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: B.Sc

PROGRAMME CODE : UAMA

ACADEMIC YEAR : 2022 – 2023

	To	epartment of Mathematics o be implemented from 2022-2023 onw
	Ve Co	nue: B5 orrened on: 16-3-2022 Convened at: 2
	Mer	nbers Present: (Names with Initial and signaturi)
Milita	1.	Dr. Pandia Raja University Nome Principal
1	1	Principal Thyagaraja College, Madurai-625009
	+	Mail ID: pandie raja @gmail. Mobile No: 7708091177
	2.	Dr.M. Navaneettaksishnan Subject Expert- Associate Professor & Head
		ANDCIAL METERS & ALDA
		Department of Mathematics Kamasaj College,
	6	Thoothukudi -628003
		Mail 20: navance tan 65@yahoo. Co. is Mobile No: 9443871893
	3.	Dr.D. Muthuramakrishnan, Subject Enkert.
		Dean of Science. Head of the Department,
		Department of Mathematics
		National Collège.
		Mail 20: dmutherametrushnen@gma

	4.	Ms . S. Sindhuga	Industrialist.
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		Dr. C. Prasanna Devi	
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		Mrs. Nigile Ragavan	MICH "Sador"
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		Dr. M.V. Selter Meenekshi:	
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	and and 3rd year papers.
	19M3CC5/19G3CC5 - Modern Algebra,
	19-M3CC6/19123 CC6 - Advanced Stabobis
	19M3CC6/191033CC6 - Advanced Stababis 19M4CC7/19G4CC7 - Seguences of Series
	19M4CL8/19G4CL8 - Linear Algebra
	19M5CC9/19M5CC9 - Real Analysis
	19M5 cc10/1965 cc10 - States
	19 M5 CC 11/19 is CC 11 - Linear Programming

	19m5cc12/19a5cc12 - Graph ?	Theory
	19MbCc13/19GbCc13 - Comple	a Analysis
	22mbec14/22GbCC14 - Dynam	
Ne	19MbCC15/19 016CC15 - Operation	s Research
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	Different	al Equations.
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VISION OF THE DEPARTMENT

To empower students both as individuals and as citizens in the society through Mathematics with sound knowledge and investigate new methodologies for future applications.

MISSION OF THE DEPARTMENT

- To achieve high standards of excellence in generating and propagating knowledge in Mathematics
- To lay a solid foundation for the concept of numeracy and scientific thinking
- To give the students, opportunities for developing, manipulative skills that will enable them function effectively in the society within the limits of their capacity
- To contribute to the development of students as Mathematical thinkers and to continue to grow in their chosen professions
- To enable the students to become lifelong learners and to function as productive citizens

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

PEO 1	Our graduates will be academic, digital and information literates; creative, inquisitive, innovative and desirous for the "more" in all aspects					
PEO 2	They will be efficient individual and team performers, exhibiting progress, flexibility, transparency and accountability in their professional work					
PEO 3	The graduates will be effective managers of all sorts of real – life and professional circumstances, making ethical decisions, pursuing excellence within the time framework and demonstrating apt leadership skills					
PEO 4	They will engage locally and globally, evincing social and environmental stewardship demonstrating civic responsibilities and employing right skills at the right moment					

GRADUATE ATTRIBUTES (GA)

Fatima College empowers her women graduates holistically. A Fatimite achieves all-round empowerment by acquiring Social, Professional and Ethical competencies. A graduate would sustain and nurture the following attributes:

	I. SOCIAL COMPETENCE
GA 1	Deep disciplinary expertise with a wide range of academic and digital literacy
GA 2	Hone creativity, passion for innovation and aspire excellence
GA 3	Enthusiasm towards emancipation and empowerment of humanity
GA 4	Potentials of being independent
GA 5	Intellectual competence and inquisitiveness with problem solving abilities befitting the field of research
GA 6	Effectiveness in different forms of communications to be employed in personal and professional environments through varied platforms
GA 7	Communicative competence with civic, professional and cyber dignity and decorum
GA 8	Integrity respecting the diversity and pluralism in societies, cultures and religions
GA 9	All – inclusive skill- sets to interpret, analyse and solve social and environmental issues in diverse environments
GA 10	Self-awareness that would enable them to recognise their uniqueness through continuous self- assessment in order to face and make changes building their strengths and improving on their weaknesses
GA 11	Finesse to co-operate exhibiting team-spirit while working in groups to achieve goals
GA 12	Dexterity in self-management to control their selves in attaining the kind of life that they dream for

GA 13	Resilience to rise up instantly from their intimidating setbacks
GA 14	Virtuosity to use their personal and intellectual autonomy in being life-long learners
GA 15	Digital learning and research attributes
GA 16	Cyber security competence reflecting compassion, care and concern towards the marginalised
GA 17	Rectitude to use digital technology reflecting civic and social responsibilities in local, national and global scenario
	II. PROFESSIONAL COMPETENCE
GA 18	Optimism, flexibility and diligence that would make them professionally competent
GA 19	Prowess to be successful entrepreneurs and employees of trans-national societies
GA 20	Excellence in Local and Global Job Markets
GA 21	Effectiveness in Time Management
GA 22	Efficiency in taking up Initiatives
GA 23	Eagerness to deliver excellent service
GA 24	Managerial Skills to Identify, Commend and tap Potentials
	III. ETHICAL COMPETENCE
GA 25	Integrity and discipline in bringing stability leading a systematic life promoting good human behaviour to build better society
GA 26	Honesty in words and deeds
GA 27	Transparency revealing one's own character as well as self-esteem to lead a genuine and authentic life

GA 28	Social and Environmental Stewardship
GA 29	Readiness to make ethical decisions consistently from the galore of conflicting choices paying heed to their conscience
GA 30	Right life skills at the right moment

PROGRAMME OUTCOMES (PO)

The learners will be able to

PO 1	Apply acquired scientific knowledge to solve complex issues.
PO 2	Attain Analytical skills to solve complex cultural, societal and environmental issues.
РО 3	Employ latest and updated tools and technologies to analyse complex issues.
PO 4	Demonstrate Professional Ethics that foster Community, Nation and Environment Building Initiatives.

PROGRAMME SPECIFIC OUTCOMES (PSO)

On completion of B.Sc. Mathematics programme, the graduates would be able to

	Gain broad knowledge and understanding in pure Mathematics
PSO 1	and applications of Mathematics.
	Demonstrate a computational ability and apply logical thinking
PSO 2	skills to solve problems that can be modelled Mathematically.
PSO 3	Read, understand, analyse and formulate Mathematical theorems.
	Acquire proficiency in the use of technology to assist in learning
PSO 4	and investigating, Mathematical ideas and in problem solving.
	Communicate Mathematical concepts accurately, precisely and
PSO 5	effectively with clarity and coherence both verbal and in written
	form

FATIMA COLLEGE (AUTONOMOUS), MADURAI-18 DEPARTMENT OF MATHEMATICS

For those who joined in June 2019 onwards

PROGRAMME CODE:

PART - I - TAMIL / FRENCH / HINDI- 12 CREDITS

PART - I - TAMIL

Offered by The Research Centre of Tamil

S. NO	SEM.	COURSE CODE	COURSE TITLE	HRS	CRE DITS	CIA Mks	ESE Mks	TOT. MKs
1.	I	19TL1C1	Language-Modern Literature - nghJj;jkpo; - ,f;fhy ,yf;fpak;	5	3	40	60	100
2.	II	19TL2C2	Language - Bakthi Literature - nghJj;jkpo; - gf;jp ,yf;fpak;	5	3	40	60	100
3.	Ш	19TL3C3	Language- Epic Literature - nghJj;jkpo; - fhg;gpa ,yf;fpak;	5	3	40	60	100
4.	IV	19TL4C4	Language-Sangam Literature - nghJj;jkpo; - rq;f ,yf;fpak;	5	3	40	60	100
	TOTAL			20	12			

Offered by The Department of French

S. NO	SEM.	COURSE CODE	COURSE TITLE	HRS	CRE DITS	CIA Mks	ESE Mks	TOT. MKs
1.	I	19RL1C1	PART 1 LANGUAGE FRENCH - LE NIVEAU INTRODUCTIF	5	3	40	60	100
2.	II	19RL2C2	PART 1 LANGUAGE FRENCH - LE NIVEAU DÉCOUVERTE	5	3	40	60	100
3.	III	19RL3C3	PART 1 LANGUAGE FRENCH - LE NIVEAU INTERMEDIAIRE – LA CIVILISATION, LA LITTERATURE ET LA GRAMMAIRE	5	3	40	60	100
4.	IV	19RL4C4	PART 1 LANGUAGE FRENCH - LE NIVEAU DE SUIVRE – LA CIVILISATION, LA LITTERATURE ET LA GRAMMAIRE	5	3	40	60	100
		•	TOTAL	20	12			

Offered by The Department of Hindi

S. NO	SE M.	COURSE CODE	COURSE TITLE	HRS	CRE DITS	CIA Mks	ESE Mks	TOT. MKs
1.	I	19DL1C1	PART 1 LANGUAGE HINDI - बोलचाल की हिंदी	5	3	40	60	100
2.	II	19DL2C2	PART 1 LANGUAGE HINDI - कार्यालयीन हिंदी	5	3	40	60	100
3.	III	19DL3C3	PART 1 LANGUAGE HINDI - हिंदी साहित्य का आदिकाल और भक्तिकाल	5	3	40	60	100
4.	IV	19DL4C4	PART 1 LANGUAGE HINDI - हिंदी साहित्य का आधुनिक काल	5	3	40	60	100
	TOTAL			20	12			

PART - II -ENGLISH - 12 CREDITS

Offered by The Research Centre of English

S. NO	SEM.	COURSE CODE	COURSE TITLE	HRS	CRE DITS	CIA Mks	ESE Mks	TOT MK s
1.	т	19EL1LB/ 19EL1WB	BASIC COMMUNICATIVE ENGLISH	5	3	40	60	100
2.	1	19EL1LI/ 19EL1WI	INTERMEDIATE COMMUNICATIVE ENGLISH	3	3	+0	00	100

S. NO	SEM.	COURSE CODE	COURSE TITLE	HRS	CRE DITS	CIA Mks	ESE Mks	TOT . MK s
3.		19EL1LA/ 19EL1W A	ADVANCED COMMUNICATIVE ENGLISH					
4.		19EL2LB/ 19EL2WB	ENGLISH COMMUNICATION SKILLS					
5.	II	19EL2LI/ 19EL2WI	ENGLISH FOR EMPOWERMENT	5	3	40	60	100
6.		19EL2LA/ 19EL2WA	ENGLISH FOR CREATIVE WRITING					
7.	III	19EL2LA/ 19EL2WA	ENGLISH FOR DIGITAL ERA	5	3	40	60	100
8.	IV	19EL4LN/ 19EL4WN	ENGLISH FOR INTEGRATED DEVELOPMENT	5	3	40	60	100
			TOTAL	20	12			

PART - III -MAJOR, ALLIED & ELECTIVES - 95 CREDITS

MAJOR CORE COURSES INCLUDING PRACTICALS : 60 CREDITS

S. NO	SEM .	COURSE CODE	COURSE TITLE	HRS	CRE DITS	CIA Mks	ESE Mks	TOT. MKs
1.	-	19M1CC1	Calculus	6	4	40	60	100
2.	I 19M1CC2 Classical Algebra		6	4	40	60	100	
3.	1		6	4	40	60	100	
4.	4. 19M2CC4 Statistics		6	4	40	60	100	
5.			6	4	40	60	100	
6.	III	19M3CC6	Advanced Statistics	6	4	40	60	100
7.	IV	19M4CC7	Sequences and Series	6	4	40	60	100
8.	10	19M4CC8	Linear Algebra	6	4	40	60	100
9.		19M5CC9	Real Analysis	5	4	40	60	100
10.	v	19M5CC10	Statics	5	4	40	60	100
11.	v	19M5CC11	Linear Programming	5	4	40	60	100
12.		19M5CC12	Graph Theory	5	4	40	60	100
13.		19M6CC13	Complex Analysis	5	4	40	60	100
14.	VI	22M6CC14	14 Dynamics		4	40	60	100
15.		19M6CC15	Operations Research	5	4	40	60	100
			TOTAL	83	60			

ALLIED COURSES- 20 CREDITS

S. N O	SEM.	COURSE CODE	COURSE TITLE	HR S	CRE DITS	CIA Mks	ESE Mk s	TOT. MKs
1.	I	21B1ACM1	Computer Programming in C	3	5	40	60	100
2.	I	21B1ACM2	C-Practicals	2		40	60	100
3.	II	21B2ACM3	Object Oriented Programming with C++	3	5	40	60	100
4.	II	21B2ACM4	C++ - Practicals	2		40	60	100
			TOTAL	20	20			

ELECTIVES-15 CREDITS

S. No	SEM.	COURSE CODE	COURSE TITLE	H RS	CRE DITS	CIA Mks	ESE Mk s	TOT · Mks
1.	V	19M5ME1 & 19M5MEP1/ 19M5ME2 & 19M5MEP2	Computer Programming in C & C-Practicals Object oriented Programming with C++ (or) C++ Practicals	3+ 2/ 5	3+2/ 5	40+ 40/ 40	60+ 60/ 60	100 + 100 / 100
2.		19M6ME3 (or) 19M6ME4	Fuzzy Mathematics (or) Theory of Numbers	3+ 2/ 5	3+2/ 5	40+ 40/ 40	60+ 60/ 60	100 + 100 / 100
3.	VI	19M6ME5 / (or) 19M6ME6	Lattices and Boolean Algebra / (or) Discrete Mathematics	5	5	40	60	100
			TOTAL	15	15			

ALLIED COURSES OFFERED FOR OTHER DEPARTMENTS

S. No	SEM.	COURSE CODE	COURSE TITLE	H RS	CRE DITS	CIA Mks	ESE Mk s	TOT Mks
1.	I	21M1ACP1	Allied Mathematics – I (offered to Physics Department)	5	5	40	60	100
2.	II	21M2ACP2	Allied Mathematics – II (offered to Physics Department)	5	5	40	60	100
3.	III	21M3ACC1	Allied Mathematics – I (offered to Chemistry Department)	5	5	40	60	100
4.	IV	21M4ACC2	Allied Mathematics – II (offered to Chemistry Department)	5	5	40	60	100
5.	III	21M3ACB1	Linear Programming (offered to Computer Science Department)	5	5	40	60	100
6.	IV	21M4ACB2	Algebra and Graph Theory (offered to Computer Science Department)	5	5	40	60	100

PART - IV - 20 CREDITS

- VALUE EDUCATION
- ENVIRONMENTAL AWARENESS
- NON-MAJOR ELECTIVE

• SKILL BASED COURSES

S. No	SEM.	COURSE CODE	COURSE TITLE	H RS	CRE DITS	CIA Mks	ESE Mk s	TOT. Mks
1.	I	21G1VE1	Personal Values	1	1	40	60	100
2.	1	19M1NME	Quantitative Aptitude	2	2	40	60	100
3.	II	21G2VE2	Values for Life	1	1	40	60	100
4.	11	19M2NME	Quantitative Aptitude	2	2	40	60	100
5.		21G3EE	Environmental Education	1	1	40	60	100
6.	III	19M3SB1	Applications of Calculus and Differential Equations		2	40	60	100
7.	13.7	21G4EE	Gender Studies	1	1	40	60	100
8.	IV	22M4SB2	Trigonometry	2	2	40	60	100
9.	V	19M5SB3	Data Interpretation and Analytical Aptitude	2	2	40	60	100
10.		19M5SB4	Cryptography	2	2	40	60	100
11.		19M6SB5	MATLAB	2	2	40	60	100
12.	VI	19M6SB6	Combinatorial Mathematics	2	2	40	60	100
			TOTAL	20	20			

EXTRA CREDIT COURSES

COURSE	COURSE	HR S.	CREDIT S	SEMES TER IN WHICH THE COURS E IS OFFER ED	CIA MK S		TOTA L MARK S
21UGME2 SL	Mathematics and Economics for Competitive Exams	ı	2	II	40	60	100
22UGMA4S L	Financial Mathematics	I	2	VI	40	60	100
19UGM6SL	History of Mathematics	-	2	VI	40	60	100
	MOOC COURSES / International Certified online Courses (Department Specific Courses/any other courses) * Students can opt other than the listed course from UGC-SWAYAM UGC / CEC	-	Minimu m 2 Credits	I – VI	_	_	

OFF CLASS PROGRAMMES

21UGVAM1 - Value Added Crash Course (Verbal and Non Verbal Reasoning)

22UGVACM1 - Value Added Crash Course (Quantitative and Qualitative Methods for Competitive Examinations)

PART - V - 1 CREDIT

OFF-CLASS PROGRAMMES - ALL PART-V

SHIFT - I

S. No	SEM.	COURSE CODE	COURSE TITLE	HRS	CRE DIT	TOT. Mks
1.		21S4PED	Physical Education			
2.		21S4NSS	NSS			
3.	I – IV	21S4NCC	NCC	30/	1	100
4.		21S4WEC	Women Empowerment Cell	SEM		
5.		21S4ACUF	AICUF			

OFF-CLASS PROGRAMMES

ADD-ON COURSES

COURSE	COURSE TITLE	HR S.	CRE DITS	SEME STER IN WHIC H THE COUR SE IS OFFER ED	CIA Mks	ES E Mk s	TOT AL Mks
	COMPUTER						
19UAD2CA	APPLICATIONS	40	2	I & II	40	60	100
	(offered by the						

COURSE	COURSE TITLE	HR S.	CRE DITS	SEME STER IN WHIC H THE COUR SE IS OFFER ED	CIA Mks	ES E Mk s	TOT AL Mks
	department of PGDCA for Shift I)						
19UADFCA	ONLINE SELF LEARNING COURSES- Foundation Course for Arts	40	2	I	40	60	100
19UADFCS	ONLINE SELF LEARNING COURSE- Foundation Course for Science	40	2	II	40	60	100
21UADES3	Social & Professional Ethics	15	1	III	40	60	100
21UADES4	Personality Development	15	1	IV	40	60	100
21UADES5	Family Life Education	15	1	V	40	60	100
21UADES6	Life Skills	15	1	VI	40	60	100

COURSE	COURSE TITLE	HR S.	CRE DITS	SEME STER IN WHIC H THE COUR SE IS OFFER ED	CIA Mks	ES E Mk s	TOT AL Mks
19UAD5HR	HUMAN RIGHTS	15	2	V	100	-	100
19UADRS	OUTREACH PROGRAMME- Reach Out to Society through Action ROSA	100	3	V & VI	100	-	100
19UADPR	PROJECT	30	4	VI	40	60	100
19UADRC	READING CULTURE	10/ Se mes ter	1	II-VI	-	-	-
	TOTAL		20				

II B.Sc Mathematics SEMESTER -IV

For those who joined in 2022 onwards

SKILL DEVELOPMENT-100%

PROGRAMM	COURSE	COURSE TITLE	CATEGO	HRS/	CREDIT
E CODE	CODE		RY	WEEK	S
UAMA	22M4SB2	TRIGONOMETRY	Lecture	2	2

COURSE DESCRIPTION

This course helps the students to develop their problem solving skills.

COURSE OBJECTIVES

To enable the students learn some basic concepts of Trigonometry and to solve problems.

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UNIT I: EXPANSIONS -I

[6 HRS]

Expansion of sinnx, cosnx, tannx

UNIT II: EXPANSIONS -II

[6 HRS]

Expansion of sinⁿx, cosⁿx, sin^mx cosⁿx

UNIT III: EXPANSIONS -III

[6 HRS]

Expansions of $\cos \theta$, $\sin \theta$ and $\tan \theta$ in a series of ascending powers of θ

UNIT III: HYPERBOLIC FUNCTIONS

[6 HRS]

Hyperbolic functions, Relations between hyperbolic functions, Inverse Hyperbolic functions.

UNITY:LOGARITHMS OF COMPLEX QUANTITIES

[6 HRS]

Logarithms of complex quantities, Definition, Logarithm of x+iy, General value of logarithm of x+iy

TEXT BOOKS:

 S. Narayanan and T. K. Manicavachagam Pillai - Trigonometry , S. Viswanathan (Printers and Publishers), Pvt. Ltd, 2008.

UNIT I, II & III Chapter 3

UNIT IV Chapter 4

UNIT V Chapter 5(Section 5.1 & 5.2)

REFERENCE BOOKS:

- 1. P.R.Vittal & V.Malini Algebra & Trigonometry, Margham Publications, 2008.
- 2. Sudhir K Pundir singh- Algebra & Trigonometry, Meerat Pragathi prakashan,2003

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	UNIT -1	EXPANSIO	NS -I	
1.1	Expansion of sinnx	2	Chalk & Talk	Black Board
1.2	Expansion of cosnx	2	Chalk & Talk	Black Board
1.3	Expansion of tannx	2	Chalk & Talk	Black Board
	UNIT - 2 EXPAN	SIONS -II		
2.1	Expansion of sin ⁿ x	2	Discussio n	Black Board
2.2	Expansion of cos ⁿ x	2	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids					
2.3	Expansion of sin ^m x cos ⁿ x	2	Chalk & Talk	Black Board					
	UNIT - 3 EXPA	ANSIONS -	III						
3.1	Expansions of $\cos \theta$ in a series of ascending powers of θ	2	Chalk & Talk	Black Board					
3.2	Expansions of $\sin \theta$ in a series of ascending powers of θ	2	Chalk & Talk	Black Board					
3.3	Expansions of $\tan \theta$ in a series of ascending powers of θ	2	Chalk & Talk	Black Board					
	UNIT - 4 HYPERBOLIC FUNCTIONS								
4.1	Hyperbolic functions	2	Chalk & Talk	Black Board					
4.2	Relations between hyperbolic functions	2	Chalk & Talk	Black Board					
4.3	Inverse Hyperbolic functions	2	Chalk & Talk	Black Board					
UI	NIT - 5 LOGARITHMS	OF COMPL	EX QUANTI	TIES					
5.1	Logarithms of complex quantities	2	Chalk & Talk	Black Board					
5.2	Definition, Logarithm of x+iy,	2	Chalk & Talk	Black Board					
5.3	General value of logarithm of x+iy	2	Chalk & Talk	Black Board					

	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of
Levels	T1	T2	Quiz	Assig nment	OBT/PP T				Asses sment
	10 Mks.	10 Mks.	5 Mks.	5 Mks	5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	2	2	-	-	-	4	-	4	10 %
K2	2	2	5	-	ı	9	1	9	22.5 %
К3	3	3	1	-	5	11	1	11	27.5 %
K4	3	3	-	5	-	11	-	11	27.5 %
Non Schola stic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

	CIA	
	Scholastic	35
	Non Scholastic	5
✓ The levels of		40

based on Revised Bloom's Taxonomy are:

K1- Remember, K2-Understand, K3-Apply, K4-Analyse

EVALUATION PATTERN

		SCHOLASTIC			NON - SCHOLASTIC	MARKS		3
C1	C2	С3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

UG CIA Components

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

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED	PSOs ADDRESSED
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		BLOOM'S TAXONOMY)	
CO 1	Recall some expansions of Trigonometric functions in sinnx, cosnx, tannx.	K1	PSO1& PSO2
CO 2	Recall some expansions of Trigonometric functions in sin ⁿ x, cos ⁿ x, sin ^m x cos ⁿ x	K2 & K3	PSO3
CO 3	Recall some expansions of Trigonometric functions in $\cos \theta$, $\sin \theta$ and $\tan \theta$ in a series of ascending powers of θ	K1 & K2	PSO4
CO 4	Do the problems in hyperbolic functions	K1 & K4	PSO5
CO 5	Explain Logarithms of Complex quantities.	K2 & K4	PSO3

Mapping COs Consistency with PSOs

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

Mapping COs Consistency with POs

CO/ PO	PO1	PO2	РО3	PO4
CO 1	3	2	2	2

CO 2	2	2	2	3
CO 3	3	2	2	2
CO 4	2	3	2	2
CO 5	2	2	2	3

Note: \Box Strongly Correlated – **3** \Box Moderately Correlated – **2**

☐ Weakly Correlated -1

COURSE DESIGNER:

1. Mrs. Nigila Ragavan

Forwarded By

(Dr.A.Paulin Mary)

J.R.

HOD's

Signature & Name

For II UG

For those who joined in 2022 onwards

ENTREPRENEURSHIP-100%

PROGRAM	COURSE	COURSE	CATEGO	HRS/WEE	CREDIT
ME CODE	CODE	TITLE	RY	K	S
UAMA	22UGMA4 SL	FINANCIAL MATHEMATI CS	Lecture	-	2

COURSE DESCRIPTION

The course provides the mathematical and commerce concepts needed by the students for advanced study.

COURSE OBJECTIVE

To enable the students to understand the concepts like structure of interest rates, basic models for asset prices, elementary statistical analysis and estimation of the distribution.

UNIT -I FINANCIAL CALCULUS

Introduction – Examples, Cashflows, interest rates, prices and returns, Bonds and the term structure of interest rates, Asset returns, Some basic models for asset prices.

UNIT -II FINANCIAL CALCULUS (CONTINUED)

Elementary statistical analysis of returns, Measuring location, Measuring dispersion and risk, Value-at-risk, Expected shortfall, lower partial moments and coherent risk measures, Measuring skewness and kurtosis, Estimation of the distribution, Testing for normality, Financial instruments, Contingent claims, Spot contracts and forwards, Futures contracts, Options, Barrier options, Financial engineering.

UNIT III INTRODUCTION TO ACCOUNTANCY

Introduction- meaning and definition of accounting- rules of double entry book keeping- debit and credit- accounting concepts- journal, ledger, trial balance, final accounts.

UNIT IV APPLICATION OF ACCOUNTING

Accounting ratios, Investment accounts- cum interest and ex interest calculation

UNIT V MODERN ACCOUNTING CONCEPTS

Inflation accounting- introduction - purpose- CPP- CAA methods-

TEXT BOOK:

- 1. Ansgar Steland *Financial statistics and Mathematical Finance Methods, Models and Applications*, First Edition 2012 John Wiley & Sons, Ltd
- 2. Hanif and Mukerjee, *Advanced Accountancy*, Tata Mc Graw Hill Co., New Delhi

REFERENCE BOOK:

- 1. Amber Habib, The Calculus of Finance, Universities Press, January 2011
- 2. S. Chandra, S. Dharmaraja, Aparna Mehra, R. Chemchandani, *Financial Mathematics: An introduction*, Narosa Publishing House, Reprint 2014
- 3. R.L.Gupta , M.Radhaswamy, *Advanced Accounting*, S.Chand and Sons, **COURSE OUTCOME**

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Classify various concepts in structure of interest rate and basic models for asset prices.	K2 & K4	PSO4
CO 2	Explain elementary statistical analysis of returns and estimation of the distribution.	КЗ	PSO5
CO 3	Gain thorough Knowledge in preparing journal, ledger, Trial Balance	K2 & K4	PSO3

CO 4	Extensively apply knowledge on Accounting Ratios and Investment Accounts	K1, K2 & K3	PSO3
CO 5	Have an understanding on inflation Accounting .	K2 & K4	PSO5

Mapping of COs with PSOs

CO/ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	1	2	3	2
CO2	2	2	2	2	3
CO3	2	2	3	2	2
CO4	2	2	3	2	2
CO5	2	2	2	2	3

Mapping of COs with POs

CO/ PSO	PO1	PO2	РО3	PO4	PO5
CO1	2	2	3	2	2
CO2	2	3	2	2	2
СОЗ	2	2	3	2	2
CO4	2	2	2	3	2
CO5	2	3	2	2	2

Note:	☐ Strongly Correlated – 3	☐ Moderately Correlated – 2
	Weakly Correlated -1	

COURSE DESIGNER:

B.Vethamary Jacquline Forwarded By

(Dr.A.Paulin Mary)

J.R.

HOD's Signature & Name