



Karmaveer Bhaurao Patil University, Satara
Faculty of Science and Technology

M. Sc. (Physics)

Programme and Credit Structure as per NEP2020

Title: The degree shall be titled as ‘**Master of Science (Physics)**’ under the Faculty of Science and Technology.

M.Sc. Sem. I & II: To be implemented from Academic Year 2024-25

M.Sc. Sem. III & IV: To be implemented from Academic Year 2025-26

Programme Outcomes for M. Sc. (Physics)

PO. NO	Programme Outcomes After completing M.Sc. programme the students will be able to
PO-1	understand the fundamentals and advancements of subject.
PO-2	study, plan, and conduct experiments in the labs to validate the ideas, principles, and theories acquired in the classrooms.
PO-3	enhance scientific knowledge of subject.
PO-4	define their area of focus in academia, research, and development.
PO-5	pursue careers in various fields such as science, engineering, education, banking, business, public service, etc., or become an entrepreneur with precision, analytical thinking, innovative ideas, clarity of thought, expression, and a systematic approach.

PSO. NO	Programme Specific Outcomes After completing M.Sc. (Physics) programme the students will be able to ...
PSO-1	understand the basics and advances of Physics
PSO-2	study, plan and perform experiments in the labs to prove the ideas, values and theories learned in the classrooms
PSO-3	improve scientific knowledge in Physics
PSO-4	classify their area of attention in academic, research and development.
PSO-5	perform job in various fields like science, engineering, education, banking,

business and public service, etc. or be an entrepreneur with precision, analytical mind, innovative thinking, clarity of thought, expression, and systematic approach.

Semester, Credit Framework NSQF Level and Exit Points

Sr. No	Semester	Year	Year	Credits	Level	Exit Points & Award
1	Sem. I & II	2024-25	1 Year	44	6	PG Diploma (Physics)
2	Sem. III & IV	2025-26	2 Year	44	6.5	PG Degree (Physics)
			Total	88		Master of Science (Physics)

Credit Distribution

Sr. No	Components	1 Year Master Degree Programme			2 Year Master Degree Programme		
		Courses	Credits	%	Courses	Credits	%
	Mandatory Courses	06	24	54.55	12	48	54.55
	Elective Courses	02	04	9.09	04	08	9.09
	Mandatory Practical	02	04	9.09	04	08	9.09
	Elective Practical	02	04	9.09	03	06	6.82
	Research Methodology	01	04	9.09	01	04	4.55
	Research Project	01	04	9.09	02	10	11.36
	OJT	--	--	--	01	04	4.55
	Total (Mandatory)-(A)	09	32	72.73	19	70	79.55
	Elective	04	08	18.18	07	14	15.91
	RM	01	04	9.09	01	04	4.55
	Total - (B)	05	12	27.27	01	04	4.55
	Grand Total (A+B)	14	44	100	27	88	100

Duration:

- The program shall be a full-time program.
- The duration of program shall be One Year / Two years.
- Students will have to exit option with: - First Year (44 Credits) - PG Diploma

Number of Students: A batch shall consist of not more than 20 students. An additional 20% of seats will be allotted as per Karmaveer Bhaurao Patil University, Satara Norms.

Eligibility of the Students:

- Bachelor of Science with specialization in Physics.
- Bachelor of Science with specialization in Nanoscience and technology.
- Any other eligibility prescribed by UGC, Government of Maharashtra, Karmaveer Bhaurao Patil University, Satara.

Medium of Instruction: The medium of instruction shall be in English.

Eligibility of the Core Faculty:

- **Assistant Professor:** Master of Science with specialization in Physics and NET/ SET/ Ph.D.
- Associate Professor: Master of Science in Physics with NET/ SET/Ph.D.
- Professor: Master of Science in Physics with NET/ SET/Ph.D.

Eligibility for Professor of Practice or Professional Trainer:

Any other eligibility as per the Guidelines and Regulations Passed by the Board of Concerned Studies, Academic Council of the College / University and Rules and Regulations of Karmaveer Bhaurao Patil University, Satara, Government of Maharashtra, and UGC norms.

Eligibility for Adjunct Professor of Practice or Professional Trainer:

As per eligibility prescribed by UGC

Scheme of Examination & Standard of Passing:(SEE and CCE)

End Semester Exam (ESE): 60 Marks (Min 24 Marks for Passing)

Continuous Comprehensive Evaluation (CCE): 40 Marks (Min 16 Marks for Passing)

Total Marks: 100 Marks for **DSC mandatory courses**.

End Semester Exam (ESE): 30 Marks (Min 12 Marks for Passing)

Continuous Comprehensive Evaluation (CCE): 20 Marks (Min 08 Marks for Passing)

Total Marks: 50 Marks for **DSE elective courses**.

Minimum 40% Marks Required for Passing and there is a separate head of passing as per the decision of the concerned Board of Studies or Competent Authority.

Evaluation of OJT and RP:

i. OJT: Total 100 marks for 4 credits

(Rubrics: Certificate = max 60 marks, Report = 20 marks, Viva = 20 marks)

ii. RP: Total 100 marks for 4 credits

(Rubrics: Decertation = 60 marks, Presentation & Viva = 40 marks)

M.Sc. (Physics) Part -I				
Semester –I				
Sr. No.	Components	Course Code	Course (Subject)	Credits
1	Mandatory	MPT 411	Mathematical Methods in Physics	4
2	Mandatory	MPT 412	Classical Mechanics	4
3	Mandatory	MPT 413	Quantum Mechanics-I	4
4	Electives	MPT 414	Atomic and Molecular Physics- E1 or Optoelectronics and Photonics- E2	2
5	RM	MPT 415	Research Methodology	4
6	Mandatory Lab	MPP 416	Physics Practical Course I	2
7	Electives Lab	MPP 417	Physics Practical Course II	2
Total				22
Semester –II				
Sr. No.	Components	Course Code	Course (Subject)	Credits
1	Mandatory	MPT 421	Quantum Mechanics II	4
2	Mandatory	MPT 422	Statistical Mechanics	4
3	Mandatory	MPT 423	Solid State Physics-I (Physical Properties of Solids)	4
4	Electives	MPT 424	Condensed Matter Physics - E1 or Laser Physics - E2	2
5	RP	MPP 425	Research Project	4
6	Mandatory Lab	MPP 426	Physics Practical Course- III	2
7	Electives Lab	MPP 427	Physics Practical Course Course - IV	2
Total				22

EXIT OPTION: PG Diploma with **44 Credits** after Three Year UG Degree.

M.Sc. (Physics) Part -II				
Semester –III				
Sr. No.	Components	Course Code	Course (Subject)	Credits
1	Mandatory	MPT 531	Nanoscience and Nanotechnology	4
2	Mandatory	MPT 532	Electrodynamics	4
3	Mandatory	MPT 533	Solid State Physics- II (Semiconductor Physics)	4
4	Electives	MPT 534	Electronic Devices - E1 or Materials for Semiconductor Technology - E2	2
5	Mandatory Lab	MPP 535	Physics Practical Course V	2
6	RP	MPP 536	Research Project	6
			Total	22
Semester –IV				
Sr. No.	Components	Course Code	Course (Subject)	Credits
1	Mandatory	MPT 541	Nuclear and Particle Physics II	4
2	Mandatory	MPT 542	Solid State Physics -III (Thin Solid Films: Deposition and Properties)	4
3	Mandatory	MPT 543	Solid State Physics- IV (Energy Conversion and Storage Devices)	4
4	Electives	MPT 544	Experimental Techniques- E1 or Methods of Testing of Material - E2	2
5	Mandatory Lab	MPP 545	Physics Practical Course VI	2
6	Electives Lab	MPP 546	Physics Practical Course VII	2
7	OJT	MPP 547	On Job Training	4
			Total	22

****** PG Degree with 88 credits after Three Year UG Degree.**

Chairman
BoS in Physics

Secretary
Academic Council

Chairman
Academic Council