

Master of Science (Physics)

Curriculum Version 1.00

(For AY 2026-27 onwards)

Credit distribution among baskets
(Minimum Credits to be earned = 80)

Sl. No.	Baskets	Credit Contribution
1	School Core	12
2	Program Core	33
3	Discipline Elective	29
	Common Electives Basket	17
	Specialized Elective Baskets*	12
4	Open Elective	6
TOTAL CREDITS		80

Specialized Elective Baskets*

Sl.No.	Name of the Basket	Minimum Credit Requirement
1	Medical Physics	0
2	Quantum technology	0
3	Materials Science	0
Total*		12

** Remaining Credits, if any, to satisfy Specialized Elective Baskets credit requirement can be taken from any Specialized Elective Basket*

Sl. No.	Course Code	Course Name	L	P	Credits
1. School Core - Minimum Credits to be earned from this basket (A+B+C+D+E) =					12
A	PHY6001	Research Paper	-	-	2
B	PHY6002	M.Sc. Dissertation	-	-	4
C. Computational Skills Basket - Min. credits to be earned from this basket =					2
1	CSE1021	Python Programming	0	4	2
2	CSE5010	Advanced Python	0	4	2
3	CSE1019	Programming in C	0	4	2
D. English Basket - Min. credits to be earned from this basket =					2
1	ENG5001	English Language and Communication Skills	0	2	1
2	ENG5002	Technical Proficiency and Career Building	0	2	1
E. Soft Skills Basket - Min. credits to be earned from this basket =					2
1	SSK2002	Being Corporate Ready	0	2	1
2	SSK3003	Introduction to Soft Skills	0	2	1
3	SSK3004	Beyond Technical Skills	0	2	1
4	SSK3005	Leadership and Career Acceleration	0	2	1
2. Program Core - Minimum Credits to be earned from this basket =					33
1	PHY5001	Classical Mechanics	3	0	3
2	PHY5002	Quantum Mechanics	3	0	3
3	PHY5003	Mathematical Methods for Physics	3	0	3
4	PHY5004	Thermodynamics and Statistical Physics	3	0	3
5	PHY5005	Semiconductors and Electronics	2	2	3
6	PHY5006	Experimental Physics	2	2	3
7	PHY6003	Electrodynamics	3	0	3
8	PHY6004	Atomic Molecular and Optical Physics	3	2	4
9	PHY6005	Nuclear and Particle Physics	3	2	4
10	PHY6006	Condensed Matter Physics	3	2	4
3. Discipline Electives - Minimum Credits to be earned from both Common and Specialized elective baskets (3A+3B) =					29
3A. Common Electives Basket - Minimum Credits to be earned from this basket =					17
1	MAT5009	Applied Statistics using R	2	2	3
2	MAT5005	Probability and Distribution	2	2	3
3	PHY5007	Research Methodologies	3	0	3
4	PHY5008	Optoelectronic Devices	2	2	3
5	PHY5009	Computational Physics	3	0	3
6	PHY5010	Nanoscience and Nanotechnology	3	0	3
7	PHY5011	Atmospheric Physics	3	0	3
8	PHY5012	Astronomy and Astrophysics	3	0	3
9	PHY5013	Magnetism and Spintronics	3	0	3
10	PHY5014	Biophysics	3	0	3
11	PHY5015	Fundamentals of Quantum Computing	3	0	3
12	PHY5016	Laser Physics and Fiber Optics	2	2	3

13	PHY6007	Advanced Quantum Mechanics	3	0	3
14	PHY6008	Advanced Mathematical Physics	3	0	3
15	PHY6009	Advanced Condensed Matter Physics	2	2	3
3B. Specialized Electives Baskets -Minimum Credits to be earned from this basket =					12
(i) Medical Physics					
1	PHY5016	Radiation Protection Standards and Safety	3	0	3
2	PHY6010	Radiation Dosimetry and Standardization	2	2	3
3	PHY6011	Biomedical Instrumentation	3	0	3
4	PHY6012	Physics of Radiation Therapy	3	0	3
5	PHY6013	Application of Radiation and Radioisotope	2	2	3
6	PHY6014	Physics of Medical Imaging	3	0	3
7	PHY6015	Computational Medical Physics	2	2	3
8	BIT5035	Clinical Data Management and Medical Writing	3	0	3
(ii). Quantum technology					
1	PHY6016	Quantum Information and Computation	3	0	3
2	PHY6017	Quantum Computing Algorithms	2	2	3
3	PHY6018	Quantum Information Processing	3	0	3
4	PHY6019	Quantum Cryptography and Quantum Security	3	0	3
5	PHY6020	Quantum Entanglement and Applications	3	0	3
6	PHY6021	Quantum Materials and Devices	2	2	3
(iii). Materials Science					
1	CHE5036	Fabrication of Advanced Materials	2	2	3
2	PHY6022	Computational Material Science	2	2	3
3	PHY6023	Low Dimensional Materials	3	0	3
4	PHY6024	Advanced Materials Characterization	3	0	3
5	CHE5037	Photovoltaic Materials	3	0	3
6	CHE5038	Energy Storage Systems	3	0	3

4. Open Elective basket - Minimum Credits to be earned from this basket	6
Any course from another 'eligible' curriculum	
Any unused Discipline Elective from his/ her 'own' curriculum	
Any stand-alone course declared as "Open Elective" by School/ Dept. for a specific 'eligible' degree program	
School approved NPTEL/Swayam courses for a maximum of 3 credits	