



**MAULANA AZAD**  
**NATIONAL INSTITUTE OF TECHNOLOGY, BHOPAL**  
**Department of Physics**  
**Scheme and Syllabus of M.Sc. Physics**

*Annexure-1*

**Scheme and Syllabus**  
**M.Sc. Physics**  
**(2 YDC)**

**FIRST SEMESTER:**

<b>COURSE CODE</b>	<b>Title of the Course</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credit</b>
PHY-511	Mathematical Physics	3	0	-	3
PHY-512	Classical Mechanics	3	0	-	3
PHY-513	Quantum Mechanics	3	0	-	3
PHY-514	Solid State Physics	3	0	-	3
PHY-531-545	Elective I (Group A)	3	0	-	3
HUM-511	Communication Skills	2	0	-	2
PHY-515	Modern Physics Laboratory	-	-	2	1
PHY-516	Seminar-1	-	-	2	1
<b>Total No. of Credits:</b>					<b>19</b>

**HUM-511, To be opted from the Humanities Department**

**SECOND SEMESTER:**

<b>COURSE CODE</b>	<b>Title of the Course</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credit</b>
PHY-521	Advanced Quantum Mechanics	3	-	-	3
PHY-522	Electrodynamics	3	-	-	3
PHY-523	Statistical Mechanics	3	-	-	3
PHY-524	Fundamentals of Electronics	2	-	-	2
PHY-525	Thin Film Technology	3	-	-	3
PHY-546-550	Elective II (Group B)	3	-	-	3
PHY-526	Research Methodology	1	1	-	2
PHY-527	Electronics Laboratory	-	-	2	1
PHY-528	Seminar-2	-	-	2	1
<b>Total No. of Credits:</b>					<b>21</b>

**THIRD SEMESTER:**

<b>COURSE CODE</b>	<b>Title of the Course</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credit</b>
PHY-611	Digital Electronics	3	-	-	3
PHY-612	Atomic & Molecular Spectroscopy	3	-	-	3
PHY-613	Nuclear & Particle Physics	3	-	-	3
PHY-614	Materials Science	3	-	-	3
PHY-615	Characterization Techniques	3	-	-	3
PHY-631-635	Elective III (Group C)	3	-	-	3
PHY-616	Advanced Physics Laboratory	-	-	2	1
PHY-617	Seminar-3	-	-	2	1
<b>Total No. of Credits:</b>					<b>20</b>



**MAULANA AZAD**  
**NATIONAL INSTITUTE OF TECHNOLOGY, BHOPAL**  
**Department of Physics**  
**Scheme and Syllabus of M.Sc. Physics**

*Annexure-1*

**FOURTH SEMESTER:**

COURSE CODE	Title of the Course	L	T	P	Credit
PHY-621	Major Project Dissertation	-	-	40	20
Total No. of Credits:					20

**Grand Total of Course Credits = 19 + 21 + 20 + 20 = 80**

List of Elective (I) Group A	
PHY-531 Nanoelectronics	PHY-532 Optoelectronics
PHY-533 Photonic Materials	PHY-534 Advanced Topics in Physics
PHY-535 Molecular Structures	PHY-536 Computational Methods
PHY-537 Semiconductor devices	PHY-538 Amorphous Materials
PHY-539 Low Temperature Behavior of Materials	PHY-540 Molecular Electronics and Biomolecules
PHY-541 Quantum Optics	PHY-542 Experimental Nuclear & Particle Physics
PHY-543 Renewable Energy Technologies	PHY-544 Soft Matter Physics
PHY-545 Computational Physics	
Elective (II) Group B	
PHY-546 Laser Technology	PHY-547 Nano Fluids and Surfaces
PHY-548 Solar Photovoltaic Technology	PHY-549 Optical Sensors
PHY-550 Advanced Electromagnetic Theory	
Elective (III) Group C	
PHY-631 Advanced Magnetic Materials	PHY-632 General Theory of Relativity
PHY-633 Nonlinear Dynamics	PHY-634 Physics of Quantum Devices
PHY-635 Quantum Field Theory	

**Note: As per the instructions of dean academics, to keep the uniformity in the credit schemes of all M.Sc. Courses, the credits are changed. However there is no change in overall total credits and curriculum.**