

**Department of Sciences (Physics)**  
**5 yr. Integrated MSc Physics**  
**2018**

Code No	Course Title	Cr	Code No	Course Title	Cr
<b>SEMESTER 1</b>			<b>SEMESTER 2</b>		
18ENG101	Communicative English	3	18ENG121	Professional Communication	2
	Language I	2		Language II	2
18CHY103	Chemistry I	3	18CHY114	Chemistry II	3
18CSA100	Problem Solving and Computer Programming	3	18PHY113	Advanced Computer Programming Introduction to Python	3
18MAT106	Trigonometry and Differential Equations	4	18MAT119	Matrices and Vector Calculus	4
18PHY104	Mechanics and Properties of Matter	4	18PHY111	Basics of Electricity and Magnetism	4
18CHY182	Chemistry Lab I	1	18CHY183	Chemistry Lab II - Instrumental	1
18CSA180	Problem Solving and Computer Programming Lab	1	18PHY185	Advanced Computer Programming / Python Lab	1
18CUL101	Cultural Education I	2	18PHY183	Physics Lab I - Mechanics and Properties of Matter	1
<b>TOTAL</b>		<b>23</b>	18CUL111	Cultural Education II	2
<b>SEMESTER 3</b>			<b>TOTAL</b>		
<b>SEMESTER 4</b>			<b>23</b>		
18PHY201	Basic Experimental Techniques in Physics	4	18ENV300	Environmental Science and Sustainability	3
18PHY203	Optics and Wave Motion	4	18PHY216	Digital Electronics	4
	Elective A	3		Elective B	3
18PHY204	Analog Electronics	4	18PHY217	Introduction to computational Physics	4
18PHY205	Introduction to Mathematical Physics	4	18PHY284	Physics Lab III - Optics	1
18PHY283	Physics Lab II – Heat, Electricity and Magnetism	1	18PHY218	Modern Physics	4
18SSK201	Life Skills I	2	18SSK211	Life Skills II	2
18AVP201	Amrita Value Programme I	1	18AVP211	Amrita Value Programme II	1
<b>TOTAL</b>		<b>23</b>	<b>TOTAL</b>		<b>22</b>
<b>SEMESTER 5</b>			<b>SEMESTER 6</b>		
18PHY306	Thermal Physics	4	18PHY318	Atomic and Molecular Physics	4
18PHY307	Electrodynamics	4	18PHY319	Intermediate Mechanics	4
18PHY308	Solid State Physics	4	18PHY320	Introduction to Modern Optics	4
18PHY390	Free/Open Elective* /Living Lab®	3		Elective D	3
	Elective C	3	18PHY385	Physics Lab V – Electronics	1
18PHY384	Physics Lab IV – Modern Physics	1	<b>TOTAL</b>		<b>16</b>
18SSK301	Life Skills III	2	18PHY399	Project (for Exit-option students)	6
<b>TOTAL</b>		<b>21</b>	<b>TOTAL (for Exit-option students)</b>		<b>22</b>
<b>SEMESTER 7</b>			<b>TOTAL</b>		
<b>SEMESTER 8</b>			<b>128</b>		
18PHY501	Classical Mechanics	4	<b>For Exit option</b>		
18PHY502	Quantum Mechanics I	4	<b>134</b>		
18PHY503	Mathematical Physics I	4	<b>SEMESTER 8</b>		
18PHY504	Computational Physics	4	18PHY511	Quantum Mechanics II	4
18PHY581	Advanced Physics Lab	2	18PHY512	Mathematical Physics II	4
18PHY582	Simulation Lab	1	18PHY513	Statistical Mechanics	4
18PHY591	Mini Project	1	18PHY514	Advanced Electrodynamics	4
<b>TOTAL</b>		<b>20</b>	18PHY515	Experimental Techniques	4
<b>SEMESTER 9</b>			18PHY583	Advanced Electronics Lab	2
<b>SEMESTER 10</b>			<b>TOTAL</b>		
18PHY601	Atomic, Molecular and Optical Physics	4	<b>22</b>		
18PHY602	Condensed Matter Physics	4	<b>SEMESTER 10</b>		
18PHY603	Nuclear and Particle Physics	4	18PHY696	Dissertation	18
	Elective I	3	18PHY697	Viva voce	2
	Elective II	3	<b>TOTAL</b>		<b>20</b>
18PHY681	Spectroscopy Lab	2	<b>TOTAL for 5 YR Int. MSc</b>		
<b>TOTAL</b>		<b>20</b>	<b>210</b>		

Code No	Electives – A, B, C, D	Cr	Code No	Open Electives	Cr
18PHY331	Medical Physics	3	18OEL231	Advertising	3
18PHY333	Introduction to Nanophysics And Applications	3	18OEL232	Basic Statistics	3
18PHY335	Biophysics	3	18OEL233	Citizen Journalism	3
18PHY337	Astronomy	3	18OEL234	Creative Writing for Beginners	3
18PHY338	Computational Methods for Physicists	3	18OEL235	Desktop Support and Services	3
18PHY339	Concepts of Nanophysics and Nanotechnology	3	18OEL236	Development Journalism	3
18PHY340	Introduction to Photonics	3	18OEL237	Digital Photography	3
18PHY342	Nonlinear Optics	3	18OEL238	Emotional Intelligence	3
18PHY343	Optical Engineering	3	18OEL239	Essence of Spiritual Literature	3
18PHY344	Physics of Semiconductor Devices	3	18OEL240	Film Theory	3
18PHY345	Principles of Lasers and Laser Applications	3	18OEL241	Fundamentals of Network Administration	3
18PHY346	Laser Theory	3	18OEL242	Gender Studies	3
18PHY347	Laser Applications	3	18OEL243	Glimpses of Indian Economy and Polity	3
18CHY331	Batteries and Fuel Cells	3	18OEL244	Graphics and Web-designing Tools	3
18CHY353	Forensic science	3	18OEL245	Green Marketing	3
18CHY348	Electrochemistry	3	18OEL246	Healthcare and Technology	3
18CHY631	Applied Electrochemistry	3	18OEL247	History of English Literature	3
			18OEL248	Indian Writing in English	3
	<b>ELECTIVES – I, II</b>		18OEL249	Industrial Relations and Labour Welfare	3
18PHY632	Astrophysics	3	18OEL250	Introduction to Ancient Indian Yogic and Vedic Wisdom	3
18PHY633	Biophotonics	3	18OEL251	Introduction to Computer Hardware	3
18PHY634	Earth's Atmosphere	3	18OEL252	Introduction to Event Management	3
18PHY635	Earth's Structure and Evolution	3	18OEL253	Introduction to Media	3
18PHY636	Fibre-optic Sensors and Applications	3	18OEL254	Introduction to Right to Information Act	3
18PHY637	Fibre Optics and Technology	3	18OEL255	Introduction to Translation	3
18PHY638	Nanophotonics	3	18OEL256	Linguistic Abilities	3
18PHY639	Nonlinear Dynamics	3	18OEL257	Literary Criticism and Theory	3
18PHY640	Nuclear Physics	3	18OEL258	Macro Economics	3
18PHY641	Optoelectronic Devices	3	18OEL259	Managing Failure	3
18PHY642	Physics of Cold Atoms and Ions	3	18OEL260	Media Management	3
18PHY643	Quantum Electrodynamics	3	18OEL261	Micro Economics	3
18PHY644	Quantum Optics	3	18OEL262	Micro Finance, Small Group Management and Cooperatives	3
18PHY645	Thin Film Technology	3	18OEL263	Negotiation and Counselling	3
18PHY646	Fundamentals of Plasma Physics	3	18OEL264	New Literatures	3
18PHYXXX	Space Physics	3	18OEL265	Non-Profit Organisation	3
18PHY648	Ultrafast lasers and Applications	3	18OEL266	Personal Effectiveness	3
18PHY649	Energy and Environment in the 21st century	3	18OEL267	Perspectives in Astrophysics and Cosmology	3
18PHY650	Introduction to solar physics	3	18OEL268	Principles of Marketing	3
18PHY651	Micro and Nano Magnetism Materials and its Applications	3	18OEL269	Principles of Public Relations	3
18PHY652	X-ray Diffraction and its Applications	3	18OEL270	Science, Society and Culture	3
18PHY653	Solar energy conversion	3	18OEL271	Statistical Analysis	3
18PHY654	Fabrication of Advanced Solar cell	3	18OEL272	Teamwork and Collaboration	3
18PHY655	Astrophysics and Cosmology	3	18OEL273	The Message of Bhagwad Gita	3
18PHY656	Special Theory of Relativity	3	18OEL274	Understanding Travel and Tourism	3
			18OEL275	Videography	3
			18OEL276	Vistas of English Literature	3
			18OEL277	Web-Designing Techniques	3
			18OEL278	Organic Farming	3
			18OEL279	Basic Legal Awareness on Protection of Women and Rights	3
			18OEL280	Ritual Performances of Kerala	3
			18OEL281	Documenting Social Issues	3
			18OEL282	Fabrication of Advanced Solar Cell	3
			18OEL283	Basic Concepts of X-ray Diffraction	3
			18OEL284	Introduction to FORTRAN and GNUPLOT	3
			18OEL285	Introduction to Porous Materials	3
			18OEL286	Forensic Science	3
			18OEL287	Introduction to solar Physics	3
			18OEL288	Recycling Recovery and Treatment Methods for Wastes	3
			18OEL289	Acting and Dramatic Presentation	3
			18OEL290	Computerised Accounting	3
			18OEL291	Kerala Mural Art and Painting	3

			18OEL292	Painting	3
			18OEL293	Reporting Rural Issues	3
<b>LANGUAGES</b>					
<b>Paper I</b>			<b>Paper II</b>		
18HIN101	Hindi I	2	18HIN111	Hindi II	2
18KAN101	Kannada I	2	18KAN111	Kannada II	2
18MAL101	Malayalam I	2	18MAL111	Malayalam II	2
18SAN101	Sanskrit I	2	18SAN111	Sanskrit II	2
18TAM101	Tamil I	2	18TAM111	Tamil II	2

Highlighted elective courses are not offered