FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with "A" Grade by NAAC (3rd Cycle)
74th Rank in India Ranking 2020 (NIRF) by MHRD
Maryland, Madurai- 625 018, Tamil Nadu, India

NAME OF THE DEPARTMENT : MATHEMATICS

NAME OF THE PROGRAMME : M.Sc. MATHEMATICS

PROGRAMME CODE : PSMA

ACADEMIC YEAR : 2020 - 2021

Minutes of the Board of Studies Meeting in Mathematics (Regular and Self Finance) held on 28.02.2020 at 2 p.m

The following members were present in the Board of Studies meeting.

1. Mrs. P. Meenakshi (University Nominee), Head, Department of Mathematics, AKD Dharmaraja Women's College, Rajapalayam - 626117
e-mail : gmeenakshisjpm@gmail.Com.
2. Dr. R. Rajkumar, Assistant Professor, Department of Mathematics, Gandhigram Rural Institute (Deemed to be University), Gandhigram - 624302 Dindigul Dt. e-mail : rajkumar.iitm@gmail.Com.
3. Dr. Wilson Baskar, Assistant Professor, Department of Mathematics, Saraswathi Narayanan College, Perungudi, Madurai - 625022.
e-mail : arwilvic@yahoo.Com
4. Mrs. P. Nalini, Assistant Professor, Department of Mathematics, Sourashtra College for Women, Madurai. e-mail : nalini.Seeni76@gmail.Com.
5. Mrs. A. Paulin Mary (HOD)
6. Mrs. A. Sheela Roselin
7. Dr. Sr. M. Fatima Mary
8. Dr. C. Prasanna Devi
9. Dr. E. Helena
10. Mrs. Nigila Ragavan
11. Mrs. M. Teresa Nirmala
12. Dr. V. Vanitha
13. Ms. R. Rajeswari
14. Mrs. R. Jenovi Rosary Deepa.
15. Mrs. B. Veltamary Jacquline.

16. Ms. J. Annal Mercy
17. Dr. N. Malathi, Dean of Sciences, Fatima College, Madurai.

The Board reviewed the Syllabi (OBE) for I UG (I & II Semesters) Major and Allied papers, II UG (III & IV Semesters) Major, Allied and Skill Based papers, III UG (V & VI Semesters) Major, Elective and Skill Based papers, I PG (I & II Semesters) all papers including EDC, II PG (III & IV Semesters) all papers including Elective Papers.

The Board passed the Syllabi for new Self learning Courses, "History of Mathematics" (19UGSLM1) for advanced learners of III UG and "Problems in Advanced Mathematics" (19PGSLM1) for advanced learners of II PG.

The Board approved 10% Self Study Components for I UG (I and II Semesters) Major and Allied papers, II UG (III & IV Semesters) Major, Allied and Skill based Papers, III UG (V and VI Semesters) Major, Elective and Skill Based Papers. The Board also approved 20% Self Study Components for I PG (I & II semesters) all papers including EDC, II PG (III & IV Semesters) all papers including Elective papers.

Board members said that MOOC Courses are open online Courses where

Students are given choice to choose their own area of interest. The Courses are updated or changed once in two months. So it is not possible to fix Courses for one year. They also questioned whether there is any provision to clear if a student is unable to Complete the Course.

28/02/2020

28/02/20

P. Meenakshi
28/2/2020

R. [illegible]

FATIMA COLLEGE (AUTONOMOUS), MADURAI-18

DEPARTMENT OF MATHEMATICS

For those who joined in June 2019 onwards

PROGRAMME CODE: PSMA

COURSE CODE	COURSE TITLE	HRS / WK	CREDIT	CIA Mks	ESE Mks	TOT. MKs
SEMESTER - I						
19PG1M1	Algebra	6	4	40	60	100
19PG1M2	Real Analysis	6	4	40	60	100
19PG1M3	Number Theory	6	4	40	60	100
19PG1M4	Classical Mechanics	6	4	40	60	100
19PGMEDC	Optimization Methods	3	3	40	60	100
SEMESTER - II						
19PG2M5	Advanced Algebra	6	4	40	60	100
19PG2M6	Advanced Real Analysis	6	4	40	60	100
19PG2M7	Differential Equations	6	4	40	60	100
19PG2M8	Graph Theory	6	4	40	60	100
19PGMEDC	Optimization Methods	3	3	40	60	100

COURSE CODE	COURSE TITLE	HRS / WK	CREDIT	CIA Mks	ESE Mks	TOT. MKs
SEMESTER - III						
19PG3M9	Measure and Integration	6	4	50	50	100
19PG3M10	Optimization Techniques	6	4	40	60	100
19PG3M11	Combinatorics	6	4	40	60	100
19PG3M12	Topology	6	6	40	60	100
19PG3ME1	Fuzzy sets and Applications	4	4	40	60	100
19PG3ME2	Numerical Analysis	4	4	40	60	100
SEMESTER - IV						
19PG4M13	Complex Analysis	6	5	40	60	100
19PG4M14	Statistics	6	5	40	60	100
19PG4M15	Methods of Applied Mathematics	6	5	40	60	100
19PG4M16	Functional Analysis	6	5	40	60	100
19PG4ME3	Formal Languages	4	4	40	60	100
19PG4ME4	Algebraic Graph Theory	4	4	40	60	100
19PG4M17	Project & Viva Voce	-	6	50	50	100

EXTRA CREDIT COURSE

Course Code	Courses	Hrs.	Credits	Semester in which the course is offered	CIA Mks	ESE Mks	Total Marks
19PGSLM1	Problems In Advanced Mathematics	-	4	III & IV	40	60	100

II M.Sc. Mathematics

SEMESTER –III & IV

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSMA	19PGSLM1	PROBLEMS IN ADVANCED MATHEMATICS	PG Core	-	4

COURSE DESCRIPTION

This course enables the students to solve problems in various branches of Mathematics.

COURSE OBJECTIVES

To study the problem solving techniques in Analysis, Algebra and Differential equations.

UNITS

UNIT –I PROBLEMS IN REAL ANALYSIS

Sequences and series, convergence, limsup, liminf. Bolzano Weierstrass theorem, Heine Borel theorem. Continuity, uniform continuity, differentiability, mean value theorem. Sequences and series of functions, uniform convergence. Riemann sums and Riemann integral, Improper Integrals. Monotonic functions, types of discontinuity, functions of bounded variation

UNIT-II: PROBLEMS IN COMPLEX ANALYSIS

Analytic functions, Cauchy-Riemann equations. Contour integral, Cauchy's theorem, Cauchy's integral formula, Liouville's theorem, Maximum modulus principle, Schwarz lemma, Open mapping theorem. Taylor series, Laurent series, calculus of residues.

UNIT-III: PROBLEMS IN ALGEBRA

Groups, subgroups, normal subgroups, quotient groups, homomorphisms, cyclic groups, permutation groups, Cayley's theorem, class equations, Sylow theorems. Rings, ideals, prime and maximal ideals, quotient rings, unique factorization domain, principal ideal domain, Euclidean domain. Fields, Field extensions.

UNIT-IV: PROBLEMS IN LINEAR ALGEBRA

Vector spaces, subspaces, linear dependence, basis, dimension, algebra of linear transformations. Algebra of matrices, rank and determinant of matrices, linear equations. Eigenvalues and eigenvectors, Cayley-Hamilton theorem. Matrix representation of linear transformations. Inner Product spaces

UNIT-V: PROBLEMS IN DIFFERENTIAL EQUATIONS

Existence and uniqueness of solutions of initial value problems for first order ordinary differential equations, singular solutions of first order ODEs, system of first order ODEs. Lagrange and Charpit methods for solving first order PDEs, Cauchy problem for first order PDEs. Classification of second order PDEs

REFERENCE BOOKS:

1. Walter Rudin, Principles of Mathematical Analysis, Third Edition, McGraw-Hill International Book Company, New York, 1976

2. John B. Conway, Functions of one Complex Variable, Second Edition, Springer Graduate Texts in Mathematics, New York, 1978

3. Joseph .A. Gallian , Contemporary Abstract Algebra , 7Th Edition Katherine Tegen Books

4. Seymour Lipschutz and Marc Lipson, Schaum's Outlines Linear Algebra Third Edition

5. Gilbert Strang , Introduction to Linear Algebra Fourth Edition, Wellesley Cambridge Press

6. Earl A. Coddington, An Introduction to Ordinary Differential Equations, Prentice-Hall of India, New Delhi, 1992

7. M.D. Raisinghania, Advanced Differential Equations, S. Chand and Company Ltd, New Delhi, 2001

COURSE OUTCOMES

NO.	COURSE OUTCOMES
CO 1	Solve problems in Real Analysis
CO 2	Solve problems in Complex Analysis
CO 3	Solve problems in Algebra
CO 4	Solve problems in Linear Algebra
CO 5	Solve problems in Differential Equations