



Department of Computer Science
Gujarat Vidyapith, Ahmedabad – 14

MCA - SEMESTER - III

MCA-301: OPTIMIZATION MODELS & OPERATION RESEARCH

ઈષ્ટતમ પ્રતિકૃતિઓ તથા સંશોધન પ્રક્રિયા

(Effective from JUNE - 2015)

Credits:	4	Total Hrs:	60
Objective:	<ul style="list-style-type: none">• To develop proficiency in applying operation research techniques that helps in decision making while solving real-world problems• The emphasis is on developing reasoning skills and concepts		
Prerequisite:	Basic knowledge of simple mathematics.		

UNIT - I

1 CREDIT

- **LINEAR PROGRAMMING PROBLEMS**
 - Introduction, Structure of Linear Programming Model
 - Application Areas of Linear Programming
 - General Mathematical Model of Linear Programming Problem
 - The Graphical Method
 - The Simplex Method
 - Slack and Surplus Variables, Simplex Algorithm (Maximization Case), Simplex Algorithm (Minimization Case)
- **TRANSPORTATION PROBLEM**
 - Introduction, Mathematical Model of Transportation Problem
 - The Transportation Algorithm
 - Methods for Finding Initial Solution
 - test for Optimality,
 - Variations in Transportation Problem,
 - Maximizations Transportation Problem
 - Trans-shipment Problem

UNIT - II

1 CREDIT

- **ASSIGNMENT PROBLEMS**
 - Introduction,
 - Mathematical Model of Assignment Problem,
 - Solution Methods of Assignment Problem
 - Methods for Finding Initial Solution
 - Test for Optimality
 - Variations of the Assignment Problem,

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2/2/2016
5.5.2016



- **PROJECT MANAGEMENT TECHNIQUES**

- Project scheduling by CPM/PERT
- Network Diagram Representation - critical path calculation
- Calculation of floats - construction of time chart
- Crashing algorithms - Resource leveling
- Exposing to available packages

UNIT - III

1 CREDIT

- **INVENTORY MODELS**

- Deterministic Inventory models
- Basic models- I, II and III

- **REPLACEMENT THEORY**

- Replacement policy for equipment which deteriorates gradually
- Group replacement VS. Individual replacement
- Optimum replacement policy.

UNIT- IV

1 CREDIT

- **QUEUING THEORY**

- Basic elements- Roles of Poisson and exponential distribution to basic models
- Exposure to elementary basic models cost benefit analysis
- single server model/finite/infinite population
- Multiple server model/finite/infinite population

- **SIMULATION TECHNIQUES**

- Scope of simulation application - Role of random numbers -
- simulation experiment - Monte carlo techniques of constructing and
- executing simulation models - Simulation for Inventory and Queuing problems

Books:-

- Operations Research : Theory and application
By J.K.Sharma Pub : MacMillan India Ltd.

Reference Books:-

- Operations Research
By R. Panneerselvam Pub : PHI

***** END of MCA - 301 *****

MCA SEMESTER - III [2/2] [2015-16]

3/2/2016
5-5-2016



Department of Computer Science
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MCA - SEMESTER – III

MCA - 302 : MOBILE COMPUTING

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(Effective from JUNE - 2015)

Credits:	4+2
Objective:	To understand the process of developing software for the mobile. To create mobile applications on the Android Platform. To create mobile applications involving data storage in SQLite.
Prerequisite:	Knowledge of the Core Java Programming concepts is must. Knowledge of database concepts is also must.

UNIT- I

1 CREDIT

- **Introduction to Android**
 - History of Mobile Software Development
 - The Open Handset Alliance
 - The android Platform
 - Android SDK
 - Building a sample Android Application
- **Android Application Design Essentials**
 - Anatomy of an Android application
 - Android terminologies
 - Application Context, Activities, Services, Intents

UNIT- II

1 CREDIT

- **Android Application Design Essentials**
 - Receiving and Broadcasting Intents
 - Android Manifest file and its common settings
 - Using Intent Filter, Permissions
 - Managing Application resources in a hierarchy
 - Working with different type of resources

UNIT- III

1 CREDIT

- **Android User Interface Design Essentials**
 - User Interface Screen elements
 - Designing User Interfaces with Layouts
 - Drawing and working with Animation
 - Using Common Android APIs
 - Using Android Data and Storage APIs
 - Managing data using SQLite

UNIT- IV

1 CREDIT

- **Using Common Android APIs**
 - Sharing Data Between Applications with Content Providers
 - Using Android Networking APIs



- Using Android Web APIs
- Using Android Telephony APIs

PRACTICAL

2 CREDITS

LAB – MOBILE COMPUTING

Books:-

- "Android Wireless Application Development" Pearson, Education, 2nd ed.(2011)
by Lauren Darcey and Shane Conder

Reference Books:-

- "Professional Android 2 Application Development" Wiley India Pvt Ltd(2011)
by Reto Meier
- "Beginning Android" Wiley India Pvt Ltd(2009)
by Mark L Murphy
- "Pro Android" Wiley India Pvt Ltd(2009)
by Sayed Y Hashimi and Satya Komatineni
- "Android Wireless Application Development" Pearson, Education, 3rd ed. Features
Android 4.0
by Lauren Darcey and Shane Conder

***** END of MCA – 302 *****

