1.1.2 Revised Courses

PACO

The Research Centre of Commerce

FATIMA COLLEGE

(Autonomous)

Affiliated to Madurai Kamaraj University

Re-Accredited with 'A++' (CGPA 3.61) by NAAC (Cycle - IV)

Mary Land, Madurai - 625018, Tamil Nadu

FATIMA COLLEGE (AUTONOMOUS), MADURAI – 18

RESEARCH CENTRE OF COMMERCE

M.COM., CURRICULUM 2021-22

SEM	Subject code	Title of thePaper	Hrs.	Credit	Int	Ext	Total
I	19PG1A1	Auditing	6	4	40	60	100
	19PG1A2	Management Accounting and Financial Control I / Management Accounting	6	4	40	60	100
	19PG1A3	Advanced Business Statistics	6	4	40	60	100
	19PG1A4	E-Commerce & E-Office [Theory and Practical]	4+2	4	40	60	100
	19PGA1EDC	Creative Advertising	3	3	40	60	100
		Library	3				
		TOTAL	**30**	**19**			**500**
II	21PG2A5	Quantitative Techniques	6	4	40	60	100
	19PG2A6	Management Accounting and Financial Control II/ Financial Management	6	4	40	60	100
	19PG2A7	Research Methodology	6	4	40	60	100
	19PG2A8	Software Package for Statistical Analysis	6	4	40	60	100
	19PGA2EDC	Creative Advertising	3	3	40	60	100
		Library	3				
		TOTAL	**30**	**19**			**500**

M.COM., CURRICULUM 2019 onwards

SEM	Subject code	Title of thePaper	Hrs.	Credit	Int	Ext	Total
III	19PG3A9	Advanced Costing	6	4	40	60	100
	19PG3A10	Direct Tax Law & Practice I/ Direct Tax Law & Practice	6	4	40	60	100
	19PG3A11	Executive Skills Development	6	5	40	60	100
	19PG3EA12	Software Package for Accounting Decisions [Theoryand Practical] (offered to Economics)	4+2	5	40	60	100
	19PG3AE1/ 19PG3AE2	**Subject Electives:** Partnership Accounting / Marketing Management	4	4	40	60	100
		Library	2				
	19PG3SIA1	Summer Internship	----	3	40	60	100
		TOTAL	**30**	**25**			**600**
IV	19PG4A13	Corporate Accounting	6	5	40	60	100
	19PG4A14	Women Entrepreneurshipand Management of smallbusiness	6	5	40	60	100
	19PG4A15	Direct Tax Law & Practice II / Assessment of Income Tax	6	5	40	60	100
	19PG4A16	Work force Management	6	5	40	60	100
	19PG4AE3 / 19PG4AE4	**Subject Electives:** Special Accounts / Supply Chain Management	4	4	40	60	100
	19PG4A17	Project	-----	3	40	60	100
		Library	2				
		TOTAL	**30**	**27**			**600**
		GRAND TOTAL	**120**	**90**			**1800**

FATIMA COLLEGE (AUTONOMOUS), MADURAI -18 **OLD**
M.Com.
Semester -II

Course Code	19PG2A5	
Course Title	Quantitative techniques	
Hours per week: 6		**Credit: 4**

Course Description

This course helps the students to acquire working knowledge in operation research and resource management Techniques. It also helps them to learn decision making techniques for cost minimization and profit maximizations.

Course Objective :
This course is designed to

1. introduce the potents of Operations Research
2. use OR techniques namely LPP, transportation and assignment to business problems
3. manage inventory by using inventory technique
4. use control techniques to aid decisions

Course Outcome:
On completion of the course the student will be able to

CO	Course Outcome	Level
CO1	Trace the importance of OR, and its application in arriving at business Solutions and use LLP, in locating resources, for maximising profit	**K2,K3,K4**
CO2	Apply transportation models, to real-time businesses	**K2,K3,K4**
CO3	Arrive at the best route for travelling salesmen	**K2,K3,K4,K5**
CO4	Manage inventory levels	**K2,K3,K4**
CO5	Use control techniques PERT and CPM to optimize time	**K2,K3,K4**

UNIT I: Operation Research and Linear Programming (25 Hours)

Operation Research – **Origin and Development - Role in decision making - Characteristics - Phases - General approaches** Linear Programming Problem – Applications and limitations- Formulation of LPP – Graphical Solution – Simplex Method- Slack and surplus variables- Reduction of feasible solution to a basic feasible solution- Improved basic feasible solution

UNIT II :Transportation (15 Hours)

Transportation Problem – The initial basic feasible solution- North West corner Rule- Row minima method- Column minima method- matrix minima method- Vogel's approximation method- Moving towards Optimality –Stepping stone method – Determining the net evaluation by Modi's method – Degeneracy in transportation problems- Unbalanced Transportation Problem

UNIT III: Assignment (15 Hours)

Assignment Problem- Rules for finding optimum assignment- Routing problems-Travelling salesman problem – Unbalanced assignment problem

UNIT IV: Decision Theory (15 Hours)

Ingredients of optimal decisions –Maximin Principle - Minimax Principle – Bayesian Principle –Pay off Table

Decision Tree Analysis-Steps and Advantages (Theory only)

UNIT V: PERT-CPM (15 Hours)

Introduction- activity, dummy activity- network diagrammatic representation-Determination of earliest time by forward pass computation- determination of latest time by backward pass computation- Identification of the critical path – Simple PERT calculation

TEXT BOOK:

1. **Operation Research**: **Quantitative Techniques for Management**, Kapoor V.K, (2013), Sultan Chand & Sons, New Delhi.
2. Statistical Methods : Gupta.S.P (2014), Sultan Chand & Sons, New Delhi., 43rd Edition.

BOOKS FOR REFERENCE:

1. **Operations Research** Kanti swarup et al, (2006), , Sultan Chand& Sons, New Delhi.
2. **Operation Research Quantitative Analysis**, Gupta P,K&Manmohan, (2009), Sultan Chand and Sons, New Delhi.
3. **Introduction to Operation Research**, Gupta P.K & Hira D s, (1998), Sultan Chand Sons, New Delhi.

20%

Fatima College (Autonomous), Madurai – 625 018

Re-Accredited with 'A++' by NAAC (Cycle- IV)
Mary Land, Madurai - 625018.
Tamil Nadu, India

PG & Research Department of Commerce

I M.COM.

SEMESTER –II

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
PACO	21PG2A5	QuantitativeTechniques	Theory and Problem	6	4

COURSE DESCRIPTION

This course helps the students to acquire working knowledge in operation research and resource management Techniques. It also helps them to learn applications for cost minimization and profit maximization

COURSE OBJECTIVES

This course is designed to

1. Introduce the components of Operations Research
2. Use OR techniques namely LPP, transportation, assignment and replacement to business problems
3. Use control techniques to aid decisions

UNITS

UNIT–I

Operation Research and Linear Programming (25HRS.)

Operation Research – Origin and Development – Role in decision making – Characteristics – Phases – General approaches -Linear Programming

Problem – Applications and limitations- Formulation of LPP– Graphical Solution – Simplex Method- Slack and surplus variables- Reduction of feasible solution to a basic feasible solution- Improved basic feasible solution

UNIT –II: Transportation (20 HRS.)

Transportation Problem – The initial basic feasible solution- North West corner Rule- Row minima method- Column minima method- matrix minima method- Vogel's approximation method- Moving towards Optimality –Stepping stone method – Determining the net evaluation by Modi's method – Degeneracy in transportation problems- Unbalanced Transportation Problem

UNIT –III: Assignment (15 HRS.)

Assignment Problem- Rules for finding optimum assignment- Routing problems-Travelling salesman problem – Unbalanced assignment problem

UNIT –IV : Replacement Theory (15 HRS.)

Considerations leading to replacement- replacement policy for equipment/ asset which deteriorates gradually- replacement of items that fail suddenly- replacement problems.

UNIT –V: PERT-CPM (15 HRS.)

Introduction- activity, dummy activity- network diagrammatic representation-Determination of earliest time by forward pass computation- determination of latest time by backward pass computation-Identificationofthecriticalpath–SimplePERTcalculation.

UNIT –VI: DYNAMISM (Evaluation Pattern-CIA only)

Decision Theory - Ingredients of optimal decisions –Maxi min Principle – Mini max Principle – Bayesian Principle –Pay off Table Decision Tree Analysis-Steps and Advantages (Theory only)

REFERENCES:

Text Book:

KapoorV.K,***Operation Research: Quantitative Techniques for management***, SultanChand&Sons, NewDelhi ,8th Edition (2013)

Books for Reference:

1. KantiSwarup, Gupta,P.K&Manmohan,***Operations Research***, Sultan Chand & Sons, NewDelhi.(2008).
2. Gupta, P.K.&Manmohan,***Operations Research:Methods & Solutions,***Sultan Chand & Sons, NewDelhi. 12th Edition,(2009).
3. Gupta P.K &Hira D, ***Introduction to Operation Research***, Sultan Chand Sons, NewDelhi. (1998).
4. Gupta.S.P***Statistical Methods*** : Sultan Chand & Sons, NewDelhi., 43rdEdition,(2014).

Digital Open Educational Resources (DOER):

1.https://www.google.com/search?q=operations+research+t ransportation+and+assignment+problem&client=firefox-b- 2. https://www.slideshare.net/priyankayadav91/transportat io n-model-and-assignment-model

COURSE CONTENTS & LECTURE SCHEDULE

Module No.	Topic	No. of Lectures	Teaching Pedagogy	TeachingAids
UNIT – I : Operation Research and Linear Programming				
1.1	Operation Research - Origin and Development ,Characteristics, General approaches and Phases	2	Lecture	Black Board
1.2	Linear Programming Problem – Applications and limitations	2	Lecture	Black Board
1.3	Formulation of LPP	4	Chalk & Talk	Black Board
1.4	Graphical Solution	4	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	TeachingAids
1.5	Simplex Method	4	Chalk & Talk	Black Board
1.6	Slack and surplus variables	5	Chalk & Talk	Black Board
1.7	Basic feasible solution- Improved basic feasible solution	3	Chalk & Talk	Black Board
1.8	Role in decision making	1	Lecture	Black Board
UNIT - II : Transportation				
2.1	Transportation Problem-Initial basic feasible solution	2	Lecture	Black Board
2.2	North West corner Rule	3	Chalk & Talk	Black Board
2.3	Row minima method- Column minima method- matrix minima method-	2	Chalk & Talk	Black Board
2.4	Vogel's approximation method	3	Chalk &Talk	Black Board
2.5	Optimality – Stepping stone method	1	Lecture	Black Board
2.6	Determining net evaluation - Modi's method	4	Chalk & Talk	Black Board
2.7	Degeneracy in transportationproblems	2	Lecture	Black Board

2.8	Unbalanced transportation Problem	3	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	TeachingAids
UNIT – III : Assignment				
3.1	Assignment Problem	1	Lecture	Black Board
3.2	Rules for finding optimumassignment	5	Chalk & Talk	Black Board
3.3	Routing problems	3	Chalk & Talk	Black Board
3.4	Travelling salesman problem	3	Chalk & Talk	Black Board
3.5	Unbalanced assignmentproblem	3	Chalk & Talk	Black Board
UNIT – IV : Replacement Theory				
4.1	Considerations leading to replacement	2	Lecture	Black Board
4.2	Replacement policy for equipment/ asset which deteriorates gradually	6	Chalk & Talk	Black Board
4.3	Replacement of items that failsuddenly	4	Chalk & Talk	Black Board
4.4	Replacement problems.	3	Chalk & Talk	Black Board
UNIT - V : PERT-CPM				
5.1	Introduction-activity, dummy activity	1	Lecture	Black Board
5.2	network diagrammatic representation	3	Chalk & Talk	Black Board

5.3	Determination of earliest time-forward pass computation	4	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	TeachingAids
5.4	Determination of latest time - backward pass computation	3	Chalk & Talk	Black Board
5.5	Identification of the critical path	2	Chalk & Talk	Black Board
5.6	Simple PERT calculation	2	Chalk &Talk	Black Board

Levels	C1	C2	C3	C4	Total Scholastic Marks	Non ScholasticMarks C5	CIA Total	% of Assessment
	Seminar 5 Mks.	Better of W1, W2 5Mks.	M1+M2 10Mks	MID-SEM TEST 15 Mks	35 Mks.	5 Mks.	40Mks.	
K2	5	-	-	2 ½	-		-	-
K3	-	5	4	2 ½	5		5	12.5 %
K4	-	-	3	5	12		12	30 %
K5	-	-	3	5	9		9	22.5%

Non Scholastic	**-**	**-**	**-**	**-**	**9**		**9**	**22.5 %**
Total	**5**	**5**	**10**	**15**	**35**	**5**	**40**	**100 %**

CIA	
Scholastic	**35**
Non Scholastic	**5**
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**CIA**	**ESE**	**Total**
10	**10**	**5**	**5**	**5**	**5**	**40**	**60**	**100**

- **PG CIA Components**

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	2 *	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Seminar	1	-	5 Mks
C6	-	Attendance		-	5 Mks

The best out of two will be taken into account

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDINGTO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Trace the importance of OR, and its application in arriving at business solutions and use LPP, in locating resources for maximising profit.	K3, K4& K5	PSO1& PSO2
CO 2	Apply transportation models, to real-time businesses.	K2,K3&K4	PSO4
CO 3	Arrive at the best route for travellingsalesmen.	K2,K3 & K4	PSO3
CO 4	Manage replacements.	K2, K3 & K4	PSO3& PSO5
CO 5	Use control techniques PERT and CPM to optimize time.	K2, K3 & K4	PSO3

Mapping of C0s with PSOs

CO / PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	2	2
CO2	2	2	2	3	3
CO3	2	2	3	2	2
CO4	2	2	3	2	3
CO5	2	2	3	2	2

Mapping of C0s with POs

CO / PSO	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7
CO 1	3	1	1	3	2	3	2
CO 2	3	1	2	3	2	3	2
CO 3	3	1	1	3	2	3	2
CO 4	3	1	1	3	2	3	2
CO 5	3	2	1	3	1	3	1

Note : ♦ Strongly Correlated – **3** ♦ Moderately Correlated – **2**

♦ Weakly Correlated -**1**

COURSE DESIGNER :

1. A.I.AUXILIA FELICITASForwarded By

HOD'S Signature & Name

Dr. B. SAHAYARANI FERNANDO
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