Sadakathullah Appa College

(Autonomous)

(Reaccredited by NAAC at an 'A' Grade and ISO 9001:2015 Certified Institution)

Rahmath Nagar, Tirunelveli – 627 011, Tamil Nadu.

DEPARTMENT OF MATHEMATICS

CBCS SYLLABUS

For

B.Sc. Mathematics

(Applicable for students admitted in June 2019 and onwards)
(As per the Resolutions of the Academic Council Meetings held on 03-03-2018, 17-10-2018 and 02-03-2019).

CONTENTS

B.Sc. Mathematics (2018– 2021)
(Applicable for students admitted in June 2019 and onwards)
(With Statistics and Physics Allied)

DISTRIBUTION OF CREDITS, NO. OF PAPERS & MARKS

Part	Course	Semester	Hours	Credits	Papers	Marks
I	Tamil / Arabic	I to IV	24	16	4	400
II	English	I to IV	24	16	5	400
III	Discipline Specific Core (DSC) + Project + Practicals	I to VI	78	62	15	1500
	Discipline Specific Elective (DSE)	III to VI	16	16	4	400
	Allied Theory + Practicals	I to IV	24	16	6	500
IV	Non-major Elective (NME)	III & IV	4	4	2	200
	Skill Enhancement Course(SEC)	V & VI	4	4	2	200
	Skill Based Common (SBC)	VI	2	2	1	100
	Ability Enhancement Compulsory Course (AECC) Environmental Studies (EVS)	I	2	2	1	100
	Value Education (VE)	II	2	2	1	100
V	Extension Activities	I to IV+	--	1+1*	1	100
	MOOC[$]	I – V	-	2#		
		TOTAL	**180**	**141+1*+2#**	**42**	**4000**

SEMESTER WISE DISTRIBUTION OF HOURS

Part	I	II	III				IV				Total
SEM	**T/A**	**ENG**	**DSC**	**PRO/ FW**	**DSE**	**AL**	**NME**	**SEC**	**SBC**	**EVS/VE**	
I	6	6	10	-	-	6	-	-	-	2	**30**
II	6	6	10	-	-	6	-	-	-	2	**30**
III	6	6	6	-	4	6	2	-	-	-	**30**
IV	6	6	6	-	4	6	2	-	-	-	**30**
V	-	-	24	-	4	-	-	2	-	-	**30**
VI	-	-	16	6	4	-	-	2	2	-	**30**
Total	**24**	**24**	**72**	**6**	**16**	**24**	**4**	**4**	**2**	**4**	**180**

+ Activities and evaluation are to be performed during Semesters I to IV and results to be declared at the end of the Semester IV along with those for other courses in the Mark Statement.

* Extra credit for Sadakath Outreach Programme (SOP)

[$] As per the guidelines of the UGC all the UG and the PG students shall enroll for one Massive Open Online Course offered through SWAYAM, NPTEL, etc.

Two extra credits will be given on completion of the course.

B.Sc. Mathematics (2018-2021) Course Structure
(With Statistics & Physics Allied)
TITLE OF THE PAPERS, CREDITS & MARKS

P	SUB	TITLE OF THE PAPER	S.CODE	H/W	C	MARKS		
						I	E	T
I SEMESTER								
I	TA 1	இக்காலத் தமிழ்	18ULTA11	6	4	25	75	100
	AR 1	Applied Grammar and Translation – I	18ULAR11					
II	EN 1	Prose, Poetry and Remedial Grammar - I	18ULEN11	4	2	25	75	100/2
		English Communication	18ULEC11	2	2	25	75	100/2
III	DSC 1	Calculus	18UCMA11	5	4	25	75	100
	DSC 2	Theory of Equations	18UCMA12	5	4	25	75	100
	AI - I	I-Allied I - Statistics	18UAST11	6	4	25	75	100
IV	ES	Environmental Studies	18UENS11	2	2	25	75	100
		TOTAL		**30**	**22**	**----**	**----**	**600**
II SEMESTER								
I	TA 2	சமயத் தமிழ்	18ULTA21	6	4	25	75	100
	AR 2	Applied Grammar and Translation - II	18ULAR21					
II	EN 2	Prose, Poetry and Remedial Grammar - II	18ULEN21	6	4	25	75	100
III	DSC 3	Analytical Geometry of 3D and Trigonometry	18UCMA21	5	4	25	75	100
	DSC 4	Differential Equations and Vector Calculus	18UCMA22	5	4	25	75	100
	AI - II	I-Allied - II – Probability Theory	18UAST21	6	4	25	75	100
IV	VE	Value Education- I	18USVE2A	2	2	25	75	100
		Value Education - II	18USVE2B					
		TOTAL		**30**	**22**			**600**
III SEMESTER								
I	TA 3	பயன்பாட்டுத் தமிழ்	18ULTA31	6	4	25	75	100
	AR 3	Applied Grammar and Translation-III	18ULAR31					
II	EN 3	One - Act Plays and Writing Skill	18ULEN31	6	4	25	75	100
III	DSC-5	Sequences and Series	18UCMA31	6	4	25	75	100
	DSE-1A	Number Theory	18UEMA3A	4	4	25	75	100
	DSE-1B	Office Automation	18UEMA3B					
	AII-I	II-Allied Physics -I	18UAPH31	4	3	25	75	100
	AII-PI	II-Allied Physics Practical – I	18UAPH3P1	2	1	40	60	100/2
IV	NME-I	Mathematics for Competitive Examination-I	18UNMA31	2	2	25	75	100
				30	**22**			**650**

IV SEMESTER								
I	TA 4	சங்கத் தமிழ்	18ULTA41	6	4	25	75	100
	AR 4	Classical Prose	18ULAR41					
II	EN 4	A Practical Course in Spoken English	18ULEN41	6	4	25	75	100
III	DSC-6	Abstract Algebra	18UCMA41	6	4	25	75	100
	DSE-2A	Linear Programming	18UEMA4A	4	4	25	75	100
	DSE-2B	Fuzzy Mathematics	18UEMA4B					
	AII-II	II-Allied Physics –II	18UAPH41	4	3	25	75	100
	AII-PII	II-Allied Physics Practical –II	18UAPH4P1	2	1	40	60	100/2
IV	NME-II	Mathematics for Competitive Examination – II	18UNMA41	2	2	25	75	100
V	EX	Extension Activities (Choose from the list)	---	--	1	--	100	100
		SOP	18UEXSOP		1*			
			TOTAL	**30**	**23+ 1***			**750**

V SEMESTER								
P	**SUB**	**TITLE OF THE PAPER**	**S.CODE**	**H/W**	**C**	**MARKS**		
						I	**E**	**T**
III	DSC- 7	Linear Algebra	18UCMA51	5	4	25	75	100
	DSC-8	Real Analysis	18UCMA52	5	4	25	75	100
	DSC-9	Combinatorial Mathematics	18UCMA53	5	4	25	75	100
	DSC-10	Operations Research	18UCMA54	5	4	25	75	100
	DSC-11	Astronomy	18UCMA55	4	4	25	75	100
	DSE-3A	Statics	18UEMA5A	4	4	25	75	100
	DSE-3B	Programming in C-I	18UEMA5B					
IV	SEC-I	Numerical Ability – I	18USMA51	2	2	25	75	100
			TOTAL	**30**	**26**			**700**

VI SEMESTER								
III	DSC-12	Complex Analysis	18UCMA61	6	4	25	75	100
	DSC-13	Graph Theory	18UCMA62	5	4	25	75	100
	DSC-14	Numerical Methods	18UCMA63	5	4	25	75	100
	DSC-15	Project	18UCMA64	6	6			100
	DSE-4A	Dynamics	18UEMA6A	4	4	25	75	100
	DSE-4B	Programming in C-II	18UEMA6B					
IV	SEC-II	Numerical Ability-II	18USMA61	2	2	25	75	100
	SBC	Personality Development	18USPD62	2	2	25	75	100
			TOTAL	**30**	**26**			**700**
I-V Sem		Massive Open Online Course $	-	2#				

B.Sc. Mathematics (2018-2021) Course Structure (CBCS)
(Applicable for students admitted in June 2019 and onwards)
TITLE OF THE PAPERS, CREDITS & MARKS

GROUP II COURSES (TWO -YEAR LANGUAGE COURSES) (B.A. Arabic, B.A. Tamil, B.A. English, B.A. History, B.Sc. Mathematics, B.Sc. Physics, B.Sc. Chemistry, B.Sc. Zoology, B.Sc. Microbiology and B.Sc. Nutrition and Dietetics)							
SEM	**Title of the paper**	**S.CODE**	**H/ W**	**C**	**I**	**E**	**T**
PART I - TAMIL							
I	இக்காலத் தமிழ்	**18ULTA11**	6	4	25	75	100
II	சமயத் தமிழ்	**18ULTA21**	6	4	25	75	100
III	பயன்பாட்டுத் தமிழ்	**18ULTA31**	6	4	25	75	100
IV	சங்கத் தமிழ்	**18ULTA41**	6	4	25	75	100
		TOTAL	**24**	**16**			**400**
PART I – ARABIC							
I	Applied Grammar and Translation – I	**18ULAR11**	6	4	25	75	100
II	Applied Grammar and Translation – II	**18ULAR21**	6	4	25	75	100
III	Applied Grammar and Translation – III	**18ULAR31**	6	4	25	75	100
IV	*Classical Prose*	**18ULAR41**	6	4	25	75	100
		TOTAL	**24**	**16**			**400**
PART II – ENGLISH							
I	Prose, Poetry and Grammar-I	**18ULEN11**	4	2	25	75	100 /2
	English for Communication	**18ULEC11**	2	2	25	75	100 /2
II	Prose, Poetry and Grammar-II	**18ULEN21**	6	4	25	75	100
III	One – Act Plays and Writing Skill	**18ULEN31**	6	4	25	75	100
IV	A Practical Course in Spoken English	**18ULEN41**	6	4	25	75	100
		TOTAL	**24**	**16**			**400**

PART III(Applicable for students admitted in June 2019 and onwards)

Part III Core, Core Elective & Project (For B.Sc. Mathematics Major)								
SEM	**P**	**TITLE OF THE PAPER**	**S.CODE**	**H/W**	**C**	**MARKS**		
						I	**E**	**T**
I	DSC1	Calculus	18UCMA11	5	4	25	75	100
	DSC2	Theory of Equations	18UCMA12	5	4	25	75	100
II	DSC3	Analytical Geometry of 3D and Trigonometry	18UCMA21	5	4	25	75	100
	DSC4	Differential Equations and Vector Calculus	18UCMA22	5	4	25	75	100
III	DSC5	Sequences and Series	18UCMA31	6	4	25	75	100
	DSE-1A	Number Theory	18UEMA3A	4	4	25	75	100
	DSE-1B	Office Automation	18UEMA3B					
IV	DSC6	Abstract Algebra	18UCMA41	6	4	25	75	100
	DSE-2A	Linear Programming	18UEMA4A	4	4	25	75	100
	DSE-2B	FUZZY MATHEMATICS	18UEMA4B					
V	DSC7	Linear Algebra	18UCMA51	5	4	25	75	100
	DSC8	Real Analysis	18UCMA52	5	4	25	75	100
	DSC9	Combinatorial Mathematics	18UCMA53	5	4	25	75	100
	DSC10	Operations Research	18UCMA54	5	4	25	75	100
	DSC11	Astronomy	18UCMA55	4	4	25	75	100
	DSE-3A	Statics	18UEMA5A	4	4	25	75	100
	DSE-3B	Programming in C-I	18UEMA5B					
VI	DSC12	Complex Analysis	18UCMA61	6	4	25	75	100
	DSC13	Graph Theory	18UCMA62	5	4	25	75	100
	DSC14	Numerical Methods	18UCMA63	5	4	25	75	100
	DSC15	Project	18UCMA64	6	6			100
	DSE-4A	Dynamics	18UEMA6A	4	4	25	75	100
	DSE-4B	Programming in C-II	18UEMA6B					
			TOTAL	**94**	**78**			**1900**

IV SEMESTER			
DSE:2B	**FUZZY MATHEMATICS**		**18UEMA4B**
Hrs/ Week: 4	**Hrs/ Sem: 60**	**Hrs/ Unit: 12**	**Credits: 4**

Objectives

- To impart the knowledge of the properties of Fuzzy Relations and Fuzzy Logic.
- To enrich the students with the knowledge of Fuzzy Rings and Fuzzy fields.

UNIT I:

Fuzzy Subset and Fuzzy Mapping: Introduction – Fuzzy Subset – Partially ordered set – Lattices and Boolean Algebras – L-fuzzy set – Visual Representation of a Fuzzy Subset

UNIT II:

Fuzzy Subset and Fuzzy Mapping: Operations on Fuzzy Subset - Disjunctive Sum – α-level set- properties of fuzzy subset of a set – Algebraic product and sum of two fuzzy subset- Properties satisfied by addition and product – Cartesian Product of Fuzzy Subsets.

UNIT III:

Fuzzy Relation and Fuzzy Logic: Introduction – Algebra of Fuzzy Relations – Logic – Connectives – Some More Connectives – Fuzzy Logic

UNIT IV:

Fuzzy and Fuzzy Rings: Introduction – Fuzzy Subgroup – Homomorphic Image and Pre-image of Subgroupoid – Fuzzy Invariant Subgroups – Fuzzy Subrings.

UNIT V:

Fuzzy Fields and Fuzzy Linear Space: Fuzzy Subfield and Fuzzy Subspaces – Fuzzy Subspace – Fuzzy Algebra over Fuzzy Field – Finite Group and Finite Field.

TEXTBOOK:

Fuzzy Mathematical Concepts – S. Nanda and N.R. Das, Second Reprint 2014, Narosa Publishing House Pvt. Ltd,

Unit I: Chapter I – 1.1 – 1.6
Unit II: Chapter I – 1.7 – 1.13
Unit III: Chapter II
Unit IV: Chapter III
Unit V: Chapter IV

REFERENCE BOOK:

Fuzzy set theory & Fuzzy controller – D.S. Hooda & Vivek Raich – Narosa Publishing House – Edition 2015.