M.Phil. [Operations Research] (Full Time)  
Curriculum and Syllabus  
2016 Regulation

### I SEMESTER

<table>
<thead>
<tr>
<th>S.No</th>
<th>Sub. Code</th>
<th>Title of Subject</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
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<tbody>
<tr>
<td>1</td>
<td>RMA 001</td>
<td>Linear, Non-Linear Programming And Simulation</td>
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<td>2</td>
<td>RMA 002</td>
<td>Queueing System</td>
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### II SEMESTER

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<td>Inventory Theory And Dynamic Programming</td>
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<td>RMA 004</td>
<td>Dissertation</td>
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**Credit Summary**

1\textsuperscript{st} Semester - 08  
2\textsuperscript{nd} Semester - 12  
**Total No. of Credits - 20**
OBJECTIVES
❖ To give an in-depth knowledge of Linear, Non Linear Programming and Simulation and their applications.
❖ To train the students to write definition and problem solving in Simulation.

UNIT I: 12 hours

UNIT II: 12 hours

UNIT III: 12 hours

UNIT IV: 12 hours

UNIT V: 12 hours

Total No of Hours: 60

TEXT BOOKS:
RMA 002  QUEUEING SYSTEM  4 0 0 4

OBJECTIVES
❖ To give an in-depth knowledge of Queueing System and their applications.
❖ To train the students to write definition and problem solving, Stochastic Processes and Queueing Theory.

UNIT I:  12 hours

UNIT II:  12 hours
Queueing Systems, Probability Distribution of Arrival and Service Times.

UNIT III:  12 hours

UNIT IV:  12 hours
Design and Control Problems in Queueing Theory.

UNIT V:  12 hours
Simulation Procedures: Data Generation and Book – Keeping.

Total No of Hours:  60

TEXT BOOKS:
OBJECTIVES
❖ To give an in-depth knowledge of Inventory Theory And Dynamic Programming and their applications.
❖ To train the students to write definition and problem solving in Inventory control, Dynamic programming and cargo loading and Knapsack problems.

UNIT I: 12 hours
Inventory control – Different variables involved, Single item deterministic – Economic lot size models with uniform rate, finite and infinite production rates, with or without shortage – Multi- item models with one constant.

UNIT II: 12 hours
Deterministic models with price breaks – All units discount model and incremental discount model. Probabilistic single period profit maximization models with uniform demand, instantaneous demand, with or without setup cost.

UNIT III: 12 hours
Dynamic inventory models, Multi – echelon problems. Integrated approach to production inventory and to maintenance problems. Feedback control in inventory management.

UNIT IV: 12 hours

UNIT V: 12 hours
Applications of dynamic programming. The shortest path through a network, production planning, inventory problems, investment planning, cargo loading and Knapsack problems.

Total No of Hours: 60

TEXT BOOKS:
M.Phil - Mathematics - 2016 Regulations