



DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

(Autonomous)

Reaccredited with A++ by NAAC(3rd Cycle)

College with Potential for Excellence,

Linguistic Minority Institution Affiliated to University of Madras

Arumbakkam, Chennai – 600 106.

POST GRADUATE AND RESEARCH DEPARTMENT OF MATHEMATICS

Minutes of the Board of Studies- 2022 Meeting in B.Sc Mathematics

The meeting of the board of studies in B.Sc Mathematics was convened on 21st July 2022 at 11:30 a.m in Seminar Hall-I (Main Block).

Prof. R. Venkataramanan, Associate professor and Head, Department of Mathematics welcomed all the faculties, University representative, subject experts, special invitees, industrial experts and alumni for this board of study meeting.

The Current syllabi for

- B.Sc Mathematics (Core, Allied, extra disciplinary papers)
- Value added course, Internship and Project

were approved by the board members.


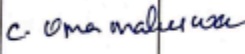



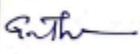


In addition to this the following changes have been incorporated.

- As by the suggestion of NAAC Peer team committee, we have introduced Open basket system for Non- Major Elective for seven Major departments. As a part of it we have introduced NME- I (Mathematics for Competitive Examination-I) and NME-II (Mathematics for Competitive Examination-II) in the First year.
- As, By the suggestion given by Controller of Examinations Research methodology paper has been introduced for UG students.

Both the syllabus were approved by the board members .

The following members were present for the meeting:

The Following members were present for the meeting in the Seminar hall – I(Offline mode)

S.NO	Members of the Meeting	Designation	Signature
1.	Chairman Prof. R. Venkataramanan	Associate professor & Head, PG & Research Department of Mathematics, DG Vaishnav College, Chennai.	
2.	University Nominee: Dr. C. Uma Maheswari,	Assistant Professor, Ramanujan Institute for Advanced Study in Mathematics, University of Madras, Chennai.	
3.	Subject Expert: Dr.K.A.Venkatesh,	Adjunct Professor, IIT-B, India. Professor of Mathematics & Computer Science, Myanmar Institute of Information Technology, Mandalay, Myanmar	
4.	Subject Expert: Dr. T. Thulasiram	Associate Professor Department of Mathematics A. M. Jain College Chennai 600061	
5.	Industrial Experts Mr. G. Vignesh	Java / Node developer, Chennai.	
6.	Alumni: Dr. G. Uthra	Assistant Professor P.G & Research Department of Mathematics Pachaiyappas College,	
7.	Alumni Dr. S. Lavanya	Assistant Professor, Department of mathematics, Bharathi Womens College, Chennai.	
8.	Alumni: Dr G Sheeja,	Assistant Professor, Department of Mathematics, Faculty of Engineering and Technology, SRM University, Kattankulathur Campus, Kattankulathur Kancheepuram Dt.,Tamil Nadu, INDIA.	

9.	Prof. M. Devika	Associate Professor, PG and Research Department of Mathematics	M. Devika
10.	Dr. N. Jayanth Karthik	Associate Professor, PG and Research Department of Mathematics	N. Jayanth Karthik
11.	Dr. R. Sivaraman	Associate Professor, PG and Research Department of Mathematics	R. Sivaraman
12.	Dr. S. Radhakrishnan	Assistant Professor, PG and Research Department of Mathematics	S. Radhakrishnan
13.	Dr. B. Abirami	Assistant Professor, PG and Research Department of Mathematics	B. Abirami
14.	Dr. S.P. Vijayalakshmi	Assistant Professor, PG and Research Department of Mathematics	S.P. Vijayalakshmi
15.	Dr. S. Hariharan	Assistant Professor, PG and Research Department of Mathematics	S. Hariharan
16.	Dr. P. Usha	Assistant Professor, PG and Research Department of Mathematics	P. Usha
17.	Dr. S. Vaithyasubramanian	Assistant Professor, PG and Research Department of Mathematics	S. Vaithyasubramanian
18.	Dr. S. Mayilvaganan	Assistant Professor, PG and Research Department of Mathematics	S. Mayilvaganan
19.	Dr. S. U. Malini	Assistant Professor, PG and Research Department of Mathematics	S. U. Malini
20.	Lt. G. Somasundara Ori	Assistant Professor, PG and Research Department of Mathematics	G. Somasundara Ori
21.	Mr. P. Thirumal	Assistant Professor, PG and Research Department of Mathematics	P. Thirumal
22.	Mr. R. Krishna	Assistant Professor, PG and Research Department of Mathematics	R. Krishna
23.	Mr. S. Rajasekar	Assistant Professor, PG and Research Department of Mathematics	S. Rajasekar

COURSE STRUCTURE(MPC)

FIRST SEMESTER

Course Content	Name of the Course	Ins. Hrs	Credits	Int. Marks	Ext. Marks	Total
Part - I	Language Paper -I	5	3	40	60	100
Part - II	English Paper -I	4	3	40	60	100
Part - III	Core Paper-I: Algebra and Trigonometry	5	4	40	60	100
	Core Paper-II: Differential Calculus	4	4	40	60	100
	Allied Paper- I: Physics – I	9	5	40	60	100
Part - IV	Basic Tamil/Adv. Tamil/Non Major Elective -I	1	2	40	60	100
	Soft Skills -I	2	3	50	50	100

SECOND SEMESTER

Course Content	Name of the Course	Ins. Hrs	Credits	Int. Marks	Ext. Marks	Total
Part - I	Language Paper -II	5	3	40	60	100
Part - II	English Paper -II	5	3	40	60	100
Part - III	Core Paper-III: Analytical Geometry	4	4	40	60	100
	Core Paper-IV: Integral Calculus and Vector Analysis	5	4	40	60	100
	Allied Paper- II : Physics – II	9	5	40	60	100
Part - IV	Basic Tamil/Adv. Tamil/ Non Major Elective -II	1	2	40	60	100
	Soft Skills -II	1	3	50	50	100



SYLLABUS-2021-2022(CBCS AND OBE PATTERN)

THIRD SEMESTER

Course Content	Name of the Course	Ins. Hrs	Credits	Int. Marks	Ext. Marks	Total
Part - I	Language Paper -III	5	3	40	60	100
Part - II	English Paper -III	5	3	40	60	100
Part - III	Core Paper-V: Differential Equations	5	4	40	60	100
	Core Paper-VI: Elementary Number Theory	4	4	40	60	100
	Allied Paper- III : Chemistry – I	9	5	40	60	100
Part - IV	Environmental Studies	1		EXAM IN THE IV SEMESTER		
	Soft Skills -III	1	3	50	50	100
	Extra disciplinary		2			

FOURTH SEMESTER

Course Content	Name of the Course	Ins. Hrs	Credits	Int. Marks	Ext. Marks	Total
Part - I	Language Paper -IV	5	3	40	60	100
Part - II	English Paper -IV	5	3	40	60	100
Part - III	Core Paper-VII: Integral Transform	4	4	40	60	100
	Core Paper-VIII: Discrete Mathematics	5	4	40	60	100
	Allied Paper- IV : Chemistry – II	9	5	40	60	100
Part - IV	Internship		2			
	Environmental Studies	1	2	40	60	100
	Soft Skills -IV	1	3	50	50	100
	Value added course		2			
	Extra disciplinary		2			



SYLLABUS-2021-2022(CBCS AND OBE PATTERN)

FIFTH SEMESTER

Course Content	Name of the Course	Ins. Hrs	Credits	Int. Marks	Ext. Marks	Total
Part - III	Core Paper-IX: Algebraic Structures	6	4	40	60	100
	Core Paper -X: Real Analysis-I	6	4	40	60	100
	Core Paper-XI: Mechanics	6	4	40	60	100
	Core Paper – XII: Operations Research	6	4	40	60	100
	Elective Paper -I: Programming Language Python With Practicals	6	5	40	60	100
Part - IV	Project		2			
	Value Education		2	40	60	100
	Value added course		2			

SIXTH SEMESTER

Course Content	Name of the Course	Ins. Hrs	Credits	Int. Marks	Ext. Marks	Total
Part - III	Core Paper-XIII: Linear Algebra	6	4	40	60	100
	Core Paper -XIV: Real Analysis-II	6	4	40	60	100
	Core Paper-XV: Functions of a Complex variable	6	4	40	60	100
	Elective Paper -II: Machine Learning using R	6	5	40	60	100
	Elective Paper -III: Tropical Linear Algebra	6	5	40	60	100
Part – V	Extension Activity		1			
	Research Methodology					

**COURSE STRUCTURE (MAN)****FIRST SEMESTER**

Course Content	Name of the Course	Ins. Hrs	Credits	Int. Marks	Ext. Marks	Total
Part - I	Language Paper -I	5	3	40	60	100
Part - II	English Paper -I	4	3	40	60	100
Part - III	Core Paper-I: Algebra and Trigonometry	5	4	40	60	100
	Core Paper-II: Differential Calculus	4	4	40	60	100
	Allied Paper- I: Financial Accounting	9	5	40	60	100
Part - IV	Basic Tamil/Adv. Tamil/Non Major Elective -I	1	2	40	60	100
	Soft Skills -I	2	3	50	50	100

SECOND SEMESTER

Course Content	Name of the Course	Ins. Hrs	Credits	Int. Marks	Ext. Marks	Total
Part - I	Language Paper -II	5	3	40	60	100
Part - II	English Paper -II	5	3	40	60	100
Part - III	Core Paper-III: Analytical Geometry	4	4	40	60	100
	Core Paper-IV: Integral Calculus and Vector Analysis	5	4	40	60	100
	Allied Paper- II : Cost & Management Accounting	9	5	40	60	100
Part - IV	Basic Tamil/Adv. Tamil/ Non Major Elective -II	1	2	40	60	100
	Soft Skills -II	1	3	50	50	100



SYLLABUS-2021-2022(CBCS AND OBE PATTERN)

THIRD SEMESTER

Course Content	Name of the Course	Ins. Hrs	Credits	Int. Marks	Ext. Marks	Total
Part - I	Language Paper -III	5	3	40	60	100
Part - II	English Paper -III	5	3	40	60	100
Part - III	Core Paper-V: Differential Equations	5	4	40	60	100
	Core Paper-VI: Elementary Number Theory	4	4	40	60	100
	Allied Paper- III : Probability & Statistics - I	9	5	40	60	100
Part - IV	Environmental Studies	1		EXAM IN THE IV SEMESTER		
	Soft Skills -III	1	3	50	50	100
	Extra disciplinary		2			
	Research Methodology					

FOURTH SEMESTER

Course Content	Name of the Course	Ins. Hrs	Credits	Int. Marks	Ext. Marks	Total
Part - I	Language Paper -IV	5	3	40	60	100
Part - II	English Paper -IV	5	3	40	60	100
Part - III	Core Paper-VII: Integral Transform	4	4	40	60	100
	Core Paper-VIII: Discrete Mathematics	5	4	40	60	100
	Allied Paper- IV : Probability & Statistics - II	9	5	40	60	100
Part - IV	Internship		2			
	Environmental Studies	1	2	40	60	100
	Soft Skills -IV	1	3	50	50	100
	Value added course		2			
	Extra disciplinary		2			



SYLLABUS-2021-2022(CBCS AND OBE PATTERN)

FIFTH SEMESTER

Course Content	Name of the Course	Ins. Hrs	Credits	Int. Marks	Ext. Marks	Total
Part - III	Core Paper-IX: Algebraic Structures	6	4	40	60	100
	Core Paper -X: Real Analysis-I	6	4	40	60	100
	Core Paper-XI: Mechanics	6	4	40	60	100
	Core Paper – XII: Operations Research	6	4	40	60	100
	Elective Paper -I: Programming Language Python With Practicals	6	5	40	60	100
Part - IV	Project		2			
	Value Education		2	40	60	100
	Value added course		2			

SIXTH SEMESTER

Course Content	Name of the Course	Ins. Hrs	Credits	Int. Marks	Ext. Marks	Total
Part - III	Core Paper-XIII: Linear Algebra	6	4	40	60	100
	Core Paper -XIV: Real Analysis-II	6	4	40	60	100
	Core Paper-XV: Functions of a Complex variable	6	4	40	60	100
	Elective Paper -II: Machine Learning using R	6	5	40	60	100
	Elective Paper -III: Tropical Linear Algebra	6	5	40	60	100
Part – V	Extension Activity		1			
	Research Methodology					

**NME -I****Course Title: Mathematics for Competitive Examination-I**

Course	NME-I
Exam Hours	

Credits	
CIA Marks	50
ESE Marks	50

Course objectives

To develop Knowledge to meet the *competitive examinations*

To help them acquire skills in solving quantitative aptitude by simple methods

To recall the basic concepts of Arithmetic and logical reasoning.

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Analyze the problems on average and problems on ages.
CO2	Develop the mathematical ideas to solve problems on clocks and calendar. .
CO3	Recall the fundamental concepts and to solve problems on Permutations and Combinations.
CO4	To develop the arithmetic and logical reasoning.
CO5	To solve the problem on number and rank

CONTENTS OF MODULE
Unit I : Average, Problems on ages
Unit II: Clocks and calendar, Syllogism
Unit III: Permutations and Combinations
Unit IV: Arithmetical Reasoning test, Coding and Decoding test
Unit V: Number, Rank and Order test

Contents and treatment as in :

1. Quantitative Aptitude for Competitive Examinations by Dr. R.S. Aggarwal.



2. S.Chands's Exam success series, General Intelligence and Test of Reasoning, Second Edition.

Reference Books:

1. Upkar's Verbal Reasoning for Competitive Exams by Dr. Lal & Kumar.

NME-II**Course Title: Mathematics for Competitive Examination-II**

Course	NME -II
Exam Hours	

Credits	
CIA Marks	50
ESE Marks	50

Course objectives

- To develop ability to solve basic *mathematical* problems logically.
- To accommodate fundamental, mathematical aspects to instill confidence among students.
- To Enrich their knowledge and to develop their arithmetic and logical reasoning thinking ability

Course Outcomes: At the end of the Course, the Student will be able to

CO1	Develop the mathematical ideas to solve problems on Time and distance, Time and work.
CO2	Explain the concepts of Ratio and proportion
CO3	Recall the fundamental concepts and to solve problems on Trains and to solve problems on analytical reasoning
CO4	To solve the problem related to blood relation and family
CO5	Analyze the Problems logically and approach the problems in a different manner.

CONTENTS OF MODULE

Unit I : Time and Distance, Time and Work



Unit II: Ratio and Proportion, Cistern and Pipes
Unit III: Problems on Trains and Analytical Reasoning test (Venn diagram)
Unit IV: Blood relation and Family
Unit V: Series and Classification

Contents and treatment as in :

1. Quantitative Aptitude for Competitive Examinations by Dr. R.S. Aggarwal.
2. S.Chands's Exam success series, General Intelligence and Test of Reasoning, Second Edition.

Reference Books:

1. Upkar's Verbal Reasoning for Competitive Exams by Dr. Lal & Kumar.

Research Methodology -UG

Unit - I

Introduction to Research Methodology: Meaning, Objectives, Motivation, Utility of Research, Types and Methods of Research, Scientific Method and Its Characteristics, Theory Building and Understanding the Language of Research (Concept, Construct, Definition, Variable). Research Ethics and Empiricism

Unit- II

Problem Identification and Formulation: Social Research Process, Literature Review Process and Formulation of Research Questions, Hypothesis- Characteristics and Types, Hypothesis Testing –Logic and Importance

Unit –III

Data, Measurements and Scaling Techniques: Types of Data: Qualitative and Quantitative data and its Approaches, Levels and Techniques of Measurement and Sociometry, Validity, Reliability and Triangulation Method, Scaling Techniques: Comparative (Rank Order, Paired Comparison and q-sort) and Non-comparative (Likert Scale, Thurston Scale, Semantic Differential Scale)

Unit- IV



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Sampling Techniques: Introduction to Sampling: Concepts of Population, Sample, Sampling Frame, Sampling Error, Sample Size, Characteristics of a good sample, Types of Sampling-Probability and Non-Probability, Determining size of the sample– Practical considerations in sampling and sample size.

Unit- V

Qualitative and Quantitative Data Analysis: Qualitative Data Formatting and Processing, Content Analysis, Descriptive Statistics, Measures of Central Tendency, Measures of Dispersion and Variability, Characteristics of Association, Correlation and Regression, Statistical Inference: Testing of Hypothesis

Recommended references:

1. Cohen, L. Lawrence, M., & Morrison, K. (2005). Research Methods in Education (5th edition). Oxford: Oxford University Press.
2. Denscombes, M. (2010). The Good Research Guide: For small-scale social research projects. Maiden-Read: Open University Press.
3. Dornyei, Z. (2007). Research Methods in Applied Linguistics. Oxford: Oxford University Press.
4. Hoadjli, A.C. (2015). The Washback Effect of an Alternative Testing Model on Teaching and Learning: An exploratory study on EFL secondary classes in Biskra. Unpublished Doctoral Thesis, University of Mohamed Kheider, Biskra.
5. Kothari, C. R. (1980). Research Methodology: Research and techniques, New Delhi: New Age International Publishers.
6. Kumar, R. (2011). Research Methodology: a step-by-step guide for beginners (3rd edition). London, UK: TJ International Ltd, Padstow, Cornwall.
7. Leedy, P. D. (1980). Practical Research: Planning and design. Washington: Mc Millan Publishing Co., Inc.
8. Singh, Y. K. (2006). Fundamental of Research Methodology and Statistics. New Delhi. New International (P) Limited, Publishers.