

Semester-wise Course Structure of M.Sc. I Physics (w.e.f. A Y 2019-2020)

Semester I

Course	Course Type	Course Title	Teaching Hours/Week			Marks (Total 100)				Credits
			T	P	Total	Internal		External		
						T	P	T	P	
MS/ES-101	Core	Mathematical Methods For Physics	4	--	4	40	--	60	--	4
MS/ES-102	Core	Classical Mechanics	4	--	4	40	--	60	--	4
MS/ES-103	Skill based	Electronics	4	--	4	40	--	60	--	4
MS/ES-104	Core	Quantum Mechanics – I	4	--	4	40	--	60	--	4
MS/ES-105	Practical	General Laboratory – I	--	4	4	--	40	--	60	4
AC-101	Audit Course	Practicing Cleanliness		2	2	--	100	--	--	2
Total Credit for Semester I: 22 (T = Theory: 12; P = Practical: 4; Skill Based: 4; Audit Course:2)										

Semester II

Course	Course Type	Course Title	Teaching Hours/Week			Marks (Total 100)				Credits
			T	P	Total	Internal		External		
						T	P	T	P	
MS/ES-201	Core	Quantum Mechanics – II	4	--	4	40	--	60	--	4
MS/ES-202	Skill Based	Experimental Techniques and Data Analysis	4	--	4	40	--	60	--	4
MS/ES-203	Core	Statistical Mechanics	4	--	4	40	--	60	--	4
MS/ES-204	Core	Electrodynamics	4	--	4	40	--	60	--	4
MS/ES-205	Practical	General Laboratory – II	--	4	4	--	40	--	60	4
AC-201/2/3/4	Audit Course	Choose one out of Four (AC-201/AC-202/AC-203/AC-204) from Personality and Cultural Development	--	2	2	--	100	--	--	2
Total Credit for Semester II: 22 (T = Theory: 12; P = Practical:4; Skill Based:4; Audit course:2)										

Semester-wise Course Structure of M.Sc. II Physics (w.e.f. A Y 2020-2021)

Semester III

Course	Course Type	Course Title	Teaching Hours/Week			Marks (Total 100)				Credits
			T	P	Total	Internal		External		
						T	P	T	P	
MS/ES-301	Core	Atomic and Molecular Physics	4	--	4	40	--	60	--	4
MS/ES-302	Core	Solid State Physics	4	--	4	40	--	60	--	4
MS/ES-303	Core	MS: Elements of Materials Science ES: Renewable Energy	4	--	4	40	--	60	--	4

MS/ES-304	Core/ Practical	Special Laboratory - I	--	4	4	--	40	--	60	4
MS/ES-305	Elective	Project	--	4	4	--	40	--	60	4
AC-301/2/3/4	Audit Course	Choose one out of Four (AC-301/ AC-302/AC-303/AC-304) from Technology + Value Added Courses	--	2	2	--	100	--	--	2

Total Credit for Semester III: 22 (T = Theory: 12; P = Practical:4; Project/Elective:4; Audit Course:2)

AC-301 Audit Course: C-Programming (Technology + value added course)

List of elective courses to be offered in Semester-III:

MS-305(A): Project in Materials Science MS-305(B): Project in Energy Studies

Semester IV

Course	Course Type	Course Title	Teaching Hours/ Week			Marks (Total 100)				Credits
			T	P	Total	Internal		External		
						T	P	T	P	
MS/ES-401	Core	Nuclear Physics	4	--	4	40	--	60	--	4
MS/ES-402	Core	MS: Materials Synthesis Methods ES: Solar Photovoltaic Grid Connected Systems	4	--	4	40	--	60	--	4
MS/ES-403	Core	MS: Characterization of Materials ES: Energy Conversion and Management	4	--	4	40	--	60	--	4
MS/ES-404	Core/ Practical	Special Laboratory - II	--	4	4	--	40	--	60	4
MS/ES-405	Elective	Project	--	4	4	--	40	--	60	4
AC-401/2/3/4	Audit Course	Choose one out of Four (AC-401/ AC-402/AC-403/AC-404) from Professional and Social + Value Added Courses	--	2	2	--	100	--	--	2

Total Credit for Semester IV: 22 (T = Theory: 12; P = Practical:4; Project/Elective:4; Audit Course:2)

AC-401 Audit Course: Review of Research Papers (Professional and Social + value added course)

List of elective courses to be offered in Semester-IV:

MS-405(A): Project in Materials Science MS-405(B): Project in Energy Studies

M.Sc. (Physics with Materials Science specialization) (Total credits : 84)

Course Code	Course Title	Credits
Semester – I (Total credits : 21)		
MS 101	Mathematical Methods for Physics	4
MS 102	Classical Mechanics	4
MS 103	Electronics	4
MS 104	Quantum Mechanics-I	4
MS 105	General Laboratory-I	4
MS 106	Tutorial-I	1
Semester – II (Total credits : 21)		
MS 201	Quantum Mechanics-II	4
MS 202	Experimental Techniques and data analysis	4
MS 203	Statistical Mechanics	4
MS 204	Electrodynamics	4
MS 205	General Laboratory-II	4
MS 206	Tutorial-II	1
Semester – III (Total credits : 21)		
MS 301	Atomic and molecular Physics	4
MS 302	Condensed Matter Physics	4
MS 303	Elements of Materials Science	4
MS 304	Special Laboratory-I	4
MS 305	Project	4
MS 306	Seminar-I	1
Semester – IV (Total credits : 21)		
MS 401	Nuclear Physics	4
MS 402	Synthesis of Materials	4
MS 403	Characterization of Materials	4
MS 404	Special Laboratory-II	4
MS 405	Project	4
MS 406	Seminar-II	1

M.Sc. (Physics with Energy Studies specialization) (Total credits : 84)

Course Code	Course Title	Credits
Semester – I (Total credits : 21)		
ES 101	Mathematical Methods for Physics	4
ES 102	Classical Mechanics	4
ES 103	Electronics	4
ES 104	Quantum Mechanics-I	4
ES 105	General Laboratory-I	4
ES 106	Tutorial-I	1
Semester – II (Total credits : 21)		
ES 201	Quantum Mechanics-II	4
ES 202	Experimental Techniques and data analysis	4
ES 203	Statistical Mechanics	4
ES 204	Electrodynamics	4
ES 205	General Laboratory-II	4
ES 206	Tutorial-II	1
Semester – III (Total credits : 21)		
ES 301	Atomic and molecular Physics	4
ES 302	Condensed Matter Physics	4
ES 303	Photovoltaics and Wind Energy systems	4
ES 304	Special Laboratory-I	4
ES 305	Project	4
ES 306	Seminar-I	1
Semester – IV (Total credits : 21)		
ES 401	Nuclear Physics	4
ES 402	Solar Thermal Systems	4
ES 403	Energy Audit and Management	4
ES 404	Special Laboratory-II	4
ES 405	Project	4
ES 406	Seminar-II	1

Syllabus for M.Sc. (Physics) with Specialization: Energy Studies (With effect from June, 2013)

Sr No	Course Code	Course Title	Teaching Scheme (Hours/week)	Exam marks (Internal)	Exam marks (External)	Exam Hours	Credits
Semester I							
1	MS 101	Mathematical Methods for Physics	4	40	60	2	4
2	MS 102	Classical Mechanics	4	40	60	2	4
3	MS 103	Electronics	4	40	60	2	4
4	MS 104	Quantum Mechanics-I	4	40	60	2	4
5	MS 105	General Laboratory-I	8	40	60	4	4
6	MS 106	Tutorial-I	2	50	--	--	2
Semester II							
7	MS 201	Quantum Mechanics-II	4	40	60	2	4
8	MS 202	Experimental Techniques and data analysis	4	40	60	2	4
9	MS 203	Statistical Mechanics	4	40	60	2	4
10	MS 204	Electrodynamics	4	40	60	2	4
11	MS 205	General Laboratory-II	8	40	60	4	4
12	MS 206	Tutorial-II	2	50	--	--	2
Semester III							
13	MS 301	Atomic and molecular Physics	4	40	60	2	4
14	MS 302	Condensed Matter Physics	4	40	60	2	4
15	MS 303	Elements of Materials Science	4	40	60	2	4
16	MS 304	Special Laboratory-I	8	40	60	4	4

17	MS 305	Project	8	40	60	4	4
18	MS 306	Seminar-I	2	50	--	--	2
Semester IV							
19	MS 401	Nuclear Physics	4	40	60	2	4
20	MS 402	Synthesis of Materials	4	40	60	2	4
21	MS 403	Characterizatio n of Materials	4	40	60	2	4
22	MS 404	Special Laboratory-II	8	40	60	4	4
23	MS 405	Project	8	40	60	4	4
24	MS 406	Seminar-II	2	50	--	--	2

Syllabus for M.Sc. (Physics) with Specialization: Energy Studies (With effect from June, 2013)

Sr No	Course Code	Course Title	Teaching Scheme (Hours/week)	Exam marks (Internal)	Exam marks (External)	Exam Hour s	Credit s
Semester I							
1	ES 101	Mathematical Methods for Physics	4	40	60	2	4
2	ES 102	Classical Mechanics	4	40	60	2	4
3	ES 103	Electronics	4	40	60	2	4
4	ES 104	Quantum Mechanics-I	4	40	60	2	4
5	ES 105	General Laboratory-I	8	40	60	4	4
6	ES 106	Tutorial-I	2	50	--	--	2
Semester II							
7	ES 201	Quantum Mechanics-II	4	40	60	2	4
8	ES 202	Experimental Techniques and data analysis	4	40	60	2	4

9	ES 203	Statistical Mechanics	4	40	60	2	4
10	ES 204	Electrodynamics	4	40	60	2	4
11	ES 205	General Laboratory-II	8	40	60	4	4
12	ES 206	Tutorial-II	2	50	--	--	2
Semester III							
13	ES 301	Atomic and molecular Physics	4	40	60	2	4
14	ES 302	Condensed Matter Physics	4	40	60	2	4
15	ES 303	Photovoltaics and Wind Energy systems	4	40	60	2	4
16	ES 304	Special Laboratory-I	8	40	60	4	4
17	ES 305	Project	8	40	60	4	4
18	ES 306	Seminar-I	2	50	--	--	2
Semester IV							
19	ES 401	Nuclear Physics	4	40	60	2	4
20	ES 402	Solar Thermal Systems	4	40	60	2	4
21	ES 403	Energy Audit and Management	4	40	60	2	4
22	ES 404	Special Laboratory-II	8	40	60	4	4
23	ES 405	Project	8	40	60	4	4
24	ES 406	Seminar-II	2	50	--	--	2