

E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI – 625 014.

(An Autonomous Institution – Affiliated to Madurai Kamaraj University)

Re-accredited (**3rd Cycle**) with Grade **& CGPA 3.51** by NAAC

DEPARTMENT OF MATHEMATICS



CBCS SYLLABUS

BACHELOR OF SCIENCE

PROGRAMME CODE - M

COURSE STRUCTURE

(w.e.f. 2021 – 2022 Batch onwards)



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CRITERION - I

1.2.2 Details of Programmes offered through Choice Based Credit System (CBCS) / Elective Course System

Syllabus copies with highlights of contents focusing on
Elective Course System



To be Noted:

HIGHLIGHTED	COURSE
<div></div>	Elective

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(w.e.f. 2021- 2022 onwards)

Sem	Part	Sub Code	Title of the Paper	Lecture Hours Per Week	Exam Hours	Marks allotted			
						C.AS.Etotal		credit	
V	III	21M51	Core : Modern Analysis	5	3	25	75	100	5
	III	21M52	Core : Statistics – I	5	3	25	75	100	4
	III	21M53	Core : Dynamics	4	3	25	75	100	4
	III		Core : Elective - III	4	3	25	75	100	4
	III	21AA51	Allied II : Programming in C	4	3	25	75	100	4
	III	21AA5P	Allied II : C Practical	2	3	40	60	100	1
	IV	21SEM51	Skill Based Elective : Vector Calculus	2	2	25	75	100	2
	IV	21SEM52	Skill Based Elective : Quantitative Aptitude	2	2	25	75	100	2
	IV	214EV5	Environmental Studies	2	2	25	75	100	2
VI	III	21M61	Core : Complex Analysis	6	3	25	75	100	5
	III	21M62	Core : Statistics – II	6	3	25	75	100	5
	III	21M63	Core : Numerical Methods	6	3	25	75	100	4
	III	21AA61	Allied II : Object Oriented Programming with C++	4	3	25	75	100	4
	III	21AA6P	Allied II : C ++ Practical	2	3	40	60	100	1
	IV	21SEM61	Skill Based Elective : Discrete Mathematics	2	2	25	75	100	2
	IV	21SEM62	Skill Based Elective : Combinatorics	2	2	25	75	100	2
	IV	214VE6	Value Education	2	2	25	75	100	2
	V	215NS4/215PE4	Extension Activities : N.S.S / Physical Education	-	2	25	75	100	1

Note:

“*” Offered to Other Departments.

ELECTIVE PAPERS

Elective – III is to be chosen in semester V from the following:

1. Linear Algebra – 21ME5A
2. Fuzzy Sets – 21ME5B

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1)To understand the concept of vector spaces.

2) To know more about matrices.

Unit: I**Vector Spaces:** Definition and Examples – Subspaces - Linear Transformations.**Unit: II****Vector Spaces:** Span of a set - Linear Independence - Basis and Dimension - Rank and Nullity - Matrix of a Linear Transformation.**Unit: III****Inner Product Space:** Definition and Examples – Orthogonality -Orthogonal Complement.**Unit: IV****Theory of Matrices:** Algebra of Matrices – Types of Matrices – The Inverse of Matrix.**Unit: V****Theory of Matrices:** Elementary Transformations – Rank of a Matrix– Simultaneous Linear Equations – Characteristic Equation And Cayley Hamilton Theorem - Eigen Values And Eigen Vectors

Text Book: -

S. Arumugam and A . Thangapandi Isaac, *Modern Algebra*,
SCITECH Publications (INDIA) Pvt.,Ltd (2003).

Chapters:-

Unit I: Chapter 5: Sections (5.1 to 5.3)

Unit II: Chapter 5: Sections (5.4 to 5.8)

Unit III: Chapter 6: Sections (6.1 to 6.3)

Unit IV: Chapter 7: Sections (7.1 to 7.3)

Unit V: Chapter 7: Sections (7.4 to 7.8)

Reference Books :-

1. Krishnamurthy V, Arora J.L, *Linear Algebra* Affiliated East- west Press PVT. LTD. 1976.
2. Schaum's Outlines by *Linear Algebra* TATA Mcgraw-Hill Edition, 2012.
3. Stephen H. Friedberg, Arnold J. Insel, Lawrence E. Spence By *Linear Algebra* Prentice – Hall of India Private Limited, 2004.

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CBCS DEPARTMENT OF MATHEMATICS B.Sc MATHEMATICS (w.e.f. 2021- 2022 Batch onwards)

Title of the paper : Fuzzy Sets

Semester : V

Sub Code : 21ME5B

Contact Hours :4

Credits :4

Objective :

- 1.To Know the basic ideas of fuzzy sets.
- 2.To learn about operations and relations.

Unit :I

Crisp sets and Fuzzy sets -Introduction - Crisp sets - The notion of fuzzy sets-Basic concepts of fuzzy sets- classical logic- fuzzy logic

Unit : II

Operations on Fuzzy Sets -General discussion -fuzzy complement- fuzzy union - fuzzy intersection - combinations of operations - general aggregation operations.

Unit :III

Fuzzy relations - Crisp and fuzzy relations - binary relations - binary relations on a single set - equivalence and similarity relations.

Unit :IV

Compatibility or tolerance relations - Orderings.

Unit : V

Morphisms - Fuzzy relation equations.

Chapters:

- Unit I: Chapter 1: Sections (1.1 to 1.6)
- Unit II: Chapter 2: Sections (2.1 to 2.6)
- Unit III: Chapter 3: Sections (3.1 to 3.4)
- Unit IV: Chapter 3: Sections (3.5 and 3.6)
- Unit V: Chapter 3: Sections (3.7 and 3.8)

Text Book: –

George J.Klir and T.A. Folger, *Fuzzy Sets , Uncertainty and Information*,
Prentice Hall of India (2012)

Reference Books:-

1. Dr. Bhargava A.K., *Fuzzy Set Theory Fuzzy Logic and Their Applications*,
S.Chand & Company Pvt. Ltd.(2013)
2. George J.Klir and Bo Yuan, *Fuzzy sets Fuzzy Logic, Theory and
Applications*, Prentice Hall of India (2002).

9. Write a program to sort the numbers in Ascending order(Descending order)
10. Write a program to add the given two matrices(for three dimensional array)
11. Write a program to maintain the employee details using structure.
12. Write a program using pointers.