duration	2 Years (4 Semesters)	5 Years (10 semesters)
Maximum Duration	3 Years (6 Semesters)	8 Years (16 semesters)
Senate Meeting Reference	12.3	10.4/19.4

Preamble:

This program is designed to attract bright and young minds towards the front line areas of research in physics. Students enrolled in the Integrated Ph.D.(I-Ph.D) program , on successful completion, will be awarded two degrees: a Master of Science (M.Sc.) in Physics and a Doctor of Philosophy (Ph.D.) degree. The entry qualification for this I-Ph.D. program is a Bachelors Degree in physical/mathematical sciences. The I-Ph.D. program will have courses that cover both fundamental and advanced areas of physics and has the aim of training the student to be capable of working in frontier areas of science and technology. Besides studying theoretical and experimental courses, the student will also be exposed to working in a project environment as a part of this degree program. In addition, the student will have the option of taking courses in interdisciplinary areas. The early introduction to research is aimed both at improving the quality of their research work and also at expediting the completion of the Ph.D. degree.

Description of the Program (Main Features of the Program)

All students admitted to this program will undergo coursework similar to that typically covered in a high quality M.Sc. program and course work of a Ph.D. program. Continuation of the enrolled student in the I-Ph.D. program will be based on the student's consistent academic performance throughout the program. Students of the I-Ph.D. program will be able to take a number of elective courses that are more focused towards their research degree. Several elective courses will be made available to the students to build a strong foundation in the area of his/her research interest. At the completion of the I-Ph.D. program student shall be awarded M.Sc. degree in physics and a Ph.D. degree based on research work in the specified research topic. A student who does not fulfill the requirements of the I-Ph.D. program altogether will receive the M.Sc. degree alone provided he/she has qualified for the same. The I-Ph.D. program has a maximum duration of 8 years and a minimum duration of 5 years.

Features of the I-Ph.D. program:

All students who are admitted to the I-PhD program will be getting scholarship from their first year onwards. A guide (and co-guide if any) will be allocated at the beginning of the third semester. A Doctoral Committee will also be set-up to supervise the study/research program of each IPh.D. Student at this time. The rules and regulations governing the I-Ph.D. program will generally follow those of the regular Ph.D. program at IIT Mandi. However, the coursework requirement for the IPh.D. program will be lower than the total coursework of an M.Sc program and the regular Ph.D. program combined. The minimum required course credits for this program is 89 credits. The students are required to complete their comprehensive examination by the end of their third year of the program. Students have the option of taking elective courses from their third semester. The number of elective courses in a particular semester can be decided in consultation with his/her thesis advisor.

Course Content of I-PhD and M.Sc. Physics

Sem.	Course	Credits (L-T-P-C)	M.Sc	I-PhD
I	PH 511 Mathematical Physics	4-0-0-4	C	C
	PH 512 Classical Mechanics	4-0-0-4	C	C
	PH 513 Quantum Mechanics	3-0-0-3	C	C
	PH 514 Electronics	3-0-0-3	C	C
	PH 515P Physics Laboratory	0-0-5-3	C	C
	Technical Communications	1-0-0-1	C	C
	Elective (Outside Discipline)	3-0-0-3	E1	-
	PH 516 Research Project I	0-0-4-2	-	C
	PH 517 Research Project II (Winter)	0-0-8-4	-	C
			21	**20+4**
II	PH 521 Electromagnetic Theory	4-0-0-4	C	C
	PH 522 Statistical Mechanics	4-0-0-4	C	C
	PH 523 Cond. Matter Physics	3-0-0-3	C	C
	PH 524 Atom. Mol. Physics	3-0-0-3	C	C
	PH 525P Electronics Lab. Pract.	0-0-5-3	C	C
	Elective	3-0-0-3	E2	-
	PH 526 Research Project III	0-0-6-3	-	C
	PH 527 Research Project IV (Summer)	0-0-6-3	-	C
			20	**20+3**
III	PH 611P Exp. Res. Techniques	0-0-7-4	C	C
	PH 614 Seminar and Report	0-0-4-2	C	C
	PH 613 Spe. Topics. in QM	3-0-0-3	C	E1
	PH 518P PG Project-I PH 615P Mini Thesis-1	0-0-6-3	C -	- C
	Elective	3-0-0-3	E3	E2
	Elective	3-0-0-3	E4	E3
	Elective-5 (Outside Discipline)	3-0-0-3	E5	-
			21	**18**
IV	PH 621 Comput. Meth. Physics	2-0-4-4	C	C
	PH 519P PG Project-II PH 622 Mini Thesis –II	0-0-16-8 0-0-16-8	C -	- C
	Elective	3-0-0-3	E6	E4
	Elective	3-0-0-3	E7	-
			18	**16**
	Over All		*80*	*80*
V-VI	Electives (3) for 9 credits	3-0-0-3		09
			80	89

MSc: Total: 35 (T) + 10 (L) + 13 (R) + 21 (E) + 1 (TC) = 80 Credits

I-PhD: Total: 35 (T) + 10 (L) + 25 (R) + 9 (E) + 1 (TC) + 9 (AE) = 89 Credits