

# **MASTER OF SCIENCE (PHYSICS)**

**Programme Code: PHM  
Duration: 2 Years**

**PROGRAMME SCHEME**

**SESSION: 2019-2020**



**Department of Basic Sciences**

**CHHATRAPATI SHIVAJI MAHARAJ  
UNIVERSITY PANVEL, NAVI MUMBAI**

## Evaluation Scheme

### SEMESTER I

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Course Code		L	T	P	IA	UE	Marks	Credits
PHMC101	Mathematical Physics	4	-	-	30	70	100	4
PHMC102	Classical Mechanics	4	-	-	30	70	100	4
PHMC103	Quantum Mechanics I	4	-	-	30	70	100	4
PHMC104	Solid State Physics	4	-	-	30	70	100	4
PHMC105	Statistical Mechanics	4	-	-	30	70	100	4
PHMC196	General Physics Lab- I			4	30	70	100	4
	<b>Total</b>	<b>20</b>	<b>0</b>	<b>4</b>	<b>180</b>	<b>420</b>	<b>600</b>	<b>24</b>

### SEMESTER II

Course Code		L	T	P	IA	UE	Marks	Credits
PHMC201	Numerical Methods and Computational Physics	4	-	-	30	70	100	4
PHMC202	Quantum Mechanics - II	4	-	-	30	70	100	4
PHMC203	Electronics	4	-	-	30	70	100	4
PHMC204	Nuclear and Particle Physics	4	-	-	30	70	100	4
PHMC295	General Physics Lab- II			4	30	70	100	4
PHMC291	Numerical Methods and Computational Physics	-	-	2	15	35	50	2
PHMC293	Electronics			2	15	35	50	2
	<b>Total</b>	<b>16</b>	<b>0</b>	<b>8</b>	<b>180</b>	<b>420</b>	<b>600</b>	<b>24</b>

### SEMESTER III

Course Code		L	T	P	IA	UE	Marks	Credits
PHMC301	Electrodynamics - I	4	-	-	30	70	100	4
PHMC302	Atomic, Molecular and Laser Physics	4	-	-	30	70	100	4
PHME303	Elective - I	4	-	-	30	70	100	4
PHMS304	Special Paper - I	4	-	-	30	70	100	4
PHMN375	Seminar	-	-	4	30	70	100	4
PHMC394	Special Paper - I Lab	-	-	4	30	70	100	4
	<b>Total</b>	<b>16</b>	<b>0</b>	<b>8</b>	<b>150</b>	<b>350</b>	<b>600</b>	<b>24</b>

## SEMESTER IV

Course Code		L	T	P	IA	UE	Marks	Credits
PHMC401	Electrodynamics - II	4	-	-	30	70	100	4
PHME402	Elective - II	4	-	-	30	70	100	4
PHMS403	Special Paper - II	4	-	-	30	70	100	4
PHMC484	Project	-	-	8	60	140	200	8
PHMC493	Special Paper - II Lab	-	-	4	30	70	100	4
	<b>Total</b>	<b>12</b>	<b>0</b>	<b>12</b>	<b>180</b>	<b>420</b>	<b>600</b>	<b>24</b>

**Total Marks: 2400**

**Total Credit: 96**

### List of Elective Papers:

Semester-III		Semester-IV	
Elective-I (T)	Special Paper(T+P)	Elective-II (T)	Special paper-II(T+P)
Condensed Matter Physics	Advanced Electronics-I	Electronic Structure Theory	Advanced Electronics-II
High Energy Physics	Nanotechnology-I	Particle Physics and String Theory	Nanotechnology-II
Laser and Applications	Advanced Computational Physics	Digital Signal Processing	Materials Simulation and Machine Learning
Quantum Optics	Spectroscopy-I	General Theory of Relativity	Spectroscopy-II

**NOTE:** Students have to choose one elective subject and one special paper for Semesters III, Electives are theory papers and can be relevant courses run by other departments. In Semester IV, he students have to choose one elective and a special paper each. The special paper must be in continuation or is closely related to the course chosen in the previous semester. For example, if a student chooses Advanced Electronics-I in Semester-III, his choice in the Semester-IV shall be limited to Advanced Electronics-II. The teachers / mentors shall advice on making the choice of subjects as specialization groups. This choice-based system shall facilitate in development of specialized expertise in thrust areas of Physics. Departmental committee will approve the topic of the project selected by students.