DEPARTMENT OF PHYSICS
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Program Code : **XXX M.Tech. (Photonics)**
Department : **Department of Physics**
Year : **I**
Model : **2**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**
Semester-I (Autumn)									
1.	PHC-501	Numerical Analysis and Computational Techniques	PCC	3	2	0	2	3	0
2.	PHC-507	Semiconductor Device Physics	PCC	4	3	1	0	3	0
3.	PHC-511	Laboratory Work in Photonics	PCC	3	0	0	6	0	6
4.	PHC-513	Optical Electronics	PCC	4	3	1	0	3	0
5.		Social Science Course	SSC	2	-	-	-	-	-
		Total		**16**					
Semester-II (Spring)									
1.		Program Elective-I	PEC	4	-	-	-	-	-
2.		Program Elective-II	PEC	4	-	-	-	-	-
3.		Program Elective-III	PEC	4	-	-	-	-	-
4.		Program Elective-IV	PEC	4	-	-	-	-	-
5.		Science, Technology, and Advanced Research-tools	STAR	3	-	-	-	-	-
6.	PHC-700	Seminar	SEM	2	-	-	-	-	-
		Total		**21**					

DEPARTMENT OF PHYSICS
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Program Code : **XXX M.Tech. (Photonics)**
Department : **Department of Physics**
Year : **II**
Model : **2**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**
Semester-I (Autumn)									
1.	PHC-691	Internship Social Activity	ISA	3	-	-	-	-	-
2.	PHC-701A	Thesis Stage-I	THESIS	10	-	-	-	-	-
		Total		**13**					
Semester-II (Spring)									
1.	PHC-701B	Thesis Stage-II	THESIS	14	-	-	-	-	-
		Total		**14**					

Summary				
Semester	**1**	**2**	**3**	**4**
Semester-wise Total Credits	16	21	13	14
Total Credits	**64**			

M.Tech. (Photonics)

Program Elective Courses

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**
1.	PHL-542	Analog Integrated Circuit Design	PEC	4	3	1	0	3	0
2.	PHL-543	Digital Signal Processing	PEC	4	3	1	0	3	0
3.	PHL-549	Nano-electronics and Photonics	PEC	4	3	1	0	3	0
4.	PHL-550	Solar Photovoltaic and Energy Storage	PEC	4	3	1	0	3	0
5.	PHL-554	Radiation Detection and Measurements	PEC	4	3	1	0	3	0
6.	PHL-555	Optical Communication System	PEC	4	3	1	0	3	0
7.	PHL-556	Optical Networks	PEC	4	3	1	0	3	0
8.	PHL-557	Solid State Lighting	PEC	4	3	1	0	3	0
9.	PHL-558	Display Technology	PEC	4	3	1	0	3	0
10.	PHL-559	Photonic Sensors	PEC	4	3	1	0	3	0
11.	PHL-560	Photonic Analysis and Design	PEC	4	3	1	0	3	0
12.	PHL-561	Silicon Photonics	PEC	4	3	1	0	3	0
13.	PHL-562	Quantum Photonics	PEC	4	3	1	0	3	0
14.	PHL-563	Guided Wave Photonic Components and Devices	PEC	4	3	0	2	3	0

M.Tech. (Photonics)

Science, Technology, and Advanced Research-tools Basket

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**
1.	PHT-501	Advanced Materials for Energy Harvesting and Storage	STAR	3	3	0	0	3	0
2.	PHT-502	Functional Materials	STAR	3	3	0	0	3	0
3.	PHT-503	Fundamentals of Nanoscience and Technology	STAR	3	3	0	0	3	0
4.	PHT-504	Computational Science with Python	STAR	3	2	0	2	3	0
5.	PHT-505	Quantum Simulations	STAR	3	2	0	2	3	0
6.	PHT-506	Superconducting Qubits-based Quantum Computing	STAR	3	3	0	0	3	0