PERIYAR UNIVERSITY
SALEM-636 011

M.Phil. DEGREE
PHYSICS
(Choice Based Credit System (CBCS))

REGULATIONS AND SYLLABUS
(Effective from the academic year 2008-2009 and thereafter)
1. Eligibility:

Candidates who have qualified for post graduate degree of this University or any other University recognised by the Syndicate as equivalent thereto shall be eligible to register for the Degree of Master of Philosophy (M.Phil.) in their respective subject and undergo the prescribed course of study in an approved institution or department of this University.

Candidates who have qualified their postgraduate degree on or after 1st January 1991 shall be required to have obtained a minimum of 55% of marks in their respective postgraduate degree to become eligible to register for the Degree of Master of Philosophy (M.Phil.) and undergo the prescribed course of study in an approved institution or department of this University.

In the case of teachers (or) others registering for part-time registration, the minimum percentage of marks for registration is 50%.

For the candidates belonging to SC / ST community and those who have qualified for the Master's degree before 01.01.1991 the minimum eligibility marks shall be 50% in their Master's Degree.

2. Duration:

The duration of the M.Phil. Course shall extend over a period of one year from the commencement of the course.

3. Course of Study:

The course of study for the degree shall consist of (a) Part-I comprising three written papers according to the Syllabus prescribed from time to time; and (b) Part-II Dissertation.
Part-I shall consist of Paper-I Research Methodology and Paper-II an advanced paper in the main subject. There shall also be a third paper which shall be the background paper relating to the proposed. Dissertation conducted internally by the College/Departments.

4. Structure of the Course

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Title of the Course</th>
<th>Credits L T P C</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART-I</td>
<td>Scientific Research and Methodology</td>
<td>4 0 0 4</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Advanced Physics</td>
<td>4 0 0 4</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Optional Paper</td>
<td>4 0 0 4</td>
<td>100</td>
</tr>
<tr>
<td>PART-II</td>
<td>Project and Viva-voce</td>
<td>12 0 0 12</td>
<td>200</td>
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</tbody>
</table>

* 150 Project 50 Viva-voce

5. Scheme of Examinations

Part-I Written Examination: Paper I, II & III

The examination of papers I, II and III shall be held at the end of first semester. The duration for each paper shall be 3 hours carrying a maximum of 100 marks.

Paper - III examination will be conducted by the College / Departments and the marks obtained by the candidate along with the question paper and valued answer scripts shall be sent to the University at least 15 days before the commencement of the examinations of paper I and II.

The examiners will be appointed from the panel of four names of each paper (I and II) submitted by the College / Departments concerned. If one examiner awards a pass mark and the other fail mark the, paper will be valued by a third examiner whose award of marks will be final.
Part - II - Dissertation:

The exact title of the Dissertation shall be intimated with in one month after the completion of the written examination. Candidates shall submit the Dissertation to the University through the Supervisor and Head of the Department at the end of the year from the commencement of the course which shall be valued by internal examiner (supervisor) and one external examiner appointed by the University from a panel of four names sent by the Supervisor through the Head of the Department / Principal at the time of submitting the dissertation.

The examiners who value the Dissertation shall report on the merit of candidates as "Highly Commended" (75 % and above) or "Commended" (50 % and above and below 75 %) or "Not Commended" (below 50 %).

If one examiner commends the Dissertation and the other examiner, does not commend, the Dissertation will be referred to a third examiner and the third valuation shall be final.

Submission or resubmission of the Dissertation will be allowed twice a year.

06. QUESTION PAPER PATTERN

Question paper pattern for University Examinations

<table>
<thead>
<tr>
<th>Time</th>
<th>3 Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum</td>
<td>100</td>
</tr>
<tr>
<td>Passing Minimum</td>
<td>50</td>
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</tbody>
</table>

Part - A (5x5=25 Marks)
Answer all questions
(Either or Type)

Part - B (5x15=75 Marks)
Answer all questions
(Either or Type)
Periyar University

Syllabus for M.Phil (Physics) Degree Course

Paper – I - Scientific Research and Methodology

UNIT – I

UNIT – II

UNIT – III

UNIT – IV

UNIT V
Functions of C: Arrays (One, two, multi dimensional arrays) - initiating two - dimensional arrays declaring and initializing string variables - reading and writing strings on the screen - arithmetic operations on strings. User defined functions-their needs – multiplication programme - the form of C function - return values and their types – calling functions – category of functions - no arguments and no return value – Sample programs: Matrix multiplication, diagonalisation and inversion – solution to simultaneous equation – differential equations.
REFERENCES:

4. How to write a research paper - Berry
5. Form and style in the thesis writing – W. G.Campbell
Periyar University

Syllabus for M.Phil (Physics) Degree Course

Paper – II – Advanced Physics

Unit: I

Unit: II

Unit: III
Lasers and Non-linear Optics:


Unit: IV
Vibrational Spectroscopy:
Unit: V
Non-Linear Dynamics:
Introduction to Nonlinear Dynamical Systems The notion of nonlinearity- superposition principle and its validity- linear and nonlinear oscillators- autonomous and non autonomous systems- equilibrium points- phase space- classification of equilibrium points.- Chaos – Solitons – Definitions.

References

4. S.P.Sukhatme, Solar Energy, TMH.
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Syllabus for M.Phil (Physics) Degree Course

Paper – III – Optional Paper

III (a) Material Science
III (b) Crystallography and Molecular Biophysics
III (c) Laser Physics
III (d) Spectroscopy
III (e) Nonlinear Dynamics
III (f) Advanced Crystallography
III (g) Quantum Theory of Atoms in Molecules
III (h) Non Linear Optics

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