V SEMESTER			
DSC 9	COMBINATORIAL MATHEMATICS		18UCMA53
Hrs/ Week: 5	Hrs/ Sem: 75	Hrs/ Unit: 15	Credits: 4

Objectives:

- To impart knowledge of applications of mathematics especially in the field of Combinations and permutations.
- To impart knowledge about recurrence relations, generating functions incidence matrices and the inclusion-exclusion principle.

UNIT I

Selections & Binominal Coefficients – Permutations - ordered Selections - unordered selections – Binomial Theory.

UNIT II

Parings Problems -Parings within a set - paring between sets – An optimal assignment problem.

UNIT III

Recurrence - Fibonacci – type relation using generating functions - miscellaneous Methods.

UNIT IV

The Inclusion – Exclusion Principle - The Principle - Rook polynomials.

UNIT V

Block Design and Error correcting codes - Block designs - Square Block Designs.

TEXT BOOK:

A first course in Combinatorial Mathematics by Ian Anderson, Edition 1979 (Oxford Applied Mathematics and Computing Science Series.)

Unit I: Chapter I & Chapter II
Unit II: Chapter III
Unit III: Chapter IV
Unit IV: Chapter V
Unit V: Chapter VI

REFERENCE BOOK:

Introduction to Combinatorics – C.L.Liu

Sadakathullah Appa College

(AUTONOMOUS)

Rahmath Nagar, Tirunelveli - 627 011.

MY LORD VOUCHSAFE ME WISDOM

LESSON PLAN AND RECORD OF CLASSES ENGAGED

Course : BSc. Class : Academic Year : 2020 - 2021 Semester : V

Title of the Paper : Combinatorial Mathematics Subject Code : 18UCMA53

Theory / Practical — Name of the Teacher : Rakkatha Begam

Sl.No.	Date & Order	Unit	Topics planned	Covered on
1	4/8 A	I	Syllabus & Introduction	4/8/2020
2	5/8 B		Permutation & Combination	5/8
3	6/8 C		Problems in nP_r	6/8
4	7/8 D		Problems in nC_r	7/8
5	10/8 F		Relation bet nP_r & nC_r	10/8
6	12/8 A		Binomial thm & expansion	12/8
7	13/8 B		Problems in Binomial thm	13/8
8	14/8 C		Problems using identities	14/8
9	17/8 D		Problems using identities	17/8
10	19/8 F		Pascal's triangle	19/8
11	20/8 A		Problems in Pascal's Δ	20/8
12	21/8 B		Exp - Problems	21/8
13	24/8 C		Exp Problems	24/8
14	25/8 D		Ex. Problems	25/8
15	27/8 F		Ex. Problems	27/8

Text books :

1. A first Course in Combinatorial Mathematics by Ian Anderson

Reference books :

1. Introductory to
2. Combinatorics - CI Liu

Activity	Total Number	Topic I	Topic II	Topic III	Planned Date	Actual Date
Assignment	3	Unit I (Prob)	Problems in derangement	Thm: There is no finite Projective plane of order 6.		
Internal Test	3	I st Test Portions Unit I	II nd Test Portions Unit II & III	III rd Test Portions Unit IV		

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LESSON PLAN AND RECORD OF CLASSES ENGAGED

Sl.No.	Date & Order	Unit	Topics planned	Covered on
16	28/8 A	II	Pairing Problems	28/8
17	31/8 B		Pairing within set	31/8
18	1/9 C		Pairing - Exp	1/9
19	2/9 D		Pairing bet sets	2/9
20	4/9 F		Thm in pairings (CIA)	4/9
21	5/9 A	CIA	Latin square & Reelangle (CIA)	5/9
22	7/9 B		Philip Hall's thm (CIA)	7/9
23	8/9 C		Thm in Latin Rectangle (CIA)	8/9
24	9/9 D		Test in thm in Latin Rec (CIA)	9/9
25	11/9 F		Assignment Problems (Exp)	11/9
26	12/9 A		Assignment Problem (Ex)	12/9
27	14/9 B		Max - Min thm	14/9
28	15/9 C		Exchange Properties	15/9
29	16/9 D		Revision of University qns	16/9
30	18/9 F		Test in Max-Min. thm	18/9
31	19/9 A	III	Recurrence Relation	19/9
32	21/9 B		Problems in Recur. relation	21/9
33	22/9 C		Fibonacci sequence	22/9
34	23/9 D		Fibonacci sequence-thm	23/9
35	25/9 F		Ex. Problems	25/9
36	28/9 A		Ex Problems	28/9
37	29/9 B		Derangement - Example	29/9
38	30/9 C		Problems in Derangement	30/9
39	1/10 D		Problems in Derangement	1/10
40	5/10 F		Partition of number P(n) & P(x)	5/10

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LESSON PLAN AND RECORD OF CLASSES ENGAGED

Sl.No.	Date & Order	Unit	Topics planned	Covered on
41	6/10 A		Partition of nos $\Omega(n)$ & $Q(n)$	6/10
42	7/10 B		Partition of no $R(n)$ & $SR(n)$	7/10
43	8/10 C		Results in Partition of nos	8/10
44	9/10 D		Test in Problems in derangement	9/10
45	12/10 F		Revision of unit IV	12/10
46	13/10 A	IV	Revision of unit IV	13/10
47	14/10 B		Inclusion & Exclusion principle	14/10
48	15/10 C		Problems in In-Ex principle	15/10
49	16/10 D		Problems in In-Ex principle	16/10
50	19/10 F		Rook polynomial	16/10 (Introduction)
51	20/10 A		Problems in Rook poly (Ex)	28/10
52	21/10 B	CIA (II)	Problems in Rook poly (Ex)	28/10
53	22/10 C		Problems in Rook poly (Ex)	29/10
54	23/10 D		Problems in Rook poly (Ex)	29/10
55	27/10 F		Problems - (Word)	31/10.
56	28/10 A		Problems - (Word)	31/10.
57	29/10 B		Ex. Problems	2/11
58	31/10 C		Ex. Problems	4/11.
59	2/11 D		Revision of qn. papers	—
60	4/11 F		Revision of qn. papers.	—
61	5/11 A	V	Block Design	5/11
62	6/11 B		Incidence Matrix	6/11
63	7/11 C		Finite projective plane	7/11
64	9/11 D		Thm in finite projective plane	9/11
65	11/11 F		Fisher's Thm	11/11

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LESSON PLAN AND RECORD OF CLASSES ENGAGED

Sl.No.	Date & Order	Unit	Topics planned	Covered on
66	12/11 A		Test in Fisher's Thm	12/11 (To be posted in QC)
67	13/11 B		Results in Block design	12/11
68	16/11 C	III	Results in Block design	~~16/11~~
69	17/11 D		Thms in Block design	24/11
70	18/11 F		Thms in Block design	24/11
71	20/11 A		Properties of projection plane	26/11
72	21/11 B		Thm "There is no finite PP of order 6)	26/11
73	23/11 C		Thm continuation	~~26/11~~.
74	24/11 D		Ex. Problems	Seminars Given as Assignment to be posted in QC
75	26/11 F		Ex Problems	

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V SEMESTER			
DSC:10	OPERATIONS RESEARCH		Sub. Code:18UCMA54
Hrs/Week: 5	Hrs/Sem: 5x 15 = 75	Hrs./ Unit : 15	Credits : 4

Objectives:

1. To familiarize the students with the techniques of O.R to be applied.
2. To impart knowledge of the computation procedure of optimality.

Unit I

Transportation problem – LP formulation of Transportation problem –Transportation Table – Loops – Solution of Transportation problem – Finding an Initial Basic feasible solution- Vogel's Approximation Methods (VAM) – Test for optimality – Transposition Algorithm - MODI Method – Sample problems.

Unit II

Transportation problem – Existence of solution –Triangular Basis in a TP- Finding an Initial Basic feasible solution – North-West Corner Rule – Least Cost Method - Test for optimality – Transposition Algorithm - Stepping-Stone Method – Sample problems.

Unit III

Assignment problem –Mathematical formulation – Solution of Assignment problem – Hungarian Method- Special Classes in Assignment problem.

Unit IV

Two Person Zero Sum Game-Some basic terms- The Maxi-Min and Mini-Max Principle - Game without Saddle point- Mixed Strategies - Graphical Solution of 2 x n and m x 2- Simple problem s.

Unit V

Network flow problem – Minimal Spanning Tree Problem-Shortest route Problems

Text Book:

Operations Research by Kanti Swarup, P. K. Gupta, Man Mohan -fourteenth edition 2008 – Sultan Chand & Sons, Educational Publisher, New Delhi. (Theorems without proof)

Unit I : Chapter 10 Section 10.2,10.5,10.6,10.8,10.9 (VAM only), 10.10,10.13 (MODI Method Only)

Unit II: Chapter 10 Section 10.3,10.7,10.9 (North-West Corner Rule and Least Cost Method only), 10.13 (Stepping-Stone Method Only)

Unit III: Chapter 11 Section 11.2-11.4

Unit IV: Chapter 17 Section 17.2-17.6.

Unit V : Chapter 24 Section 24.2-24.4

Reference Book:

Operations Research By P.R. Vittal, Margham Publications, Edition 2013.

SADAKATHULLAH APPA COLLEGE (AUTONOMOUS), TIRUNELVELI 627 011

LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Programme: B.Sc (Mathematics) **Class:** III **Academic Year:** 2020-2021 **Semester:** V
Title of the Paper: OPERATIONS RESEARCH **Course Code:** 18UCMA54
Name of the Teacher: Dr. S. Firthous Fatima Theory

Sl. No	Date	Order	Unit	Topics Planned	Covered On
1	04/08/2020	A	I	Transportation problem – Introduction	04/08/2020
2	05/08/2020	B		LP formulation of Transportation problem	05/08/2020
3	06/08/2020	C		Transportation Table	06/08/2020
4	07/08/2020	D		Loops	07/08/2020
5	07/08/2020	D		Solution of Transportation problem	07/08/2020
6	12/08/2020	A		Sample problems	12/08/2020
7	13/08/2020	B		Finding an Initial Basic feasible solution	13/08/2020
8	14/08/2020	C		Sample problems	14/08/2020
9	17/08/2020	D		Vogel's Approximation Methods (VAM)	17/08/2020
10	17/08/2020	D		Problem	17/08/2020
11	28/08/2020	A		Test for optimality	28/08/2020
12	31/08/2020	B		Transposition Algorithm - MODI Method	31/08/2020
13	01/09/2020	C		MODI Method – Sample problems	01/09/2020
14	02/09/2020	D		MODI Method – Sample problems	02/09/2020
15	02/09/2020	D		MODI Method – Sample problems	02/09/2020

TEXT BOOK: Operations Research by Kanti Swarup, P. K. Gupta, Man Mohan -fourteenth edition 2008 – Sultan Chand & Sons, Educational Publisher, New Delhi

REFERENCE BOOKS: Operations Research By P.R. Vittal, Margham Publications, Edition 2013

Activity	Total Number	Topic I	Topic II	Topic III	Planned Date	Actual Date
Assignment	3					
CIA	3	I[st] Test Portion	II[nd] Test Portion	III[rd] Test Portion		
		1.5 Units	1.5-3.0	3-4.5		

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LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Sl. No	Date	Order	Unit	Topics Planned	Covered On
16	05/09/2020	A	II	Transportation problem Stepping-Stone Method – Sample problems.	05/09/2020
17	07/09/2020	B		Existence of solution -Triangular Basis in a TP-	07/09/2020
18	08/09/2020	C		Finding an Initial Basic feasible solution	08/09/2020
19	09/09/2020	D		North-West Corner Rule	09/09/2020
20	09/09/2020	D		Sample problems.	09/09/2020
21	12/09/2020	A		Sample problems.	12/09/2020
22	14/09/2020	B		Least Cost Method	14/09/2020
23	15/09/2020	C		Sample problems.	15/09/2020
24	16/09/2020	D		Sample problems.	16/09/2020
25	16/09/2020	D		Test for optimality.	16/09/2020
26	19/09/2020	A		Transposition Algorithm - Stepping-Stone Method	19/09/2020
27	21/9/2020	B		Stepping-Stone Method – Sample problems.	21/9/2020
28	22/09/2020	C		Stepping-Stone Method – Sample problems.	22/09/2020
29	23/09/2020	D		Stepping-Stone Method – Sample problems.	23/09/2020
30	23/09/2020	D		Stepping-Stone Method – Sample problems.	23/09/2020
31	28/09/2020	A	III	Assignment problem –Introduction	28/09/2020
32	29/09/2020	B		Mathematical formulation	29/09/2020
33	30/09/2020	C		Solution of Assignment problem	30/09/2020
34	01/10/2020	D		Hungarian Method-Explanation	01/10/2020
35	01/10/2020	D		Problems	01/10/2020
36	06/10/2020	A		Problems	06/10/2020
37	07/10/2020	B		Problems	07/10/2020
38	08/10/2020	C		Problems	08/10/2020
39	09/10/2020	D		Special Classes in Assignment problem	09/10/2020
40	09/10/2020	D		Problems	09/10/2020

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LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Sl. No	Date	Order	Unit	Topics Planned	Covered On
41	13/10/2020	A		Problems	13/10/2020
42	14/10/2020	B		Problems	14/10/2020
43	15/10/2020	C		Problems	15/10/2020
44	16/10/2020	D		Problems	16/10/2020
45	16/10/2020	D		Problems	16/10/2020
46	20/10/2020	A	IV	Game-Introduction	20/10/2020
47	21/10/2020	B		Two Person Zero Sum Game with Examples	21/10/2020
48	22/10/2020	C		Basic Terminologies with Examples	22/10/2020
49	23/10/2020	D		The Maxi-Min and Mini-Max Principle	23/10/2020
50	23/10/2020	D		Problems	23/10/2020
51	28/10/2020	A		Game without Saddle point- Mixed Strategies	28/10/2020
52	29/10/2020	B		Problems	29/10/2020
53	31/10/2020	C		Solution of 2 x n and m x 2 - Simple problem s.	31/10/2020
54	02/11/2020	D		Problems	02/11/2020
55	02/11/2020	D		Problems	02/11/2020
56	05/11/2020	A	V	Networking- Introduction	05/11/2020
57	06/11/2020	B		Network flow problem	06/11/2020
58	07/11/2020	C		Problems	07/11/2020
59	09/11/2020	D		Problems	09/11/2020
60	09/11/2020	D		Minimal Spanning Tree Problem	09/11/2020
61	12/11/2020	A		Problems	12/11/2020
62	13/11/2020	B		Problems	13/11/2020
63	16/11/2020	C		Shortest route Problems-explanation	16/11/2020
64	17/11/2020	D		Problems	16/11/2020
65	17/11/2020	D		Problems	17/11/2020

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LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Sl. No	Date	Order	Unit	Topics Planned	Covered On
66	20/11/2020	A		Revision	17/11/2020
67	21/11/2020	B		Revision	20/11/2020
68	23/11/2020	C		Revision	20/11/2020
69	24/11/2020	D		Revision	21/11/2020
70	24/11/2020	D		Revision	21/11/2020

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V SEMESTER			
DSC 7	LINEAR ALGEBRA		18UCMA51
Hrs/ Week: 5	Hrs/ Sem: 75	Hrs/ Unit: 15	Credits: 4

Objectives:

- To enrich the students with a knowledge of the basic concepts of Vector Space.
- To introduce the Inner Product space and its properties.

UNIT I

Vector Spaces - Definition and examples– Subspaces-Linear Transformations

UNIT II

Linear Span of a set - Linear dependence and independence - Basis dimension –Finite dimension.

UNIT III

Theorems on dimension – Rank and Nullity – Matrix of a Linear transformation.

UNIT IV

Inner product space – Definition and examples - Orthogonality – Gram Schmidt Orthogonalisation process – Orthogonal complement.

UNIT V

Matrices –Rank of a matrix – Simultaneous linear equation-Characteristic equations of a matrix – Eigen values & Eigen vectors – Cayley Hamilton theorem and application.

TEXT BOOK:

Modern Algebra by Dr. S.Arumugam and Issac --SCITECH Publications(India) Pvt Ltd-Edition 2007.

Unit I : Chapter V: Section 5.1, 5.2 , 5.3
Unit II : Chapter V: Section 5.4, 5.5, 5.6(upto theorem 5.22)
Unit III: Chapter V: Section 5.6 (theorem 5.22 – 5.28), 5.7, 5.8
Unit IV: Chapter VI: Section 6.1, 6.2, 6.3
Unit V: Chapter VII: Section 7.1, 7.2, 7.3, 7.7, 7.8

REFERENCE BOOK:

University Algebra by N.S. Gopalakrishnan, Second Edition, New Age International Pvt, Ltd.

SADAKATHULLAH APPA COLLEGE (AUTONOMOUS), TIRUNELVELI 627 011

LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Programme: B.Sc (Mathematics) **Class:** III - year **Academic Year:** 2020-2021 **Semester:** V

Title of the Paper: Linear Algebra. **course Code:** 18UcMA51. **Theory**

Sl. No	Date	Order	Unit	Topics Planned	Covered On
1	04/08/20	A	I.	definition of vector spaces, Examples	4/8/20
2	05/08/20.	B		Examples of not vector spaces	5/8/20
3	06/08/20.	C		Theorems on vector spaces	6/8/20
4	08/08/20	E		Definition of subspaces with examples	8/8/20
5	08/08/20.	E		Theorems related to subspaces	8/8/20.
6	12/08/20.	A		Examples of subspaces using theorems	12/8/20.
7	13/08/20.	B		Theorems V/W is a vector space.	13/8/20
8	14/08/20.	C		Linear transformation Def. Examples	14/8/20.
9	18/08/20.	E		Examples related to Linear transformation	18/8/20
10	18/08/20.	E		Theorems in Linear Transformation	18/8/20
11	20/08/20	A		Fundamental Theorem of homomorphism	20/8/20
12	21/08/20.	B		Theorems.	21/8/20.
13	24/08/20.	C		Theorems	24/8/20
14	26/08/20	E		Theorems	26/8/20
15	26/08/20.	E		Theorems.	26/8/20

TEXT BOOK: Abstract Algebra By Arumugam and Issac.

REFERENCE BOOKS: University Algebra by N.S Gopalakrishnan, Second Edition.

Activity	Total Number	Topic I	Topic II	Topic III	Planned Date	Actual Date
Assignment	3	Vector space, Linear Trans			26/8/20	26/8/20.
CIA	3	I[st] Test Portion	II[nd] Test Portion	III[rd] Test Portion	14/9/20	14/9/20.
		1.5 Units	1.5-3.0	3-4.5		

M. Himaya Jaleela Begum
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Rahitha Begam
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LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Sl. No	Date	Order	Unit	Topics Planned	Covered On
16	28/08/20	A	II	Definition of linear transformation, Span	28/08/20
17	31/08/20	B		Examples of Spanned set.	2/09/20
18	01/09/20.	C		Theorems	1/9/20
19	03/09/20	E		Theorems.	3/9/20
20	03/09/20	E		Definition of linearly independent set	3/9/20.
21	05/09/20.	A		Examples of linearly independent set.	5/9/20.
22	7/09/20.	B		Problems	7/9/20.
23	08/09/20	C		Problems.	8/9/20
24	10/09/20	E		Examples of linearly dependent set.	10/9/20.
25	10/09/20	E		Definition of basis and dimension	10/9/20.
26	12/09/20.	A		Theorems.	12/9/20.
27	14/09/20.	B		Theorems 5.18, 5.19.	14/9/20
28	15/09/20.	C		Examples	15/9/20.
29	17/09/20.	E		Theorems 5.20, 5.21.	17/9/20
30	17/09/20.	E		Theorem 5.22.	17/9/20
31	19/09/20	A	III	Definition of maximal linearly Independent set.	19/9/20
32	21/09/20.	B		Theorems 5.23, 5.24	21/9/20.
33	22/09/20	C		Theorems 5.25, 5.26.	22/9/20.
34	24/09/20	E		Theorems 5.27, 5.28.	24/9/20
35	24/09/20.	E		Definition of Rank and Nullity.	24/9/20.
36	28/09/20	A		Theorem 5.29, Examples	28/9/20.
37	29/09/20.	B		Def: Matrix of a linear transformation	29/9/20
38	30/09/20.	C		Problems, Examples	30/9/20
39	03/10/20	E		Problems in linear Tranformation	31/10/20
40	03/10/20	E		Problems	7/10/20.

M. Hirraya Teacher's Sign

L. Leela Begam

Rashitha Begam
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SADAKATHULLAH APPA COLLEGE (AUTONOMOUS), TIRUNELVELI 627 011

LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Sl. No	Date	Order	Unit	Topics Planned	Covered On
41	06/10/20	A		Theorems	6/10/20
42	07/10/20	B		Theorems 5.30, 5.31	7/10/20
43	08/10/20	C		Theorems.	8/10/20
44	10/10/20	E		Theorems	10/10/20
45	10/10/20.	E		Theorem.	10/10/20
46	13/10/20.	A	IV	Theorems 5.32, Def of matrix	13/10/20
47	14/10/20	B		Definition of Matrix, Examples	14/10/20
48	15/10/20.	C		Theorems	15/10/20
49	17/10/20	E		Theorems.	17/10/20
50	17/10/20.	E		Definition : Rank of a Matrix	17/10/20
51	20/10/20	A		Theorem 7.27 and 7.28.	24/10/20
52	21/10/20	B		Problems.	
53	22/10/20.	C		Problems.	28/10/20
54	24/10/20	E		Simultaneous linear Equation	
55	24/10/20.	E		Problems, Theorem 7.30.	29/10/20
56	28/10/20.	A		Definition of Column matrix with Examples	31/10/20
57	29/10/20.	B		Theorem 7.31. Problems	3/11/20
58	31/10/20.	C		Problems, properties 1, 2, 3, 4, 5	
59	3/11/20	E		Problems. Properties 6, 7, 8, 9, 10.	3/11/20
60	3/11/20.	E		properties 11, 12, 13, 14.	5/11/20
61	5/11/20.	A	V	Definition of inner Product Space	6/11/20
62	6/11/20	B		Note 1, 2, 3, 4, Examples	7/11/20
63	7/11/20.	C		Examples of inner Product Space.	10/11/20
64	10/11/20	E		Theorem 6.1, problems.	10/11/20
65	10/11/20	E		Definition of orthogonality	12/11/20

M. Hirmaya Saleela Begum.
Teacher's Sign

Rouhetha Begum
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SADAKATHULLAH APPA COLLEGE (AUTONOMOUS), TIRUNELVELI 627 011

LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Sl. No	Date	Order	Unit	Topics Planned	Covered On
66	12/10/20	A		Examples, Notes.	12/10/20.
67	13/10/20	B		Def: orthogonal, orthonormal.	13/10/20
68	16/10/20.	C		Theorem 6.2, 6.3.	23/11/20
69	18/10/20	E		Theorem 6.4.	23/11/20
70	18/10/20.	E		problems	
71	20/10/20	A		Problems.	25/11/20.
72	21/11/20.	B		Definition of orthogonal complement.	
73	23/11/20.	C		Theorem 6.5, 6.6	
74	25/11/20	E		Theorem 6.7, problems	25/11/20.
75	25/11/20.	E	-	problems.	
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M. Himaya Jaleela Begum
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V SEMESTER			
DSC 8	REAL ANALYSIS		18UCMA52
Hrs/ Week: 5	Hrs/ Sem: 75	Hrs/ Unit: 15	Credits: 4

Objectives:

- To impart the knowledge of the basic terms of the analysis like opens set, closed set, Closure etc.
- To understand the concept of complete metric space, connected metric space and compact metric space.
- To identify the continuity of a function defined on metric spaces and homeomorphisms.

UNIT I

Countable sets - Uncountable sets- Metric spaces- Bounded sets - Open Ball - Open sets – Subspaces- Interior of a set.

UNIT II

Closed set – Closure - Limit point - Dense sets - Complete metric space - Cantor's intersection theorem-Baire's category Theorem.

UNIT III

Continuity of functions- Continuity of composition of functions- Equivalent conditions for continuity – Algebra of continuous functions- Homeomorphism - Uniform continuity.

UNIT IV

Connectedness - Equivalent conditions - Connected subsets of R - Connectedness and continuity - Intermediate Value theorem- Contraction mapping theorem. (Except Picard's Theorem)

UNIT V

Compactness - Compact Metric spaces - Heine Borel theorem – Compactness and Continuity.

TEXT BOOK:

Modern Analysis by S. Arumugam and Isaac, New Gamma Publishing House, Edition June 2012.

Unit I: Chapter I : Section 1.2, 1.3 Chapter II Section 2.1- 2.6
Unit II: Chapter II : Section 2.7 - 2.10 Chapter III Section 3.1, 3.2
Unit III: Chapter IV : Section 4.1 - 4.3
Unit IV: Chapter V : Section 5.1 - 5.3 Chapter VIII: Section 8.1. (except theorem 8.3)
Unit V: Chapter VI: Section 6.1,6.2,6.4.

REFERENCE BOOK:

Methods of Real Analysis by Richard R. Goldberg, Oxford and IBH Publishing.

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LESSON PLAN AND RECORD OF CLASSES ENGAGED

Course: B.Sc (Mathematics) **Class**: III Year **Academic Year:** 2020-2021 **Semester**: V

Title of the Paper: Real Analysis **Subject Code:** 18UCMA52 **Theory**

Name of the Teacher: Dr. S. Syed Ali Fathima

S.No	Date	Order	Unit	Topics Planned	Covered On
1	04/08/2020	A	I	**Introduction – Countable and Uncountable**	04/08/2020
2	05/08/2020	B	I	Definition – Countable - Theorems	05/08/2020
3	06/08/2020	C	I	Solved Problems	06/08/2020
4	08/08/2020	E	I	Definition-Uncountable-Theorems	08/08/2020
5	10/08/2020	F	I	Metric Space- Definition- Examples	10/08/2020
6	12/08/2020	A	I	Examples	12/08/2020
7	13/08/2020	B	I	Solved Problems	13/08/2020
8	14/08/2020	C	I	Solved Problems	14/08/2020
9	18/08/2020	E	I	Open Ball- Definition- Ex	18/08/2020
10	19/08/2020	F	I	Open Sets - Theorems	19/08/2020
11	20/08/2020	A	I	Theorems	20/08/2020
12	21/08/2020	B	I	Equivalent Metrics- Problems -Subspace	21/08/2020
13	24/08/2020	C	I	Theorems	24/08/2020
14	26/08/2020	E	I	Interior of a set- Ex	26/08/2020
15	27/08/2020	F	I	Theorems	27/08/2020

TEXT BOOK:

1. Modern Analysis by Arumugam & Isaac, New Gamma Publishing House

REFERENCE BOOKS:

1. Real Analysis: A First Course, by Russell Gordon, Published by Pearson, 2nd Edition.

Activity	Total Number	Topic I	Topic II	Topic III	Planned Date	Actual Date
Assignment /Seminar	**3**	**Metric Space**	**Continuous Functions**	**Connected Space**	31/08/2020 12/10/2020 04/11/2020	31/08/2020 12/10/2020 04/11/2020
CIA Test	**3**	**Ist Test Portion**	**IInd Test Portion**	**IIIrd Test Portion**	04/09/2020 20/10/2020 17/11/2020	04/09/2020 20/10/2020 17/11/2020
		1.5 units	1.5-3.0 units	3-4.5Units		

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LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Sl. No	Date	Order	Unit	Topics Planned	Covered On
16	28/08/2020	A	**II**	**Closed sets – Definition - Examples**	28/08/2020
17	31/08/2020	B	II	Theorems	31/08/2020
18	01/09/2020	C	II	Theorems	01/09/2020
19	03/09/2020	E	II	Closure- Definition- Theorems	03/09/2020
20	04/09/2020	F	II	Limit Point- Definition-Examples	04/09/2020
21	05/09/2020	A	II	Theorems	05/09/2020
22	07/09/2020	B	II	Solved Problems	07/09/2020
23	08/09/2020	C	II	Dense sets – Definition- Theorem	08/09/2020
24	10/09/2020	E	II	Convergent Sequence - Theorem	10/09/2020
25	11/09/2020	F	II	Complete M.S – Definition - Examples	11/09/2020
26	12/09/2020	A	II	Theorems	12/09/2020
27	14/09/2020	B	II	Solved Problems	14/09/2020
28	15/09/2020	C	II	Cantor's Intersection Theorem	15/09/2020
29	17/09/2020	E	II	First and Second Category – Definition- Examples	17/09/2020
30	18/09/2020	F	II	Baire's Category Theorem	18/09/2020
31	19/09/2020	A	**III**	Continuous Function- Definition- Examples	19/09/2020
32	21/9/2020	B	III	Theorems	21/9/2020
33	22/09/2020	C	III	Theorems	22/09/2020
34	24/09/2020	E	III	Theorems	24/09/2020
35	25/09/2020	F	III	Solved Problems	25/09/2020
36	28/09/2020	A	III	Solved Problems	28/09/2020
37	29/09/2020	B	III	Solved Problems	29/09/2020
38	30/09/2020	C	III	Homeomorphism- Definition- Examples	30/09/2020
39	03/10/2020	E	III	Examples	03/10/2020
40	05/10/2020	F	III	Isometry Function – Definition- Examples	05/10/2020

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LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Sl. No	Date	Order	Unit	Topics Planned	Covered On
41	06/10/2020	A	III	Solved Problems	06/10/2020
42	07/10/2020	B	III	Exercise Problems	07/10/2020
43	08/10/2020	C	III	Exercise Problems	08/10/2020
44	10/10/2020	E	III	Exercise Problems	10/10/2020
45	12/10/2020	F	III	Revision	12/10/2020
46	13/10/2020	A	**IV**	Connected M.S.- Definition- Examples	13/10/2020
47	14/10/2020	B	IV	Theorems	14/10/2020
48	15/10/2020	C	IV	Theorems	15/10/2020
49	17/10/2020	E	IV	Solved Problems	17/10/2020
50	19/10/2020	F	IV	Theorems	19/10/2020
51	20/10/2020	A	IV	Solved Problems	20/10/2020
52	21/10/2020	B	IV	Connectedness and Continuity - Theorems	21/10/2020
53	22/10/2020	C	IV	Solved Problems	22/10/2020
54	24/10/2020	E	IV	Solved Problems	24/10/2020
55	27/10/2020	F	IV	Exercise Problems	27/10/2020
56	28/10/2020	A	IV	Exercise Problems	28/10/2020
57	29/10/2020	B	IV	Solved Problems	29/10/2020
58	31/10/2020	C	IV	Contraction – Definition- Examples	31/10/2020
59	3/11/2020	E	IV	Theorems	3/11/2020
60	04/11/2020	F	IV	Contraction Mapping Theorem	04/11/2020
61	05/11/2020	A	**V**	**Compact M.S – Definition - Examples**	05/11/2020
62	06/11/2020	B	V	Examples	06/11/2020
63	07/11/2020	C	V	Theorems	07/11/2020
64	10/11/2020	E	V	Theorems	10/11/2020
65	11/11/2020	F	V	Heine Borel Theorem	11/11/2020

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LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Sl. No	Date	Order	Unit	Topics Planned	Covered On
66	12/11/2020	A	V	Theorems	12/11/2020
67	13/11/2020	B	V	F.I.P – Theorems	13/11/2020
68	16/11/2020	C	V	Totally Bounded- Definition - Theorems	16/11/2020
69	18/11/2020	E	V	Theorems	18/11/2020
70	19/11/2020	F	V	Theorems	19/11/2020
71	20/11/2020	A	V	Sequentially Compact – Definition-Theorems	20/11/2020
72	21/11/2020	B	V	Theorems	21/11/2020
73	23/11/2020	C	V	Theorems	23/11/2020
74	25/11/2020	E	V	Solved Problems	25/11/2020
75	26/11/2020	F	V	Solved Problems	26/11/2020

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DSC 11	V SEMESTER		
Hrs/ Week: 4	ASTRONOMY		18UCMA55
	Hrs/ Sem: 60	Hrs/ Unit: 12	Credits: 4

Objectives:

1. To give a in-dept knowledge about celestial bodies.
2. To solve problems in elementary mechanics

UNIT I

Spherical Trigonometry (only formulae) – Celestial Sphere – Four Systems of Coordinates - Diurnal motion.

UNIT II

Zones of earth – perpetual day and perpetual night – Terrestrial Latitude and Longitude – International date Line (only definition) – Dip – Twilight – Shortest Twilight.

UNIT III

Refraction – Tangent formulae – Cassini's formula – Effects – Horizontal refraction – Geocentric Parallax.

UNIT IV

Kepler's Laws - Verifications – Newton's deductions – Anomalies – planets - inferior and superior – Bode's Law – elongation – sidereal period – synodic period - phase – direct and retrograde motion – stationary points - angle subtended at the sun when two planes are stationary.

UNIT V

Time – Equation of time – Seasons Calendar – Conversation of time.

TEXT BOOK

Astronomy by S. Kumaravel, - Edition 2002

Unit I: Chapter I & Chapter II
Unit II: Chapter III - Sections: 1, 2, 5 & 6.
Unit III: Chapter IV & Chapter V
Unit IV: Chapter VI & Chapter IX
Unit V: Chapter VII

REFERENCE BOOK:

Astronomy by GV.Ramachandran

SADAKATHULLAH APPA COLLEGE (AUTONOMOUS), TIRUNELVELI 627 011

LESSON PLANNED AND RECORD OF CLASSES ENGAGED

COURSE: B.SC **CLASS: III Maths** **ACADEMIC YEAR: 2020 – 2021** **SEMESTER: V**

TITLE OF THE PAPER: ASTRONOMY **SUBJECT CODE: 18UCMA55** **THEORY**

Name of the Teacher: Dr. N. Mohamed Rilwan

Sl.No	Date	Order	Unit	Topics Planned	Covered On
1	7-08-2020	D_4	I	Spherical Trigonometry (only formulae)	7-8-20
2	8-08-2020	E_3	I	Spherical Trigonometry (only formulae) Cont.,	8-8-20
3	10-08-2020	F_3	I	Celestial Sphere – Introduction	10-8-20
4	10-08-2020	F_4	I	Celestial Sphere Definitions and Examples	10-8-20
5	17-08-2020	D_4	I	Celestial Sphere Definitions and Examples	17-8-20
6	18-08-2020	E_3	I	Celestial Sphere Definitions and Examples	18-8-20
7	19-08-2020	F_3	I	Four Systems of Coordinates – Horizontal System, Equatorial System	19-8-20
8	19-08-2020	F_4	I	Four Systems of Coordinates –Meridian System, Ecliptic System	19-8-20
9	25-08-2020	D_4	I	Conversations of Coordinates	25-8-20
10	26-08-2020	E_3	I	Related Problems	26-8-20
11	27-08-2020	F_3	I	Diurnal Motion	27-8-20
12	27-08-2020	F_4	I	Worked Examples	27-8-20
13	2-09-2020	D_4	II	Zones of earth	2-9-20
14	3-09-2020	E_3	II	To trace the variations in the duration of day and night during the year at different stations	3-9-20
15	4-09-2020	F_3	II	Cont.,	4-9-20

TEXT BOOK:

1. Qua

1 Astronomy by S Kumaravelu - Edition 2002

Activity	Total Number	Topic I	Topic II	Topic III	Planned Date	Actual Date
Assignment	3	Dip of Horizon	Kepler's Law	[illegible]		
~~Assignment~~ ~~Test~~ CIA	3	I[st] Test Portion 1.5	II[nd] Test Portion 1.5 - 3	III[rd] Test Portion 3 - 4.5		

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LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Sl.No	Date	Order	Unit	Topics Planned	Covered On
16	4-09-2020	F_4	II	perpetual day and perpetual night	4-9-20
17	9-09-2020	D_4	II	To find duration of perpetual day in place of latitude	9-9-20
18	10-09-2020	E_3	II	Worked Examples	10-9-20
19	11-09-2020	F_3	II	Worked Examples Cont.,	11-9-20
20	11-09-2020	F_4	II	Terrestrial Latitude and Longitude	11-9-20
21	16-09-2020	D_4	II	International date Line (only definition)	16-9-20
22	17-09-2020	E_3	II	Dip of Horizon	17-9-20
23	18-09-2020	F_3	II	Shortest Twilight	18-9-20
24	18-09-2020	F_4	II	Exercise Problems	18-9-20
25	23-09-2020	D_4	III	Refraction Introduction	23-9-20
26	24-09-2020	E_3	III	Laws of Refraction and Astronomical Refraction	24-9-20
27	25-09-2020	F_3	III	Tangent formulae for Refraction	25-9-20
28	25-09-2020	F_4	III	General effects of Refraction	25-9-20
29	1-10-2020	D_4	III	Related Problems	1-10-20
30	3-10-2020	E_3	III	Related Problems	3-10-20

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LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Sl.No	Date	Order	Unit	Topics Planned	Covered On
31	5-10-2020	F_3	III	Cassini's formula	5-10-20
32	5-10-2020	F_4	III	To find Cassini's constant	5-10-20
33	9-10-2020	D_4	III	Horizontal refraction	9-10-20
34	10-10-2020	E_3	III	Worked Examples	10-10-20
35	12-10-2020	F_3	III	Geocentric Parallax	12-10-20
36	12-10-2020	F_4	III	Worked Examples	12-10-20
37	16-10-2020	D_4	**IV**	Kepler's Laws of Planetary Motion	16-10-20
38	17-10-2020	E_3	IV	Longitude of Perigee	17-10-20
39	19-10-2020	F_3	IV	Verifications of Kepler's Laws Case (i) and (ii) in the case of earth	19-10-20
40	19-10-2020	F_4	IV	To derive Kepler's third Law from Newton's law of gravitation	19-10-20
41	23-10-2020	D_4	IV	Related Problems	23-10-20
42	24-10-2020	E_3	IV	Anomalies –Mean Anomalies – Related Problems	24-10-20
43	27-10-2020	F_3	IV	Planet interior and superior – Bode's Law – elongation	27-10-20
44	27-10-2020	F_4	IV	Related Problems	
45	2-11-2020	D_4	IV	Sidereal period – synodic period – phase –	

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LESSON PLANNED AND RECORD OF CLASSES ENGAGED

Sl.No	Date	Order	Unit	Topics Planned	Covered On
46	3-11-2020	E_3	IV	direct and retrograde motion – stationary points -	3-11-20
47	4-11-2020	F_3	IV	angle subtended at the sun when two planes are stationary.	4-11-20
48	4-11-2020	F_4	IV	Related Problems	4-11-20
49	9-11-2020	D_4	V	Time - Introduction	9-11-20
50	10-11-2020	E_3	V	Analytical Expression of Equation of time	10-11-20
51	11-11-2020	F_3	V	Stationary values of Equation of time	11-11-20
52	11-11-2020	F_4	V	Related Problems	11-11-20
53	17-11-2020	D_4	V	Related Problems	17-11-20
54	18-11-2020	E_3	V	Seasons Calendar	18-11-20
55	19-11-2020	F_3	V	Causes of Season	19-11-20
56	19-11-2020	F_4	V	Worked Examples	19-11-20
57	24-11-2020	D_4	V	Julian Date and Georgian Calendar	24-11-20
58	25-11-2020	E_3	V	Conversation of time.	25-11-20
59	26-11-2020	F_3	V	Worked Examples	26-11-20
60	26-11-2020	F_4	V	Related Problems	26-11-20

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