PROGRAM CODE : **311 - Integrated M.Sc. (Physics)**

DEPARTMENT : **Department of Physics**

YEAR : **I**

Teaching Scheme				Contact Hours/Week				Exam Duration (Hrs.)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
(Autumn)														
1.	MA-001	Mathematics-I	BSC	4	3	1	0	3	0	25	-	25	50	-
2.	PH-001	Mechanics	BSC	4	3	0	2	3	0	15	25	20	40	-
3.	CE-105	Introduction to Environmental Studies	GSC	3	3	0	0	3	0	25	-	25	50	-
4.	HS-001A HS-001B	Communication Skills (Basic) Communication Skills (Advanced)	HSSC	2	1	0	2	2	0	25	-	25	50	-
5.	HS-002	Ethics and Self Awareness	HSSC	2	1	1	0	2	0	25	-	25	50	-
6.	PH-101	Introduction to Physical Science	DCC	2	2	0	0	0	0	-	-	-	100	-
7.	PH-103	Computer Programming	ESC	4	3	0	2	3	0	15	25	20	40	-
		Total		**21**	**16**	**2**	**6**							
(Spring)														
1.	MA-004	Numerical Methods	BSC	4	3	1	0	3	0	25	-	25	50	-
2.	CY-004	General Chemistry-I	BSC	4	3	0	2	3	-	15	25	20	40	-
3.	PH-010	Introduction to Electronics	DCC	4	3	1	0	3	-	25	-	25	50	-
4.	EE-112	Electrical Science	ESC	4	3	1	2/2	3	-	20	20	20	40	-
5.	MI-106	Engineering Thermodynamics	ESC	4	3	1	0	3	-	25	-	25	50	-
6.	MI-108	Mechanical Engineering Drawing	ESC	4	2	0	4	3	-	-	25	25	50	-
		Total		**24**	**17**	**4**	**7**	**18**						

PROGRAM CODE : 311 - Integrated M.Sc. (Physics)

DEPARTMENT : Department of Physics

YEAR : II

Teaching Scheme				Contact Hours/Week				Exam Duration (Hrs.)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
(Autumn)														
1.	CY-201	Physical Chemistry-I	BSC	3	2	1	0	2	0	25	-	25	50	-
2.	CY-202	Basic Inorganic Chemistry	BSC	3	2	1	0	2	0	25	-	25	50	-
3.	MA-205	Ordinary and Partial Differential Equation	BSC	4	3	1	0	3	0	25	-	25	50	-
4.	PH-201	Optics	DCC	5	3	1	2	3	0	15	25	20	40	-
5.	PH-203	Elements of Classical Mechanics	DCC*	4	3	1	0	3	-	25	-	25	50	-
6.	HS-ELE	HSS Elective Course*	HSSMEC**	3	2	1	0	2	0	25	-	25	50	-
		Total		**19/22**	**15**	**6**	**2**							
(Spring)														
1.	CY-203	Organic Chemistry-I	BSC	4	3	1	0	3	0	25	-	25	50	-
2.	MA-102	Linear algebra	BSC	4	3	1	0	3	-	25	-	25	50	-
3.	PH-202	Electricity and Magnetism	DCC	5	3	1	2	3	0	15	25	20	40	-
4.	PH-212	Thermal Physics	DCC	5	3	1	2	3	3	15	25	20	40	-
5.	HS-ELE	HSS Elective Course*	HSSMEC**	3	2	1	0	2	0	25	-	25	50	-
		Total		**21/18**	**14**	**5**	**4**							

*****Physics Minor specialization course for other Departments

**Any one course in this category is to be opted either in the Autumn or in the Spring semester in the second year. The course should be selected from the list (basket) of Humanities and Social Sciences Elective Courses.

PROGRAM CODE : 311 - Integrated M.Sc. (Physics)

DEPARTMENT : Department of Physics

YEAR : III

Teaching Scheme				Contact Hours/Week				Exam Duration (Hrs.)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
(Autumn)														
1.	PH-301	Plasma Physics	DCC	3	3	0	0	3	0	25	-	25	50	-
2.	PH-303	Quantum Physics	DCC*	4	3	1	0	3	-	25	-	25	50	-
3.	PH-305	Properties of Matter and Acoustics	DCC	4	3	1	0	3	-	25	-	25	50	-
4.	PH-307	Atomic Physics	DCC*	4	3	1	0	3	-	25	-	25	50	-
5.	PH-309	Laboratory Work I	DCC	3	0	0	6	-	4	-	50	-	-	50
6.	BM-ELE/OEC	Open Elective Course/ Management Studies Elective Course**	OEC/ HSSMEC	3	2	1	0	2	-	25	-	25	50	-
7.	MSC1	Minor Specialization Course- I	MSC	3										
		Total		**21/24**	**14**	**4**	**6**							
(Spring)														
1.	PH-302	Laboratory Work II	DCC	3	0	0	6	-	4	-	50	-	-	50
2.	PH-304	Elements of Condensed Matter Physics	DCC*	4	3	1	0	3	-	25	-	25	50	-
3.	PH-306	Special Theory of Relativity	DCC	3	2	1	0	2	0	25	-	25	50	-
4.	PH-308	Nuclear Physics and its Applications	DCC*	4	3	1	0	3	-	25	-	25	50	-
5.	BM-ELE/OEC	Open Elective Course/ Management Studies Elective Course**	OEC/HSS MEC	3	2	1	0	2	-	25	-	25	50	-
6.	MSC2	Minor Specialization Course- II	MSC	3										
7.	MSC3	Minor Specialization Course- III	MSC	4										
		Total		**17/24**	**10**	**4**	**6**							

*Physics Minor specialization course for other Departments

**One course each from the OEC and the HSSMEC categories is to be opted either in the Autumn or in the Spring semester in the third year. The HSSMEC course should be selected from the list (basket) of Management Studies Elective Course.

PROGRAM CODE : 311 - Integrated M.Sc. (Physics)

DEPARTMENT : Department of Physics

YEAR : IV

Teaching Scheme				Contact Hours/Week				Exam Duration (Hrs.)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
(Autumn)														
1.	PH-501	Semiconductor Devices	DCC	3	3	0	0	3	0	25	0	25	50	0
2.	PH-503	Quantum Mechanics – I	DCC	4	3	1	0	3	0	25	0	25	50	0
3.	PH-505	Mathematical Physics	DCC	3	3	0	0	3	0	25	0	25	50	0
4.	PH-507	Classical Electrodynamics	DCC	4	3	1	0	3	0	25	0	25	50	0
5.	PH-509	Classical Mechanics	DCC	3	3	0	0	3	0	25	0	25	50	0
6.	PH-511	Computational Physics	DCC	3	2	0	2	2	2	15	25	20	40	0
7.	MSC4	Minor Specialization Course- IV	MSC	4										
		Total		**20/24**	**16**	**0**	**4**							
(Spring)														
1.	PH-502	Laboratory Work III	DCC	3	0	0	6	0	4	0	50	0	0	50
2.	PH-504	Condensed Matter Physics	DCC	3	3	0	0	3	0	25	0	25	50	0
3.	PH-506	Statistical Mechanics	DCC	3	3	0	0	3	0	25	0	25	50	0
4.	PH-508	Quantum Mechanics - II	DCC	3	3	0	0	3	0	25	0	25	50	0
5.	PH-510	Nuclear and Particle Physics	DCC	2	2	0	0	2	0	25	0	25	50	0
6.	PH-512	Physics of Earth’s Atmosphere	DCC	2	2	0	0	2	0	25	0	25	50	0
7.	PH-514	Molecular Spectroscopy and Lasers	DCC	2	2	0	0	2	0	25	0	25	50	0
8.	MSC5	Minor Specialization Course- V	MSC	4										
		Total		**18/22**	**15**	**0**	**6**							

*Physics Minor specialization course for other Departments

PROGRAM CODE : 311 - Integrated M.Sc. (Physics)

DEPARTMENT : Department of Physics

YEAR : V

Teaching Scheme				Contact Hours/Week				Exam Duration (Hrs.)		Relative Weights (%)				
S. No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**	**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
(Autumn)														
1.	PH-ELE1	Departmental Elective – Group A	DEC	4	3	1	0	3	0	25	0	25	50	0
2.	PH-ELE2	Departmental Elective – Group B	DEC	3	0	0	6	0	3	0	50	0	0	50
3.	PH-ELE3	Departmental Elective – Group C	DEC	3	3	0	0	3	0	25	0	25	50	0
4.	PH-ELE4	Departmental Elective – Group C	DEC	3	3	0	0	3	0	25	0	25	50	0
5.	PH-ELE5	Departmental Elective – Group C	DEC	3	3	0	0	3	0	25	0	25	50	0
7.	PH-699	Seminar	DCC	2	0	0	0	0	0	0	0	0	0	0
		Total		**18**	**15**	**1**	**6**							
(Spring)														
1.	PH- ELE6	Departmental Elective – Group D	DEC#	3	3	1	0	3	0	25	0	25	50	0
3.	PH-600	Dissertation	DCC	12	0	0	0	0	0	0	0	0	0	0
		Total	**15**	**3**	**1**	**0**								

#In case the Dissertation is to be done with an outside Institute of MOU then this course can be completed in advance one year earlier (i.e. in III year with the senior batch).

List of Minor Specialization courses of Physics for other Departments

					Teaching Scheme (Hrs./Week)			
	Subject Code	Course Title	Semester in which the course is running	Subject area	Credits	L	T	P
1	PH-203	Elements of Classical Mechanics	Autumn	DCC/MSC	4	3	1	0
2	PH-303	Quantum Physics	Autumn	DCC/MSC	4	3	1	0
3	PH-307	Atomic Physics	Autumn	DCC/MSC	4	3	1	0
4	PH-304	Elements of Condensed Matter Physics	Spring	DCC/MSC	4	3	1	0
5	PH-308	Nuclear Physics and its Applications	Spring	DCC/MSC	4	3	1	0
				Total	20	15	5	0

Group A

PH-601	Advanced Condensed Matter Physics
PH-603	Advanced Atmospheric Physics
PH-605	Advanced Laser Physics
PH-607	Advanced Nuclear Physics

Group B

PH- 609	Experiments in Condensed Matter Physics
PH- 611	Experiments in Atmospheric Physics
PH- 613	Experiments in Laser Physics
PH- 615	Experiments in Nuclear Physics

Group C

PH- 617	Advanced Characterization Techniques
PH- 619	A Primer in Quantum Field Theory
PH- 621	Astrophysics
PH- 623	General Relativity
PH- 625	Particle Physics
PH- 627	Quantum Theory of Solids
PH- 629	Weather Forecasting

Group D

PH- 602	Nuclear Astrophysics
PH- 604	Physics of Nanosystems
PH- 606	Superfluidity and Superconductivity
PH-608	Fiber and Nonlinear Optics
PH-610	Quantum Optics
PH-612	Advanced Topics in Mathematical Physics