

SADAKATHULLAH APPA COLLEGE

(AUTONOMOUS)

(Reaccredited by NAAC at an 'A' Grade with a CGPA of 3.40 out of 4.00 in the III cycle An ISO 9001:2008 Certified Institution)

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Tamilnadu

DEPARTMENT OF MATHEMATICS



CBCS SYLLABUS

For

B.Sc. Mathematics

(Applicable for students admitted in June 2015 and onwards)

**(As per the Resolutions of the Academic Council
Meeting held on 23.02.2016)**

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B.Sc. (MATHEMATICS)

COURSE STRUCTURE (CBCS)-2015 AND ONWARDS

ALLIED I - STATISTICS

ALLIED II - PHYSICS

I SEMESTER				II SEMESTER			
P	COURSE	H/W	C	P	COURSE	H/W	C
I	Tamil / Arabic	6		I	Tamil / Arabic	6	
II	English	6		II	English	6	
III	Calculus	5		III	Analytical geometry of 3D	5	
	Theory of Equations	5			Differential Equation and Vector Calculus	5	
	Allied I –Statistics	6			Allied II-Probability Theory	6	
IV	Environmental Studies	2		IV	Value Education I / II	2	
TOTAL		30		TOTAL		30	
III SEMESTER				IV SEMESTER			
I	Tamil / Arabic	6		I	Tamil / Arabic	6	
II	English	6		II	English	6	
III	Sequences and Series and Trigonometry	6		III	Abstract Algebra	6	
	Allied II - Physics	3			Allied II - Physics	3	
	Allied II - Practical*	3			Allied II - Practical *	3	
IV	Numerical Ability(SBE)	3		IV	Office Automation(SBE)	3	
	Mathematics for competitive exam-I(NME)	3			Mathematics for competitive exam-II(NME)	3	
TOTAL		30		TOTAL		30	
V SEMESTER				VI SEMESTER			
III	Linear Algebra	6		III	Complex Analysis	6	
	Real Analysis	6			Graph theory	6	
	Mechanics	6			Numerical Methods	6	
	Linear Programming	6			Core - 14 - Project	6	
	Elective 1: Combinatorial Mathematics	6			Elective 1: Astronomy	6	
	Elective 2: Discrete Mathematics				Elective 2: Number Theory		
TOTAL		30		TOTAL		30	

* Practical Examination – End of even semester

G2-S

B.Sc. Mathematics (2015 and Onwards)
(With Statistics & Physics Allied)

DISTRIBUTION OF CREDITS, NO. OF PAPERS & MARKS						
Part	Course	Semester	Hrs.	Credits	No. of Papers	Marks
I	Tamil / Arabic	I to IV	24	12	4	400
II	English	I to IV	24	12	4	400
III	Core + Core Practical	I to VI	74	68	13 + 0	1300
	Core Elective + CE Practical + Project	V & VI	18	17	2 + 1	300
	Allied + Practical	I to IV	24	20	4 + 1	500
IV	Environmental Studies	I	2	1	1	100
	Social Value Education	II	2	1	1	100
	Skill-Based Elective	III & IV	6	4	2	200
	Non-Major Elective	III & IV	6	4	2	200
V	Extension Activities	I to IV	- -	1	1 (No Exam)	100
Total			180	140	36	3600

SEMESTER-WISE DISTRIBUTION OF HOURS

Part	I	II	III				IV			Total
Sem	T/A	ENG	CORE	CE	PRO	Allied+ Pract	SBE	NME	ES/VE	
I	6	6	10	-	-	6+0	-	-	2	30
II	6	6	10	-	-	6+0	-	-	2	30
III	6	6	6	-	-	3+3	3	3	-	30
IV	6	6	6	-	-	3+3	3	3	-	30
V	-	-	24	6	-	-	-	-	-	30
VI	-	-	18	6	6	-	-	-	-	30
Total	24	24	74	12	6	18+6= 24	6	6	4	180

B.Sc. Mathematics (With Statistics & Physics Allied)

TITLE OF THE PAPERS, CREDITS & MARKS

I SEMESTER								
P	SUB	TITLE OF THE PAPER	S.CODE	H/W	C	MARKS		
						I	E	T
I	TA 1	இக்காலத் தமிழ்	15UTAL11	6	3	25	75	100
	AR 1	Applied Grammar and Translation - I	15UARL11					
II	EN 1	Prose, Poetry and Remedial Grammar - I	15UENL11	6	3	25	75	100
III	C 1	Calculus	15UMAC11	5	5	25	75	100
	C 2	Theory of Equations	15UMAC12	5	4	25	75	100
	AI - 1	Allied Statistics - I - Statistics and Calculus	15USTA11	6	5	25	75	100
IV	ES	Environmental Studies	15UEVS11	2	1	25	75	100
TOTAL				30	21	150	450	600
II SEMESTER								
I	TA 2	சமயத் தமிழ்	15UTAL21	6	3	25	75	100
	AR 2	Applied Grammar and Translation - II	15UARL21					
II	EN 2	Prose, Poetry and Remedial Grammar - II	15UENL21	6	3	25	75	100
III	C 3	Analytical geometry of 3D	15UMAC21	5	5	25	75	100
	C 4	Differential Equation and Vector Calculus	15UMAC22	5	4	25	75	100
	AI - 2	Allied Statistics - II - Algebra & Differential Equations	15USTA21	6	5	25	75	100
IV	VE	Value Education - I	15USVE2A	2	1	25	75	100
		OR						
		Value Education - II	15USVE2B					
TOTAL				30	24	150	450	600

B.Sc. Mathematics (With Statistics & Physics Allied)

TITLE OF THE PAPERS, CREDITS & MARKS

III SEMESTER								
P	SUB	TITLE OF THE PAPER	S.CODE	H/W	C	MARKS		
						I	E	T
I	TA 3	பயன்பாட்டுத் தமிழ்	15UTAL31	6	3	25	75	100
	AR 3	Prose and Letter Writing	15UARL31					
II	EN 3	One - Act Plays and Writing Skill	15UENL31	6	3	25	75	100
III	C5	Sequences and Series and Trigonometry	15UMAC31	6	5	25	75	100
	AII-1	Allied Physics - I	15UPHA31	3	4	25	75	100
	AII-P	Allied Physics Practical	-	3	-	Examination IV Semester		
IV	SBE1	Numerical Ability	15UMAS31	3	2	25	75	100
	NME1	Choose from the list	-	3	2	25	75	100
TOTAL				30	19	150	450	600
IV SEMESTER								
I	TA 4	சங்கத் தமிழ்	15UTAL41	6	3	25	75	100
	AR 4	<i>Quran and Hadeeth</i>	15UARL41					
II	EN 4	A Practical Course in Spoken English	15UENL41	6	3	25	75	100
III	C6	Abstract Algebra	15UMAC41	6	5	25	75	100
	AII-2	Allied Physics - II	15UPHA41	3	4	25	75	100
	AII-P	Allied Physics Practical	15UPHA4P	3	2	40	60	100
IV	SBE2	Office Automation	15UMAS41	3	2	25	75	100
	NME2	Choose from the list	-	3	2	25	75	100
V	EX	Extension Activities (Choose from the list)	-	-	1	-	100	100
TOTAL				30	22	190	610	800

B.Sc. Mathematics (With Statistics & Physics Allied)

TITLE OF THE PAPERS, CREDITS & MARKS

V SEMESTER								
P	SUB	TITLE OF THE PAPER	S.CODE	H/W	C	MARKS		
						I	E	T
III	C7	Linear Algebra	15UMAC51	6	5	25	75	100
	C8	Real Analysis	15UMAC52	6	6	25	75	100
	C9	Mechanics	15UMAC53	6	6	25	75	100
	C10	Linear Programming	15UMAC54	6	6	25	75	100
	CE1	A) Combinatorial Mathematics	15UMAE5A	6	6	25	75	100
		B) Discrete Mathematics	15UMAE5B					
TOTAL				30	29	125	375	500
VI SEMESTER								
III	C11	Complex Analysis	15UMAC61	6	5	25	75	100
	C12	Graph theory	15UMAC62	6	6	25	75	100
	C13	Numerical Methods	15UMAC63	6	6	25	75	100
	C14	Project	15UMAP61	6	5	0	100	100
	CE2	A) Astronomy	15UMAE6A	6	6	25	75	100
		B) Number Theory	15UMAE6B					
TOTAL				30	28	140	460	600

B.Sc. Mathematics Course Structure (CBCS)

(Applicable for students admitted in June 2015 and onwards)

TITLE OF THE PAPERS, CREDITS & MARKS

GROUP II COURSES (TWO YEAR LANGUAGE COURSES) (B.A. English, B.A. Islamic Studies, B.A. Tamil, 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	15UTAL11	6	3	25	75	100
II	சமயத் தமிழ்	15UTAL21	6	3	25	75	100
III	பயன்பாட்டுத் தமிழ்	15UTAL31	6	3	25	75	100
IV	சங்கத் தமிழ்	15UTAL41	6	3	25	75	100
TOTAL			24	12	100	300	400
PART I - ARABIC							
I	Applied Grammar and Translation – I	15UARL11	6	3	25	75	100
II	Applied Grammar and Translation – II	15UARL21	6	3	25	75	100
III	Prose and Letter Writing	15UARL31	6	3	25	75	100
IV	<i>Quran and Hadeeth</i>	15UARL41	6	3	25	75	100
TOTAL			24	12	100	300	400
PART II - ENGLISH							
I	Prose, Poetry and Remedial Grammar - I	15UENL11	6	3	25	75	100
II	Prose, Poetry and Remedial Grammar - II	15UENL21	6	3	25	75	100
III	One – Act Plays and Writing Skill	15UENL31	6	3	25	75	100
IV	A Practical Course in Spoken English	15UENL41	6	3	40	60	100
TOTAL			24	12	115	285	400

PART III

(Applicable for students admitted in June 2015 and onwards)

DEPT. OF MATHEMATICS								
CBCS SYLLABUS - B.Sc. Mathematics (2015 - 2018)								
Part III Core, Core Elective & Project								
(For B.Sc. Mathematics Major)								
SEM	No.	TITLE OF THE PAPER	S.CODE	H/W	C	MARKS		
						I	E	T
I	C1	Calculus	15UMAC11	5	5	25	75	100
	C2	Theory of Equations	15UMAC12	5	4	25	75	100
II	C3	Analytical geometry of 3D	15UMAC21	5	5	25	75	100
	C4	Differential Equation and Vector Calculus	15UMAC22	5	4	25	75	100
III	C5	Sequences and Series and Trigonometry	15UMAC31	6	5	25	75	100
IV	C6	Abstract Algebra	15UMAC41	6	5	25	75	100
V	C7	Linear Algebra	15UMAC51	6	5	25	75	100
	C8	Real Analysis	15UMAC52	6	6	25	75	100
	C9	Mechanics	15UMAC53	6	6	25	75	100
	C10	Linear Programming	15UMAC54	6	6	25	75	100
	CE1	A) Combinatorial Mathematics B) Discrete Mathematics	15UMAE5A 15UMAE5B	6	6	25	75	100
VI	C11	Complex Analysis	15UMAC61	6	5	25	75	100
	C12	Graph theory	15UMAC62	6	6	25	75	100
	C13	Numerical Methods	15UMAC63	6	6	25	75	100
	C14	Project	15UMAP61	6	5	0	100	100
	CE2	A) Astronomy B) Number Theory	15UMAE6A 15UMAE6B	6	6	25	75	100
	TOTAL				92	85	415	1285

VI SEMESTER			
CE 2(B)	NUMBER THEORY		15UMAE6B
Hrs/Week: 6	Hrs/Sem: 6 x 15 = 90	Hrs./ Unit : 18	Credits : 6

Objective:

- To give a deep knowledge of Number Theory, this is one of the pillars of mathematics.

Unit I

Little Fermat's theorem - Euler's theorem - Inverse modulo - Wilson's theorem and its converse.

Unit II

Lagrange's theorem - Wolstenholme theorem - Factor theorem for polynomials Number of solutions.

Unit III

Congruence of prime power modulli - Composite modulli - Identical congruences - Conditional congruences - Multiple roots of congruences.

Unit IV

Quadratic residues and non-residues - Euler's criterion - Primitive root is a Quadratic non-residue - Legendre symbol - Gauss Lemma.

Unit V

Quadratic reciprocity law - Geometrical proof - Application of reciprocity law - Primes for which a given integer is a quadratic residue - Jacobi's symbol - Quadratic congruence of prime power modulli and composite modulli - Number of solutions of quadratic congruences.

Text Book :

Elements of Number Theory by Kumaravelu and Susheela Kumaravelu edition and publications. (Simple and direct problems only)

Unit I : Chapter 7 (191 – 210)

Unit II : Chapter 7 (211 - 221)

Unit III: Chapter 7 (222 - 273)

Unit IV: Chapter 10 (255 – 275)

Unit V : Chapter 10 (276 - 303)

Reference Book

Number Theory by Andrews George E.Andrews - Hindustan Publishing Corporation (India) 1989.