DEGREE OF MASTER OF PHILOSOPHY
CHOICE BASED CREDIT SYSTEM

SYLLABUS FOR
M.PHIL. COMPUTER SCIENCE
(SEMESTER PATTERN)
(For Candidates admitted in the Colleges affiliated to
Periyar University from 2017-2018 onwards)
REGULATIONS
FULL TIME / PART TIME

1. OBJECTIVE OF THE PROGRAMME

It is a pre-research degree in Computer Science for Post Graduate in Computer Science / Computer Applications / Software Science / Computer Communication / Information Technology / Software Engineering / Theoretical Computer Science / Computer Technology or any other equivalent programme recognized by this University. It is aimed to explore the various research areas in Computer Science and Applications.

2. ELIGIBILITY

Candidates who have qualified their Post Graduate degree in Computer Science / Computer Applications / Software Science / Computer Communication / Information Technology / Information Science / Software Engineering / Theoretical Computer Science / Computer Technology / Information Science and Management / Information Technology and Management under 10+2+3+2/3 system of this University or any other University recognized by the Syndicate as equivalent thereto shall be eligible to register for the Degree of Master of Philosophy (M.Phil.) in Computer Science 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 1 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.) in Computer Science and undergo the prescribed course of study in an approved institution or department of this University.

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.
3. **DURATION**

The M. Phil. Programme spans over a period of one year from the commencement of the Programme comprising of two semesters.

4. **COURSE OF STUDY**

There are three courses for semester I and Dissertation and viva-voce for semester II. The third course in the first semester shall be a specialization related to the Dissertation. The student in consultation with the research supervisor must select the third course and the research supervisor should frame the syllabus.

## COURSE OF STUDY AND SCHEME OF EXAMINATION

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hours / Week</th>
<th>Exam Hours</th>
<th>University Examination</th>
<th>Credits</th>
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</thead>
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<tr>
<td></td>
<td></td>
<td>Internal (25%)</td>
<td>External (75%)</td>
<td>Total</td>
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<tr>
<td>I SEMESTER</td>
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<tr>
<td>Paper I - Research Methodology</td>
<td>4</td>
<td>3</td>
<td>25</td>
<td>75</td>
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<tr>
<td>Paper II - Advanced Computing Techniques</td>
<td>4</td>
<td>3</td>
<td>25</td>
<td>75</td>
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<tr>
<td>Paper III - Specialization course</td>
<td>4</td>
<td>3</td>
<td>25</td>
<td>75</td>
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<td>TOTAL</td>
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<tr>
<td>II SEMESTER</td>
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<tr>
<td>Paper IV - Dissertation and Viva-Voce</td>
<td>4</td>
<td>3</td>
<td>50</td>
<td>100+50*</td>
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</tbody>
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CIA – Continuous Internal Assessment  
ESE – End Semester Examination  
+ Evaluation by external examiner - 100 Marks  
* Joint viva-voce - 50 Marks  
( Research supervisor 25 Marks + External 25 Marks)
The distribution of marks for Internal Assessment and End Semester External Examinations will be 25% and 75% respectively. The Internal Assessment is distributed to tests, seminar and attendance as 10%, 10% and 5% respectively.

The Examination for courses I, II and III shall be held at the end of the first semester.

The Examination for specialization course will be conducted by the controller of examination along with courses I and II. Two different sets of question papers should be sent to the controller of examinations along with the syllabus for specialization course by the respective research supervisors.

**Semester II - Dissertation and Viva Voce**

The area of the Dissertation, which should be relevant to the specialization course, shall be intimated to the office of the controller of examinations within a month from the date of commencement of the second semester. Candidates shall submit two copies of the Dissertation to the controller of examination through the Supervisor and Head of the Department concerned at the end of the second semester. The supervisor should submit a panel of four examiners along with the dissertation for the evaluation of specialization course, dissertation and to conduct the viva voce. The respective supervisors shall be an internal examiner. The viva board should consist of the research supervisor, head of the department and external examiner.

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%).

Submission or re-submission of the dissertation will be allowed twice a year.

6. **PASSING MINIMUM**

A Candidate shall be declared to have passed if he/she secures not less than 50% of the marks in each course.

7. **RESTRICTION IN NUMBER OF CHANCES**

No Candidate shall be permitted to reappear for the written examination in any course more than two occasions or to resubmit a Dissertation more than once. Candidates shall have to Qualify for the Degree passing all the theory courses and Dissertation within a period of four years from the date of commencement of the Programme.

8. **CONFERMENT OF DEGREE**

No Candidate shall be Eligible for conferment of the M.Phil Degree unless he/she is declared to have passed all the courses of the Examination as per the Regulations.

9. Eligibility for research supervisors conducting the M.Phil. Programme: As per the regulations of Periyar University.
COURSE OBJECTIVES

i) To understand the importance of writing skills

ii) To learn the method of documentation

iii) To learn different types of methods for data analysis

iv) To understand the importance of computational tools

UNIT 1: Technical Writing


UNIT 2: Near Set Theory


UNIT 3: Rough set Theory

Unit 4: Soft set Theory


Unit 5: Analytical Methods (Omit Theorems and Proof)

Correlation Analysis


Regression Analysis


TEXT BOOKS

Unit – 1:

   (Chapters: 4, 5, 6, 7, 8)

Unit – 2:


Reference Books:


Unit – 3:

Unit – 4:

Unit – 5:

REFERENCE BOOKS
M.PHIL. COMPUTER SCIENCE

PART - I

PAPER II - ADVANCED COMPUTING TECHNIQUES

COURSE OBJECTIVES

i) To understand the importance of computing methods
ii) To learn the computing techniques from nature
iii) To understand the importance of evolutionary computing
iv) To learn the importance of optimization methods

UNIT 1: Particle Swarm Optimization

Basic PSO – Social network structures – Basic variations – PSO parameters – Single solution PSO – ACO meta heuristic – Applications: Travelling Salesman Problem

UNIT 2: Evolutionary Computing Methods


UNIT 3: Deep Learning


UNIT 4: Deep Autoencoders - Unsupervised Learning


UNIT 5: Mobile Computing

Mobility Models in Adhoc Networks – Introduction - Random-Based Mobility Models - The Random Waypoint Model - Stochastic Properties of Random Waypoint Model - Mobility Models With Geographic Restriction - Pathway Mobility Model - Obstacle Mobility Model. Routing in Mobile Adhoc Networks – Proactive Routing Protocols –
TEXT BOOKS

Unit 1:
   Chapters – 16.1 to 16.5, 17.1, 17.5.1

Unit 2:
   Chapters - 8, 9.1 to 9.5, 11.1 to 11.4, 12.1 to 12.4, 13.1

Unit 3 and Unit 4:

Unit 5:
1. Fan Bai and Ahmed Helmy, “A survey of Mobility Models”, University of Southern California, U.S.A.(Chapter 1)

REFERENCE BOOKS

2. Maurice Clerc, Particle Swarm Optimization, ISTE, 2013
4. Aleksandar Lazinica, Particle Swarm Optimization, Intech Publisher, 2011
M.PHIL. COMPUTER SCIENCE

PART - I

PAPER III - SPECIALIZATION COURSE

4 Credits

The students must select the course from advanced research areas in computer science and the syllabus should be framed by the respective research supervisor. The syllabus along with two different sets of question papers may be communicated to the controller of examinations. The semester examination for specialization Course will be conducted by the controller of examinations along with courses I and II.

M.PHIL-QUESTION PAPER PATTERN

FOR COURSES I, II, III

Duration: 3 Hours

Max Marks: 75

Section – A (5 X 5 = 25)

All questions carry equal marks.

Five questions either or type and one question from each unit

Section – B (5 X 10 = 50)

All questions carry equal marks.

Five questions either or type and one question from each unit