



KURUKSHETRA UNIVERSITY KURUKSHETRA

[Established by the State Legislature Act XII of 1956]

(‘A⁺’ Grade, NAAC Accredited)

AQAR-2020-21

1.2.2 : Scheme of Examination for the programmes in the Department/Institute of

Physics

**Structure and Syllabus of
M. Sc. PHYSICS (Ist to IVth Semesters) Course
Under CBCS-LOCF**

(Effective from the Academic Session 2020-21)

In phased manner

SEMESTER I

Course Code	Course Title	Credits	Teaching Hours per week	Maximum Marks			Duration of Exam. Hours
				Internal Assessment*	End-semester Examination	Total	
PHY 101	Mathematical Physics	4	4	20	60	80	3
PHY 102	Classical Mechanics	4	4	20	60	80	3
PHY 103	Quantum Mechanics-I	4	4	20	60	80	3
PHY 104	Electronic Devices and Circuits-I	4	4	20	60	80	3
PHY 105	Physics Laboratory-I	8	20	40	120	160	5
Total Credits/Marks		24				480	


SEMESTER II

Course Code	Course Title	Credits	Teaching Hours per week	Maximum Marks			Duration of Exam. Hours
				Internal Assessment*	End-semester Examination	Total	
PHY 201	Quantum Mechanics-II	4	4	20	60	80	3
PHY 202	Nuclear and Particle Physics	4	4	20	60	80	3
PHY 203	Solid State Physics	4	4	20	60	80	3
PHY 204	Electronic Devices and Circuits-II	4	4	20	60	80	3
PHY 205	Physics Laboratory-II	8	20	40	120	160	5
PHY 206	Seminar**	2	2			40	40 minutes
Open Elective Paper-I (Course code and course title as per choice made by the student)		2	2	15	35	50	1.30
Total Credits/Marks		28				570	

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SEMESTER III

Course Code	Course Title	Credits	Teaching Hours per week	Maximum Marks			Duration of Exam. Hours
				Internal Assessment	End-semester Examination	Total	
PHY 301	Electrodynamics and Plasma Physics	4	4	20	60	80	3
PHY 302	Statistical Mechanics	4	4	20	60	80	3
<i>Any one of the following subject electives/specializations^s</i>		4	4	20	60	80	3
PHY 303A	Condensed Matter Physics-I						
PHY 303B	Nuclear Physics-I						
PHY 303C	Particle Physics-I						
<i>Any one of the following subject electives/specializations^s</i>		4	4	20	60	80	3
PHY 304A	Computational Physics-I						
PHY 304B	Electronics-I						
PHY 304C	Material Science-I						
PHY 305	Physics Laboratory-III	8	20	40	120	160	5
Open Elective Paper-II (Course code and course title as per choice made by the student)		2	2	15	35	50	1.30
Total Credits/Marks		26				530	


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SEMESTER IV

Course Code	Course Title	Credits	Teaching Hours per week	Maximum Marks			Duration of Exam Hours
				Internal Assessment	End-semester Examination	Total	
PHY 401	Advanced Quantum Mechanics	4	4	20	60	80	3
PHY 402	Atomic and Molecular Physics	4	4	20	60	80	3
<i>Same electives/specializations are to be taken as in Semester III</i>		4	4	20	60	80	3
PHY 403A	Condensed Matter Physics-II						
PHY 403B	Nuclear Physics-II						
PHY 403C	Particle Physics-II						
<i>Same electives/specializations are to be taken as in Semester III</i>		4	4	20	60	80	3
PHY 404A	Computational Physics-II						
PHY 404B	Electronics-II						
PHY 404C	Material Science-II						
PHY 405	Physics Laboratory-IY/Project***	8	20	40	120	160	5
PHY 406	Seminar**	2	2			40	40 minutes
Total Marks		26				520	

** Seminar will be held once a week during the laboratory hrs.

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Open Elective Papers


For the Students of M.Sc. Physics

A student will earn four credits by way of selecting one open elective paper of two credits in second semester and one more such paper of same credits in third semester, out of the open elective papers offered by the departments/institutes on the campus other than the Department of Physics or MOOCs.

For the Students of Other Departments/Institutes on the campus

The Department of Physics offers the following open elective papers to the students of other departments/institutes on the campus. A paper shall be run only if the number of students opting for it is at least 20. There will be an upper limit of 50 students in each paper. Open elective papers will be allotted by the Chairperson as per university norms.

Course Code	Course Title	Credits	Teaching Hours per week	Maximum Marks		
				Internal Assessment	End-semester Examination	Total
OE-208 (For 2 nd Semester)	Elements of nano-science & nano-technology	2	2	15	35	50
OE-308 (For 3 rd Semester)	Radiation Physics	2	2	15	35	50


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Total Marks of all Four Semesters

Semester	Marks	Credits
Semester I	480	24
Semester II	570	28
Semester III	530	26
Semester IV	520	26
Grand Total	2100	104

* Internal Assessment in theory papers will be made on the basis of sessional test(s) and other parameters as decided by the University from time to time, while in Laboratory papers it will be decided from continuous assessment in internal viva-voce examination of all the experiments performed.

** Each student will deliver one seminar of about 40 minutes duration on the topic to be allotted by the departmental seminar committee in both 1st and 2nd years of the M. Sc. Physics Course as per the schedule drawn in the beginning of each year. The marks will be awarded by the seminar committee on the basis of performance in the seminar and the seminar report submitted by the student.

*** Total number of students' project offered will be one per faculty member per year, and allotment will be made on the basis of merit cum preference of the students. Students opting for project will be exempted from the corresponding laboratory course.

[§] The special papers will be allotted to students on the basis of their preference cum percentage of marks in the First Semester examination of M. Sc. Physics.

General guidelines:

1. If a course is being taught by two or more teachers, they should coordinate among themselves the coverage of course material as well as the internal assessment of the students to maintain uniformity.
2. Each theory course in a semester has been designed for a period of 48-54 lectures. The total number of actual lectures delivered may vary at most by 10 %.
3. The books indicated as references are suggestive of the level of coverage. However, any other standard book may be followed.
4. In specialization courses, new specializations may be added to the list from time to time keeping in view the expertise available in the Department and/or the emergence of new frontier areas of specialization.
5. New experiments in the Laboratory Courses may be added from time to time.

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