

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)

RAHMATH NAGAR, TIRUNELVELI- 11.

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

DEPT. OF MATHEMATICS									
CBCS SYLLABUS									
Part III - Allied - (For B.Sc. Mathematics)									
SEM	P	TITLE OF THE PAPER	S.CODE	H/W	C	MARKS			
						I	E	T	
I	AI-1	Statistics	15USTA11	6	5	25	75	100	
II	AI-2	Probability Theory	15USTA21	6	5	25	75	100	
TOTAL					12	10	50	150	200

**Part III - Allied (Offered by Mathematics Department to
B.Sc. Physics and B.Sc. Chemistry Students)**

I	AI-1	Statistics and Calculus	15UMAA11	6	5	25	75	100	
II	AI-2	Algebra & Differential Equations	15UMAA21	6	5	25	75	100	
TOTAL					12	10	50	150	200

**Part III - Allied
(Offered by Physics Department to B.Sc. Mathematics Students)**

SEM	P	TITLE OF THE PAPER	S.CODE	H/W	C	MARKS			
						I	E	T	
III	AII-1	Allied Physics - I	15UPHA31	3	4	25	75	100	
	AII-P	Allied Physics Practical	-	3	-	Examination IV Semester			
IV	AII-2	Allied Physics - II	15UPHA41	3	4	25	75	100	
	AII-P	Allied Physics Practical	15UPHA4P	3	2	40	60	100	
TOTAL					12	10	90	210	300

Part IV - Skill-Based Elective (For B.Sc. Mathematics Students)

III	1	Numerical Ability	15UMAS31	3	2	25	75	100	
IV	2	Office Automation	15UMAS41	3	2	25	75	100	
TOTAL					6	4	50	150	200

Part IV- Non-Major Elective (For Other Major Students)

III	1	Mathematics for Competitive Examinations - I	15UMAN31	3	2	25	75	100	
IV	2	Mathematics for Competitive Examinations - II	15UMAN41	3	2	25	75	100	
TOTAL					6	4	50	150	200

Part IV - EVS & Value Education (For All Major Students)

I	1	Environmental Studies	15UEVS11	2	1	25	75	100	
II	2	Islamic Value Education OR	15USVE2A	2	1	25	75	100	
		Value Education	15USVE2B						
TOTAL					4	2	50	150	200

PART - V - Extension Activities

SEM	Extension Activities (Choose any one)		S.CODE	H/W	C	MARKS		
						I	E	T
I to IV		Enviro Club	15UEXEVC	-	1	-	100	100
		NCC	15UEXNCC					
		NSS	15UEXNSS					
		Physical Education	15UEXPHY					
		Red Ribbon Club	15UEXRRC					
		Sadakath Outreach Programme	15UEXSOP					
		Youth Red Cross	15UEXYRC					
		Youth Welfare	15UEXYWL					
			-	1	-	100	100	

PART – 1 TAMIL			
முதல் பருவம்			
Part – 1	இக்காலத் தமிழ்		15 UTAL11
Hrs/Week : 6	Hrs/Sem : 90	Hrs/Unit : 18	Credits : 3

நோக்கம் :

- ❖ தமிழ்ப் படைப்பிலக்கியங்களான புதுக்கவிதைகள், சிறுகதைகள் ஆகியவற்றை எழுத வைத்தல்.
- ❖ சமூகம் பற்றிய சிந்தனைகளைப் படைப்பிலக்கியங்கள் மூலம் ஏற்படுத்துதல்.

அலகு - 1

தமிழ்ச் செய்யுள் - புதுக்கவிதைகள்

- | | | |
|--|---|------------------------------|
| 1. அல்லாஹ் | - | மகாகவி பாரதியார் |
| 2. தமிழுக்கு அமுதென்று பெயர் | - | பாவேந்தர் பாரதிதாசன் |
| 3. பாடல் | - | பட்டுக்கோட்டை கல்யாணசுந்தரம் |
| 4. ஆயிரம் திருநாமம் பாடி | - | கவிக்கோ அப்துல் ரகுமான் |
| 5. தேசப்பிதாவுக்கு ஒரு தெருப்
பாடகனின் அஞ்சலி | - | மு. மேத்தா |
| 6. ஐந்து பெரிது ஆறு சிறிது | - | வைரமுத்து |
| 7. மழை கொடுக்கும் | - | கவியரசு கண்ணதாசன் |
| 8. எத்திசையிலிருந்து எறியப்பட்டது | - | கல்யாணஜி |
| 9. சினேகிதனின் தாழ்வான வீடு | - | கலாப்பிரியா |
| 10. தூக்கம் விற்ற காசுகள் | - | ரசிகவ்ஞானியார் |
| 11. தோழர் மோசிகீரனார் | - | ஞானக்கூத்தன் |
| 12. வயலும் வாழ்வும் | - | நா.முத்துக்குமார் |
| 13. கடவுள் போற்றி | - | கவிமணி |
| 14. நண்பனே | - | கலீல் ஜீப்ரான் |

அலகு -2 (சீறுகதைக் களஞ்சியம்)

- | | | |
|-------------------------|---|-----------------------|
| 1. காஞ்சனை | - | புதுமைப்பித்தன் |
| 2. கூறல் | - | வண்ணதாசன் |
| 3. சொர்க்க கன்னிகை | - | கருணாமணாளன் |
| 4. காலத்தின் ஆவர்த்தனம் | - | தோப்பில் முகமதுமீரான் |
| 5. கனவில் உதிர்ந்த பூ | - | நாரும்புநாதன் |
| 6. ராஜமீன் | - | கீரனார் ஜாஹிர்ராஜா |
| 7. சங்காத்தி | - | தீன் |

அலகு- 3 உரைநடை

1. படிப்பது சுகமே – வெ. இறையன்பு இ.ஆ.ப.
நீயூ செஞ்சரி புக ஹவுஸ் (பி) லிட், சென்னை.

அலகு- 4 இலக்கிய வரலாறு

1. தமிழ்ப் புதுக்கவிதைகள் தோற்றமும் வளர்ச்சியும்
2. தமிழ்ச் சிறுகதைகள் தோற்றமும் வளர்ச்சியும்
3. தடம் பதித்த தமிழ்ச் சிறுகதையாசிரியர்கள்
4. தற்காலத் தமிழ்ப் புதுக்கவிதைகள், சிறுகதைகளின் போக்கு

அலகு- 5 இலக்கணம்

1. எழுத்து வகை பற்றிய விளக்கம்
முதலெழுத்துகள், சார்பெழுத்துகள், சுட்டெழுத்துகள், வினாவெழுத்துகள்
2. மொழி முதல் எழுத்துக்கள், மொழி இறுதி எழுத்துகள்
3. வல்லினம் மிகுமிடங்கள், மிகா இடங்கள்

PART – 1 TAMIL			
இரண்டாம் பருவம்			
Part – 1	சமயத் தமிழ்		15 UTAL21
Hrs/Week : 6	Hrs/Sem : 90	Hrs/Unit : 18	Credits : 3

நோக்கம் :

- ❖ பலசமயக் கருத்துக்களை ஒப்பிட்டுச் சமய நல்லிணக்கத்தோடு மாணவர்கள் வாழ இப்பருவம் துணை புரிகிறது.
- ❖ தமிழ்நாடு அரசுப் பணியாளர் தேர்வாணையத் தேர்வுக்கு மாணவர்களை ஆயத்தப்படுத்துதல்

அலகு- 1

தமிழ்ச் செய்யுள் (துறை வெளியீடு)

சைவம்

1. தேவாரம்
 - திருநாவுக்கரசர்
 - மாசில் வீணையும்...
 - நாமார்க்கும் குடியல்லோம்...
 - அப்பன் நீ அம்மை நீ...
 - திருஞானசம்பந்தர்
 - தோடுடைய செவியன்...
 - வேயுறு தோளி பங்கன்...
 - மருந்தவை மந்திரம்...
 - பித்தா பிறைகுடி...
 - சுந்தரமூர்த்தி நாயனார்
 - பித்தா பிறைகுடி...
2. திருவாசகம்
 - மாணிக்கவாசகர்
 - பால் நினைந்தாட்டும்...
3. திருவெம்பாவை
 - ஆதியும் அந்தமும் இல்லா...
4. திருமந்திரம்
 - திருமூலர்
 - ஒன்றே குலமும் ஒருவனே தேவனும்...

வைணவம்

5. பொய்கையாழ்வார்
 - வையம் தகளியா...
- பூதத்தாழ்வார்
 - அன்பே தகளியா...
- பேயாழ்வார்
 - திருக்கண்டேன்...

6. திருப்பாவை
ஆண்டாள் - மார்கழித் திங்கள்...
7. வளையாபதி - மக்கட் செல்வம்

பௌத்தம்

8. புத்தபிரான் - மு.ரா.பெருமாள்

கிறித்தவம்

9. இயேசு காவியம் (சில பகுதிகள்) - கண்ணதாசன்

இஸ்லாம்

10. நபிகள் நாயக மான்மிய மஞ்சரி - சதாவதானி செய்குத்தம்பிப்பாவலர்
ஹீ (குறிப்பிட்ட பாடல்கள்)
11. குணங்குடி மஸ்தான் பாடல்கள் - பாசக்கயிற்று வலை
12. ஞானப் புகழ்ச்சி - தக்கலை பீரமுகமது அப்பா
13. அலகிலா அருளும் - இறையருட் கவிமணி. கா.அப்துல்கபூர்

நீதி இலக்கியங்கள்

14. திருக்குறள் (வான் சிறப்பு)
15. நாலடியார் - கல்வி கரையில்
16. இன்னாநாற்பது - ஆன்றவித்த...

அலகு- 2 புகீனம்

- “கல்மரம்” - திலகவதி

அலகு - 3 உரைநடை (தமிழ்த் துறை வெளியீடு)

1. நபிகள் நாயகம் (ஸல்) அன்பின் தாயகம்
2. சதக்கத்துல்லாஹ் அப்பா அவர்களின் வாழ்வும் பணியும்
3. [கவி.கா.மு.ஷெரிப்](#) - த.மு.சா காசாமைதீன்
4. கவிக்கோ அப்துல்ரகுமானின் கவிதைகள்
5. தமிழ் இலக்கியங்களில் மனிதநேயச் சிந்தனைகள்
6. இணையத்தில் தமிழ்

அலகு- 4 (போட்டித் தேர்வுத் தயாரிப்பு)

இலக்கிய வரலாறு

1. சைவம், வைணவம், கிறித்துவம், இசுலாம் வளர்த்த தமிழ்
2. புகழ் பெற்ற தமிழ் நூல்கள், நூலாசிரியர்கள்

3. தமிழ்நாடு அரசுப் பணியாளர் தேர்வாணையம் நடத்தும் போட்டித் தேர்வுக்குரிய பொதுத்தமிழ் பாடத்திட்டம் - ஓர் அறிமுகம்

அலகு- 5 இலக்கணம்

வேர்ச்சொல் அறிதல், அகரவரிசைப்படி மாற்றியமைத்தல், செய்வினை, செய்யப்பாட்டுவினை, தன்வினை, பிறவினை, உடன்பாடு, எதிர்மறை, செய்தி வாக்கியம், கலவை வாக்கியம், பெயர்வினை, இடை, உரிச்சொற்களின் இலக்கணம் மற்றும் பெயர்ச்சொல், வினைச்சொல் வகைகள், லகர, ளகர, ணகர, ரகர, றகர வேறுபாடுகள்.

PART – 1 TAMIL			
முன்றாம் பருவம்			
Part – 1	பயன்பாட்டுத் தமிழ்		15 UTAL31
Hrs/Week : 6	Hrs/Sem : 90	Hrs/Unit : 18	Credits : 3

நோக்கம் :

- ❖ தமிழின் காப்பிய இலக்கிய வளத்தை மாணவர்களுக்கு உணர்த்துதல்
- ❖ இந்திய ஆட்சிப் பணித்தேர்வுக்கு மாணவர்களை ஆயத்தப்படுத்துதல்
- ❖ செய்தி வெளிப்பாட்டு உத்திகளைக் கற்றுத் தந்து மாணவர்களை ஊடகவியலாளர்களாக மாற்றுதல்.

அலகு- 1

தமிழ்ச் செய்யுள் (துறை வெளியீடு)

1. சிலப்பதிகாரம் - வழக்குரைக் காதை
2. மணிமேகலை - பாத்திரம் பெற்ற காதை
3. பெரியபுராணம் - மெய்ப்பொருள் நாயனார் புராணம்
4. கம்பராமாயணம் - சுந்தரகாண்டம் (ஊர் தேடு படலம்)
5. இயேசு காவியம் - சிலுவைப்பாடு
6. சீறாப்புராணம் - மதினத்தார் ஈமான் கொண்ட படலம்
7. குத்பு நாயகம் - வண்ணக் களஞ்சியப் புலவர்
(காப்பியப் பாவிகம் மட்டும்)

அலகு- 2

இந்திய ஆட்சிப் பணிக்குத் தயார்படுத்தும் நோக்கிலமைந்த பயன்பாட்டுக் கட்டுரை நூல். ஐ.ஏ.ஏஸ் தேர்வும் அணுகுமுறையும் -வெ.இறையன்பு இ.ஆ.ப.,நியூ செஞ்சரி புக் ஹவுஸ், அம்பத்தூர், சென்னை – 98.

அலகு- 3

ஊடக அறிமுகம்

இதழியல் அறிமுகம்
சமூகமும் இதழ்களும்
வானொலி, தொலைக்காட்சி நிகழ்ச்சிகளை அமைக்கும் முறை
சிறப்புக் கட்டுரை எழுதுதல்
இதழ்களின் அடிப்படைக் கொள்கைகள்
தற்கால நாளிதழ்களில் தமிழ்

அலகு - 4

தமிழ் இலக்கிய வரலாறு

- ❖ ஐம்பெரும் காப்பியங்கள்
- ❖ ஐஞ்சிறு காப்பியங்கள்
- ❖ சிற்றிலக்கியங்கள் (உலா, தூது, பிள்ளைத் தமிழ், பரணி)

அலகு - 5

இலக்கணம்

(தமிழ்நாடு அரசுப் பணியாளர் தேர்வாணையத்தின் பொதுத் தமிழ் இலக்கணப் பகுதி)

பிழைத் திருத்தம், சந்திப் பிழைகள், ஒருமை – பன்மைப் பிழைகள், மரபுப் பிழைகள், வழுவச் சொற்களை நீக்குதல், பிறமொழிச் சொற்களை நீக்குதல், வேர்சொல்லைச் தேர்வு செய்தல்

பார்வை நூல்கள் :

- | | | |
|--|---|---|
| தமிழ் இலக்கிய வரலாறு | - | முனைவர்.சு.ஆனந்தன்
கண்மணிப் பதிப்பகம்,
திருச்சி - 02. |
| இதழியல் நுணுக்கங்கள் | - | செண்பகா பதிப்பகம்
சென்னை - 17.
தொலைபேசி : 24331510 |
| குத்பு நாயகம் ஆய்வுரை | - | டாக்டர்.மு.அப்துல்கரீம்
உலக தமிழாராய்ச்சி நிறுவனம்,
சென்னை. |
| சீறாப்புராணம் மூலமும் பொழிப்புரையும்
இரண்டாம் பாகம் | - | ஹாஜி எம்.முகமது யூசுப் |

PART – 1 TAMIL			
நான்காம் பருவம்			
Part – 1	சங்கத் தமிழ்		15 UTAL41
Hrs/Week : 6	Hrs/Sem : 90	Hrs/Unit : 18	Credits : 3

நோக்கம் :

- ❖ சங்கத் தமிழ் குறித்த சிந்தனைகளை மாணவர்களுக்கு ஏற்படுத்துதல்
- ❖ இணைய ஊடகத்தில் தமிழ் இடம் பெற்றுள்ள இடத்தினை உணர்த்தி மாணவர்களை இணையத்தைப் பயன்படுத்த வைத்தல்

அலகு- 1

தமிழ்ச் செய்யுள் (துறை வெளியீடு)

நற்றிணை, குறுந்தொகை, ஐங்குறுநூறு, பதிற்றுப்பத்து, பரிபாடல், கலித்தொகை, அகநானூறு, புறநானூறு மற்றும் பத்துப் பாட்டில் முல்லைப்பாட்டு முழுவதும்

அலகு- 2

உரைநடை

சிற்பியே உன்னைச் செதுக்குகிறேன் - வைரமுத்து

அலகு- 3

இணையத் தமிழ் (தமிழ்த்துறை வெளியீடு)

இணையத் தமிழ் - முனைவர் ச.மகாதேவன்
 இரண்டாம் பதிப்பு - பேரா.அ.மு.அய்யங்கான்
 முனைவர்.அ.சே.சேக்சிந்தா

- ❖ இணையம் - ஓர் அறிமுகம் - உலகளாவிய தமிழ்
- ❖ வலைத்தளங்கள் - இணையத்தளத்தேடு பொறி
- ❖ இணையப் பயன்பாடு - தமிழில் வலைப் பூக்கள்

அலகு- 4

இலக்கிய வரலாறு

எட்டுத் தொகை, பத்துப் பாட்டு நூல்கள்

அலகு- 5

இலக்கணம்

- ❖ தமிழர் வாழ்வில் அகமும் புறமும்
- ❖ ஐவகை நிலங்களின் முதல், கரு, உரிப் பொருட்கள்
- ❖ அறத்தொடு நிறறல்
- ❖ களவு, கற்பு விளக்கம்

புறத்திணைகள் : 12 அறிமுகம்

பார்வை நூல்கள்

தமிழ் இலக்கிய வரலாறு

முனைவர் சு.ஆனந்தன்

கண்மணி பதிப்பகம்

திருச்சி - 620002.

இணையத் தமிழ் (தமிழ்த்துறை வெளியீடு)

சதக்கத்துல்லாஹ் அப்பா கல்லூரி

திருநெல்வேலி.

Part - I ARABIC			
Applicable for Group II Courses (Two Year Language Courses) such as B.A. English, B.A. Tamil, B.A. Islamic Studies, B.Sc., Mathematics, B.Sc., Physics, B.Sc., Chemistry, B.Sc, Zoology, B.Sc, Microbiology and B.Sc., Nutrition and Dietetics.			
PAPER-I	APPLIED GRAMMAR AND TRANSLATION-I		15UARL 11
Hrs/ Week: 6	Hrs/ Sem: 90	Hrs/ Unit: 18	Credits: 3

Unit I :-

Lessons 1 to 5 (Reader)

Unit II :-

Lessons 6 to 10

Unit III :-

Grammar Portions

- 1) Al Mufrad wal- muthanna wal jam'
- 2) Huroof ul Jarr
- 3) Asmaa – ul Ishaarah.
- 4) Adawaatul Istifhaam
- 5) Ad Damaair – ul – Munfasilah Val Muthasilah
- 6) Al-Idaafah
- 7) Al Muftada wal khabar
- 8) As-sifatu wal mausoof
- 9) Al mudhakkar wal muannath
- 10) Asmaa-ul-mausool

Unit IV :-

Lessons 11 to 15

Unit V :-

Lessons 16 to 20

TEXT BOOKS

1) *Duroosul Lughatil Arabiya Part – I (Reader) - Lessons 1 to 20 only by Dr.V. Abdur Rahim. Available at Islamic foundation Trust, 78 Perambur High Road , Perambur, Chennai- 600 012.*

2) *An-Nahwul Waadih Ibtidayee – Part I (Grammar, selected topics only) by Ali Al-jaarim and Mustafa Ameen. Available at Hilal Book House , Tirurkad, Angadipuram, Kerala.*

Semester - II			
PAPER-II	APPLIED GRAMMAR AND TRANSLATION-II		15UARL 21
Hrs/ Week: 6	Hrs/ Sem: 90	Hrs/ Unit: 18	Credits: 3

Unit I :-

Lessons 1 to 3 (Reader)

Unit II :-

Lessons 4 to 7

Unit III :-

Grammar Portions

- 1) Inna wa Akhavaatuha.
- 2) Ismut Tafleel
- 3) AlMali wal Mularee
- 4) Al-Amr wan Nahi
- 5) Al Fa-il
- 6) Al Maf-ool
- 7) Al-Asmaul Mausool
- 8) Taqseemu Fihl ila As-saheeh wal Muhtal
- 9) Ismul Maf'ool
- 10) Ismul Faa'il.

Unit IV

Lessons 8 to 11

Unit V

Lessons 12 to 15

TEXT BOOKS

1. **Duroosul Lughatil Arabiya** Part – II (Reader) Lessons 1 to 15 only by Dr.V. Abdur Rahim. Available at: Islamic foundation Trust, 78 Perambur High Road , Perambur, Chennai-600 012.
2. **An-Nahwul Waadih Ibtidayee** –Part I &II (Selected Grammar Portions only) by Ali Al-jaarim and Mustafa Ameen. Available at: Hilal Book House , Tirurkad, Angadipuram, Kerala.

Semester III			
Paper – III	Prose and Letter Writing		15UARL31
Hrs/Week:6	Hrs/Sem:90	Hrs/Unit : 18	Credits:3

Unit I

Lessons 1 to 9

الحركة - الكلمة - أنواع الكلمة - المركبات - الفراشة والزهرة - الزيارة - في السوق - المحطة - القطار -

Unit II

Lessons 10 to 17

أسرة العم - دكان الفواكه - جنينة الحيوانات - نزهة طيبة - اللعب - السفر بالطائرة - العودة من الحج - حفل ديني

Unit III

Lessons 18 to 25

سرقة الزهرة - نظام الحجرة - العبادة - محادثة - الخطاب - رحلة الي دهلي - منظر الحقول - البريد -

Unit IV

Lessons 26 to 31

حديث الاطفال - دكان البقال - الصيدلية - الزمن - الساعة (الف) - الساعة (ب)

Unit V

Kinds of letters - رسالة الي الوالد لطلب الفلوس للرسوم - رسالة طلب الاجازة - رسالة طلب وظيفة الي شركة (page no 14) - رسالة الاستفسار عن البضاعة - رسالة شكوي عن نقص البضاعة - رسالة الي مدير البنك - Glossary of Words

TEXT BOOKS

1. **Al Qira't- ul- Waaliha** Part- II By: Waheeduz Zamaan Al-Keeranavi وحيد الزمان الكيرانوي (lessons 1 to 31 only) Available at: Husainiya Bookstall, Deoband, Utterpradesh.
2. Letter Writing in Arabic (For schools and colleges) (selected letters only) by Dr. Syed Karamathullah Bahmani – Available at: Published by Alif Books & Prints, Chennai – 600 014.

Semester IV			
PAPER-IV	QURAN AND HADEETH		15UARL41
Hrs/ Week: 6	Hrs/ Sem: 90	Hrs/ Unit: 18	Credits: 3

Unit I

Verses from 1 to 9 from (Sura – al – Hujraat)

Unit II

Verses from 10 to 18 from (Sura – al – Hujraat)

Unit III

Codification and Compilation of Hadeeth Literature, Life History of Imam Bukhari, Muslim, Tirmidi, Abu Dawood, Nasaee and Ibn Majah & Hadeeth 1 to 10

Unit IV

Hadeeth 11 - 20

Unit V

Verses from 12 to 19 from (Sura – Luqman)

TEXT BOOKS:

1. **Tafseer Suratul Hujuraath and Suraah Luqman** (verses from 12-19) – A study material prepared by Dept. of Arabic, Sadakathullah Appa College , Rahmath Nagar, Tirunelveli-11.
2. **Hadeeth:** Ahadeeth Sahlah An Explana Hadeeth: *Sharhu Ahadeeth Sahlah An explanatory translation of Dr. V. Abdur Rahim's Ahadeeth Sahalah with grammatical notes.* Available at: Islamic foundation Trust, 78 Perambur High Road , Perambur, Chennai- 600 012.

PART – II ENGLISH
TWO – YEAR LANGUAGE COURSE
B.A. English, History, Islamic Studies, B.Sc. Mathematics,
Physics, Chemistry, Zoology, Microbiology and Nutrition and
Dietetics

I SEMESTER			
EN1	PROSE, POETRY AND REMEDIAL GRAMMAR - I		15UENL11
Hrs/ Week: 6	Hrs/ Sem: 90	Hrs/ Unit: 18	Credits: 3

Objectives:

1. To answer comprehensive questions on passages of moderate level of difficulty.
2. To analyse the prescribed prose pieces and to attempt a critical appreciation of the poems.
3. To write grammatically.

UNIT I – PROSE

1. Letter to a Teacher - Nora Rossi and Tom Cole (Trans.)
2. Spoken English and Broken English - George Bernard Shaw
3. Voluntary Poverty - M.K. Gandhi

UNIT II – PROSE

4. A Snake in the Grass - R.K. Narayan
5. The Civilization of Today - C.E.M. Joad
6. Kamala Nehru - Jawaharlal Nehru

UNIT III – POETRY

1. On His Blindness - John Milton
2. Upon Westminster Bridge - William Wordsworth
3. When I have Fears - John Keats

UNIT IV – FUNCTIONAL GRAMMAR

1. Articles and Nouns (Units 68-80 of *Intermediate English Grammar*)
2. Pronouns and Determiners (Units 81-90 of *Intermediate English Grammar*)

UNIT V – FUNCTIONAL GRAMMAR

3. Reported Speech (Units 46-47 of *Intermediate English Grammar*)
4. Questions and auxiliary verbs (Units 48-51 of *Intermediate English Grammar*)
5. 'ing' and the infinitive (Units 52-67 of *Intermediate English Grammar*)

TEXTBOOKS:

1. T. Srirama, Colin Swatridge. ed. *College Prose and Poetry*. TRINITY, New Delhi: Trichy, 1989 (rpt. 2014).
2. Raymond Murphy. ed. *Intermediate English Grammar*. New Delhi : Cambridge University Press, 1994 (rpt. 2006).

II SEMESTER			
EN2	PROSE, POETRY AND REMEDIAL GRAMMAR - II		15UENL21
Hrs/ Week: 6	Hrs/ Sem: 90	Hrs/ Unit: 18	Credits: 3

Objectives:

1. To answer comprehensive questions on passages of moderate level of difficulty.
2. To analyse the prescribed prose pieces and to attempt a critical appreciation of the poems.
3. To write grammatically.

UNIT I – PROSE

- | | |
|--------------------------|-----------------------|
| 1. With the Photographer | - Stephen Leacock |
| 2. Professions for Women | - Virginia Woolf |
| 3. On Letter Writing | - Alpha of the Plough |

UNIT II – PROSE

- | | |
|-------------------------------|-------------------------|
| 4. The Night the Ghost Got In | - James Thurber |
| 5. The Donkey | - Sir. J.Arthur Thomson |
| 6. A Cup of Tea | - Katherine Mansfield |

UNIT III – POETRY

- | | |
|---------------------------|------------------------|
| 1. The Flower | - Alfred Lord Tennyson |
| 2. Homage to a Government | - Philip Larkin |
| 3. Obituary | - A.K. Ramanujan |

UNIT IV – FUNCTIONAL GRAMMAR

1. Present and Past (Units 1-6 of *Intermediate English Grammar*)
2. Present Perfect and Past (Units 7-18 of *Intermediate English Grammar*)
3. Future (Units 19-22 of *Intermediate English Grammar*)

UNIT V – FUNCTIONAL GRAMMAR

4. Future (Units 23-25 of *Intermediate English Grammar*)
5. Modals (Units 26-36 of *Intermediate English Grammar*)
6. Conditionals and 'Wish' (Units 37-40 of *Intermediate English Grammar*)
7. Passive (Units 41-45 of *Intermediate English Grammar*)

TEXTBOOKS:

1. T. Srirama, Colin Swatridge. ed. *College Prose and Poetry*. TRINITY, New Delhi: Trichy, 1989 (rpt. 2014).
2. Raymond Murphy. ed. *Intermediate English Grammar*. New Delhi: Cambridge University Press, 1994 (rpt. 2006).

III SEMESTER			
EN3	ONE – ACT PLAYS AND WRITING SKILL		15UENL31
Hrs/ Week: 6	Hrs/ Sem: 90	Hrs/ Unit: 18	Credits: 3

Objectives:

1. To expose the conversational patterns to students and enable them to make use of the patterns in a given practical situation.
2. To write sentences in English grammatically.

UNIT I – ONE – ACT PLAYS

- | | |
|-------------------------|---------------------|
| 1. Refund | - Fritz Karinthy |
| 2. Reunion | - W.ST.John Tayleur |
| 3. The Never Never Nest | - Cedric Mount |

UNIT II – ONE – ACT PLAYS

- | | |
|---|------------|
| 4. Aladdin and His Magic Lamp
Mohammed | - Y. Sayed |
| 5. Tippu Sultan
Mohammed | - Y. Sayed |
| 6. The Merchant of Evergreen Venice
Mohammed | - Y. Sayed |

UNIT III – WRITING SKILL

1. **Messages** (Pages 1-9 of *Written English for You* be taught and the tasks given be accomplished in the *Record of Writing*)
 - i) What is a message?
 - ii) When do we write messages?
 - iii) Why do we write messages?
 - iv) How do we write messages?

2. **Letters – 1** (Pages 10-19 of *Written English for You* be taught and the tasks given in pages 17 and 19 should be accomplished in the *Record of Writing*)
 - i) Letters for Ordering Supply of Goods
 - ii) Letters of Complaint
 - iii) Letters of Applications

3. **Letters – 2** (Pages 36-40 of *Written English for You* be taught and the tasks given in pages 38 and 40 should be accomplished in the *Record of Writing*)
 - i) Letters to inform your plan of visits
 - ii) Letters of Request
 - iii) Letters of Apology

UNIT IV – WRITING SKILL

4. **Essays** (Pages 66-79 be taught and the tasks 1-3 given in pages 79 - 80 should be accomplished in the *Record of Writing*)
 - i) What is an Essay?
 - ii) Types of Essays.
 - iii) The structure of an Essay.
 - iv) Introductory paragraph.
 - v) Supporting paragraph.
 - vi) Transitional paragraph.
 - vii) Concluding paragraph.
 - viii) What can be the length of an Essay?
 - ix) Why am I writing this Essay?
 - x) Who am I writing for?
 - xi) How to begin an Essay?
 - xii) How to organize an Essay?
 - xiii) What to avoid in writing an Essay?
5. **Narrating** (Pages 109-116 of *Written English for You* be taught. The tasks 1 and 2 given in pages 115 - 116 should be accomplished in the *Record of Writing*)
 - i) Describing events in a chronological order
 - ii) Narrating events from different points of view
 - iii) Narrating events from a different viewpoint in time

UNIT V – WRITING SKILL

6. **Reporting** (Pages 127-136 be taught. The tasks given in pages 129-134 and 136-137 must be accomplished in the *Record of Writing*)
 - i) News Reports.
 - ii) Reporting Events or Developments
 - iii) Reporting Interviews and Press Conferences
 - iv) Reports of Meetings
7. **Summarizing** (Pages 164-172 of *Written English for You* be taught and the tasks 1 - 3 given in pages 172 -178 should be accomplished in the *Record of Writing*)
 - i) What is a Summary?
 - ii) How to write a Summary?
 - iii) How long should a Summary be?
 - iv) Should the Summary be in a paragraph?
 - v) Analysis of the process of Summarizing.

NOTE:

Questions for Units III, IV and V should be framed from the tasks given in the text book **Written English**.

TEXTBOOKS:

1. Y. Sayed Mohammed. ed. *The Lamp of India*. Tirunelveli: Muhammed Taahaa Publications, 2011.
2. G. Radhakrishna Pillai. ed. *Written English for You*. Chennai: Emerald Publishers, 1990 (rpt. 2008).
3. Compiled by a Board of Editors. *A Book of Plays*. Chennai: Orient Blackswan, 2010.

IV SEMESTER			
EN4	A PRACTICAL COURSE IN SPOKEN ENGLISH		15UENL41
Hrs/ Week: 6	Hrs/ Sem: 90	Hrs/ Unit: 18	Credits: 3

Objectives:

1. To express students' needs orally in a fluent, simple and direct style.
2. To pronounce words intelligibly.
3. To use the right intonation pattern in speech.

UNIT I

Interactive Expressions and Pronunciation Practice :Consonants
(Chapters 1- 3 of *A Course in Spoken English*)

UNIT II

Introducing oneself / others, patterns for greeting, requesting, expressing and responding to thanks, etc., & Pronunciation Practice : Vowels
(Chapter 4 – 8 of *A Course in Spoken English*)

UNIT III

Developing descriptive competency, narrative competency, arguing competency, compering competency and Pronunciation Practice: Diphthongs (Chapter 9 – 13 of *A Course in Spoken English*)

UNIT IV

Practising continuous speech, group discussion and Pronunciation Practice : Word Accent and Intonation
(Chapters 14 – 19 of *A Course in Spoken English*)

UNIT V – LISTENING PRACTICE

Students will listen to audio and video materials for 10 – 12 hours.

Textbook, Workbook, Record Note:

1. Nihamathullah. A. et al. *A Course in Spoken English*. Tirunelveli: MSU, 2005. (rpt. 2010).
2. A Workbook for A Course in Spoken English.
3. Spoken English Practice Record.

Evaluation Scheme:

I Internal Oral Examination	: 15 Marks	} The best two of the three CIA test marks will be added up
II Internal Oral Examination	: 15 Marks	
III Internal Oral Examination	: 15 Marks	
Loud Reading	: 5 Marks	
Listening Test	: 5 Marks	
Internal Marks	: 40 Marks	
External Oral Examination	: 50 Marks	
Record Note	: 05 Marks	
Workbook	: 05 Marks	
60 Marks		

B.Sc. Mathematics Syllabus (Applicable for students admitted in June 2015 onwards)			
CORE, CORE ELECTIVE AND PROJECT			
I SEMESTER			
Core 1	CALCULUS		15UMAC11
Hrs/Week: 5	Hrs/Sem: 5 x 15 = 75	Hrs./ Unit : 15	Credit:5

Objectives:

1. To impart the knowledge of differentiation and integration.
2. To provide the students with the fundamental concepts, underlying principles, various mathematical techniques and methods such as Fourier series.

Unit I

Polar curves – Pedal equation of a curve – Asymptotes.

Unit II

Curvature – radius of curvature in Cartesian, parametric and polar coordinates
– Evolute - circle and centre of curvature

Unit III

Evaluation of definite integrals- integration by parts – Jacobian

Unit IV

Double and Triple integrals – Evaluation of Double and Triple Integrals -
change of variables

Unit V

Evaluation of integrals using Beta and Gamma functions-Fourier Series-sine
and cosine series

Text Book:

Calculus by S. Arumugam & Issac , New Gamma Publications -- Edition 2005

Unit I : Part I – Chapter III : Section 3.2, 3.3, 3.11 Page No.219 -250

Unit II : Part I -- Chapter III : Section 3.4, 3.5

Unit III : Part II -- Chapter II : Section 2.6,2.7& Part I-3.9

Unit IV : Part II -- Chapter III : Section 3.1, 3.2, 3.3,3.4(Page no: 407-439)

Unit V : Part II -- Chapter IV and Chapter V

Reference Book:

Calculus – I – Joseph A Mangaladass & others, Presi – Persi Publications – 2015.

I SEMESTER			
Core 2	THEORY OF EQUATIONS		15UMAC12
Hrs/Week: 5	Hrs/Sem: 5 x 15 = 75	Hrs./ Unit : 15	Credits : 5

Objectives:

1. To enable the students to understand the transformation of equations.
2. To develop the technique of solving equations of n^{th} degree.

Unit I

Theorems on theory of equation- Relation between roots and coefficients

Unit II

Symmetric functions of roots in terms of coefficients- Sum of the r^{th} powers of the roots – Newton’s theorem- Descarte’s rule of signs -Rolle ’s Theorem.

Unit III

Transformation of equations and Reciprocal equations

Unit IV

Approximate solutions of Equations – Newton’s method – Horner’s method

Unit V

Solution of cubic and biquadratic equations- Cardon’s method - Ferrari’s method

Text Book:

Classical Algebra, by Joseph A. Mangaladoss and others, Presi – Persi Publications – Edition May 2016.

Unit I : Chapter I

Unit II : Chapter II : Section 2.1 & Chapter III

Unit III : Chapter II : Section 2.2 & Chapter IV

Unit IV :Chapter V

Unit V : Chapter VI

Reference Book:

Algebra (Theory of equations, Theory of numbers and Trigonometry) by S.Arumugam & Isaac , New Gamma Publications -- Edition 2011

II SEMESTER			
Core 3	ANALYTICAL GEOMETRY OF 3D		15UMAC21
Hrs/Week:5	Hrs/Sem: 5 x 15 = 75	Hrs./ Unit : 15	Credits : 5

Objective:

- To give more knowledge of the geometrical figures through algebraic methods.

Unit I

Direction cosines - Direction ratios - Angle between two lines.

Unit II

Planes – Standard forms – Angle between planes – Length of perpendicular - Bisectors of two planes – Parallel planes.

Unit III

Lines – Symmetrical form – Plane and straight line - Image of a point – Image of a line.

Unit IV

Coplanar lines – Skew lines – Length & equations of shortest distance between two lines.

Unit V

Sphere – Plane section of sphere – Tangent plane – Touching spheres – Intersection of spheres.

Text Books:

Analytical Geometry 3–D & Vector Calculus by S.Arumugam and Isaac, New Gamma Publication House, 2011 Edition

- Unit I : Chapter I
Unit II : Chapter II
Unit III : Chapter III Section 3.1
Unit IV : Chapter III Section 3.2
Unit V : Chapter IV

Reference Book:

Analytical Geometry of three dimension, T.K.Manickavachagam Pillay & Narayanan.,S.Vishwanathan - Edition 2007

II SEMESTER			
Core 4	DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS	15UMAC22	
Hrs/Week: 5	Hrs/Sem: 5 x 15 = 75	Hrs./ Unit : 15	Credits : 5

Objectives:

1. To enrich the students with a knowledge of differentiation of vectors.
2. To acquire knowledge about Laplace transform.

Unit I

First order higher degree Differential equation - solvable for p, x and y- Clairaut's form –linear differential equation with constant coefficients- particular integrals of the form $f(x) e^{ax}$, x^n , $e^{ax} x^n$

Unit II

Homogenous equations- Linear differential equations with variable coefficients- equations reducible to homogenous equations.

Unit III

Laplace transform – Inverse Laplace transform- solving linear differential equations & simultaneous equations of first order using Laplace transform.

Unit IV

Vector differentiation – gradient- curl- divergent- solenoidal-irrotational- formulae involving gradient, curl and divergent.

Unit V

Vector integration-line integral – surface integral– Gauss, Stoke's and Green's theorems (without proof) and problems.

Text Book:

1. Differential equation & Applications by S. Arumugam, New Gamma Publications—Edition 2008
2. Analytical Geometry 3D, Vector Calculus & Trigonometry by S. Arumugam & Issac Edition 2004.

Unit I : TB 1	Chapter I: Section 1.7 & Chapter II Section 2.3
Unit II : TB 1	Chapter II Section 2.4, 2.5
Unit III: TB 1	Chapter III
Unit IV: TB 2	Chapter V
Unit V : TB 2	Chapter VII

Reference Book:

Differential Equation & Application by Joseph A. Mangaladoss Presi-Persi Publications.

III SEMESTER			
Core 5	SEQUENCES AND SERIES AND TRIGONOMETRY	15UMAC31	
Hrs/Week: 6	Hrs/Sem: 6 x 15 = 90	Hrs./ Unit : 18	Credits : 5

Objectives:

1. To understand the basic principles of analysis in particular, convergences of sequences and series.
2. To have a better idea about logarithms of complex quantities through Trigonometry.

Unit I

Sequences –Bounded, Monotonic, Convergent ,Oscillatory and divergent sequences – algebra of limits- subsequences.

Unit II

Cauchy sequences in R - Cauchy's General principle of Convergence- series- convergence, divergence and oscillatory.

Unit III

Convergence of Geometric, Harmonic series - Cauchy's General principles of convergence- comparison test.

Unit IV

Test of convergence of positive term series- Kummer's test - ratio test - Raabe's test- Cauchy's root test - Cauchy's condensation test (without proof).

Unit V

Hyperbolic function - logarithm of a complex number.-Gregory's series – summation of series using $C + iS$ method

Text Book:

Sequences & series and Trigonometry by Joseph A. Mangaladoss Presi-Persi Publications, May 2013.

Unit I : Chapter I

Unit II : Chapter II & Chapter III – Section 3.1, 3.2, 3.3

Unit III: Chapter III : Section 3.4 to 3.8

Unit IV: Chapter IV

Unit V: Chapter VII

Reference Books:

1. Sequences & series by S.Arumugam & Isaac, New Gamma Publishing House
2. Summation of series and Trigonometry by S.Arumugam & Isaac, New Gamma Publishing House.

IV SEMESTER			
Core 6	ABSTRACT ALGEBRA		15UMAC41
Hrs/Week: 6	Hrs/Sem: 6 x 15 = 90	Hrs./ Unit : 18	Credits : 5

Objectives:

- To introduce various structure like groups, rings, ideals and to study the similarities of such structures.

Unit I

Relations – Equivalence relations – Functions – injective, surjective and bijective – composition of functions- Groups

Unit II

Permutation Groups – Subgroups- Cyclic Groups-Order of an element –Cosets and Lagrange’s theorem - Normal subgroups – Quotient groups.

Unit III

Isomorphism-Cayley’s theorem - Homomorphism- Fundamental theorem of homomorphism.

Unit IV

Rings–elementary properties-Isomorphism - Types of rings - characteristics of a ring – sub rings.

Unit V

Ideals–Quotient rings–Maximal and prime ideals -Homomorphism of rings- fundamental theorem of homomorphism —field of quotients of an Integral domain.

Text Book:

Modern Algebra by S. Arumugam & Issac –SCITECH Publications (India) Pvt Ltd ---
2007 Edition

Unit I : Chapter III : Section 2.1-2.4, 3.1 - 3.3.

Unit II : Chapter III : Section 3.4-3.9

Unit III: Chapter III : Section 3.10 - 3.11

Unit IV: Chapter IV : Section 4.1- 4.6

Unit V : Chapter IV : Section 4.7- 4.11

Reference Book:

University Algebra by N.S.Gopalakrishnan

V SEMESTER			
Core 7	LINEAR ALGEBRA		15UMAC51
Hrs/Week: 6	Hrs/Sem: 6x 15 = 90	Hrs./ Unit : 18	Credits : 5

Objectives:

1. To enrich the students with a knowledge of the basic concepts of Vector Space.
2. To introduce the Inner Product space and its properties.

Unit I

Vector Spaces - Definition and examples– Subspaces-Linear Transformations

Unit II

Linear Span of a set - Linear dependence and independence - Basis dimension –Finite dimension.

Unit III

Theorems on dimension – Rank and Nullity – Matrix of a Linear transformation.

Unit IV

Matrices –Rank of a matrix – Simultaneous linear equation- Characteristic equations of a matrix – Eigen values & Eigen vectors – Cayley Hamilton theorem and application

Unit V

Inner product space – Definition and examples - Orthogonality – Gram Schmidt Orthogonalisation process – Orthogonal complement.

Text Book :

Modern Algebra by Dr. S.Arumugam and Issac --SCITECH Publications(India) Pvt Ltd – Edition 2007

- Unit I : Chapter V : Section 5.1, 5.2 , 5.3
- Unit II : Chapter V : Section 5.4, 5.5, 5.6(upto theorem 5.22)
- Unit III: Chapter V : Section 5.6 (theorem 5.22 – 5.28), 5.7, 5.8
- Unit IV: Chapter VII: Section 7.1, 7.2, 7.5- 7.8
- Unit V : Chapter VI : Section 6.1, 6.2, 6.3

Reference Book:

Modern Algebra by T.K.Manicavachagom Pillay & Narayanan

V SEMESTER			
Core 8	REAL ANALYSIS		15UMAC52
Hrs/Week: 6	Hrs/Sem: 6 x 15 = 90	Hrs./ Unit : 18	Credits : 6

Objectives:

1. To enable the students to learn basic terms in analysis.
2. To enrich the students with a knowledge of Topology and Functional Analysis.

Unit I

Countable sets - Uncountable sets- Metric spaces- Bounded sets - Open Ball - Open sets – Subspaces- Interior of a set.

Unit II

Closed set – Closure - Limit point - Dense sets - Complete metric space - Cantor's intersection theorem-Baire's category Theorem.

Unit III

Continuity of functions- Continuity of composition of functions-Equivalent conditions for continuity – Algebra of continuous functions- Homeomorphism - Uniform continuity .

Unit IV

Connectedness - Equivalent conditions - Connected subsets of \mathbb{R} - Connectedness and continuity - Intermediate Value theorem- Contraction mapping theorem.

Unit V

Compactness - Compact Metric spaces - Heine Borel theorem – Equivalent characterization for compactness- Totally bounded- Sequentially compact metric spaces -Compactness and Continuity. .

Text Book:

Modern Analysis by S. Arumugam and Isaac, New Gamma Publishing House, Edition June 2012.

- Unit I : Chapter I : Section 1.2, 1.3 Chapter II Section 2.1- 2.6
 Unit II : Chapter II : Section 2.7 - 2.10 Chapter III Section 3.1, 3.2
 Unit III: Chapter IV : Section 4.1 - 4.3
 Unit IV: Chapter V : Section 5.1 - 5.3 Chapter 8: Section 8.1.
 Unit V : Chapter VI : Section 6.1-6.4.

Reference Book:

Introduction to Modern Analysis by Simmons

V SEMESTER			
Core 9	MECHANICS		15UMAC53
Hrs/Week: 6	Hrs/Sem: 6 x 15 = 90	Hrs./ Unit : 15	Credits : 6

Objectives:

- To impart knowledge about statics and dynamics

Unit I

Forces acting at a point - Resultant and Components - Parellelogram of forces - Analytical expressions - Triangle of Forces - Lami's Theorem - Extended form of parallelogram law of forces.

Unit II

Resolution of a force - Components of a force - Resultant of coplanar forces - Condition of Equilibrium - Resultant of two like and unlike parallel forces - Moment of a force - Varigon's Theorem.

Unit III

Projectiles – Equation of path - range – time of flight – greatest height – maximum range – range on an inclined plane.

Unit IV

Simple Harmonic Motion in a straight line – geometrical representation – composition of SHM'S of the same period in the same line and along two perpendicular directions.

Unit V

Motion under the action of central forces – Velocity and acceleration in polar coordinates – differential equation of central orbit – pedal equation of central orbit – velocities in a central orbit

Text Book

1. Statics by M.K.Venkataraman, Agasthiar Publications, 12th Edition
2. Dynamics by M.K.Venkataraman, Agasthiar Publications, 12th Edition
 - Unit I : TB 1 – Chapter II - Section 1 - 10
 - Unit II : TB 1 – Chapter II - Section 11 -16 & Chapter III Section 1 - 12
 - Unit III : TB 2 - Chapter VI - Section 6.1 – 6.8 & 6.12 – 6.15
 - Unit IV : TB 2 - Chapter X - Section 10.1 to 10.7
 - Unit V : TB 2 - Chapter XI - Section 11.1 to 11.11

Reference Book:

Mechanics by Durai Pandian

V SEMESTER			
Core:10	LINEAR PROGRAMMING		15UMAC54
Hrs /Week:6	Hrs / Sem: 6 x 15 = 45	Hrs/Unit : 18	Credits:6

Objectives:

1. To familiarize the students with the techniques of O.R to be applied.
2. To be familiar with the computational procedure of Simplex methods.

Unit I

Linear Programming problem – Mathematical Formulation – Illustration and simple problems – Graphical solution method.

Unit II

General linear programming problem – Canonical and standard form of LPP – Simplex Method – Computational procedure – Simplex Algorithm – Sample problems.

Unit III

Duality – General primal – Dual pair - Formulations a Dual problem – Primal – Dual pair in matrix form – Complementary Slackness Theorem – Duality and Simplex Method.

Unit IV

Transportation problem – LP formulation of Transportation problem – Existence of solution – Transportation Table – Looks – Solution of Transportation problem – Finding an Initial Basic feasible solution – Test for optimality – Transposition Algorithm (MODI Method) – Sample problems.

Unit V

Assignment problem –Mathematical formulation – Solution of Assignment problem – Hungarian Method.

Text Book:

Operation Research By P.R. Vittal, Margham Publications, Edition 2008.

Unit I : Chapter II, III

Unit II : Chapter IV

Unit III : Chapter VII, VIII

Unit IV: Chapter X

Unit V : Chapter XI Section 11.1 – 11.3

Reference Book:

Operation Research by Kanti Swarup, P. K. Gupta, Man Mohan -fourteenth edition 2008 – Sultan Chand& Sons, Educational Publisher, New Delhi.

V SEMESTER			
CE :1(A)	COMBINATORIAL MATHEMATICS		15UMAE5A
Hrs/Week: 6	Hrs/Sem: 6 x 15 = 90	Hrs./ Unit : 18	Credits : 6

Objectives:

1. To impart knowledge of applications of mathematics especially in the field of Combinations and permutations.
2. To impart knowledge about recurrence relations, generating functions incidence matrices and the inclusion-exclusion principle.

Unit I

Selections & Binominal Coefficients -Permutations - ordered Selections - unordered selections – Binomial Theory

Unit II

Parings Problems -Parings within a set - paring between sets – An optimal assignment problem.

Unit III

Recurrence - Fibonacci – type relation using generating functions - miscellaneous Methods.

Unit IV

The Inclusion – Exclusion Principle - The Principle - Rook polynomials.

Unit V

Block Design and Error correcting codes - Block designs - Square Block Designs.

Text Book:

A first course in Combinatorial Mathematics by Ian Anderson, Edition 1979(Oxford Applied Mathematics and Computing Science Series.)

Reference Book:

Introduction to Combinatorics – C.L.Liu

V SEMESTER			
CE 1 (B)	DISCRETE MATHEMATICS		15UMAE5B
Hrs/Week: 6	Hrs/Sem: 6 x 15 = 90	Hrs./ Unit : 18	Credits :6

Objective:

- To impart the knowledge of logical operators, ordered sets and Boolean algebra.

Unit I

Propositions and Compound propositions, Basic Logical operators – Propositions and Truth Table – Tautologies and Contradiction – Logical Equivalence - Algebra of Propositions – Conditional and biconditional statements.

Unit II

Arguments - Propositional functions - Quantifiers – Negation of Quantified statements

Unit III

Ordered sets – Hasse diagram of partially ordered set – Supremum and infimum – Isomorphic ordered sets.

Unit IV

Well ordered sets – Lattices – Bounded Lattices – Distributive Lattices – Complements - Complemented lattices.

Unit V

Boolean Algebra – Basic definitions – Duality – Logic Gates and circuits – Truth tables - Boolean functions

Text Book:

Discrete Mathematics Second Edition, Sigmour Lipschutz and Mare Lipson Tata McGraw – Hill Publications Company, Limited, New Delhi

- Unit I** : Chapter 4 - Sections 4.1 – 4.8
- Unit II** : Chapter 4 - Section 4.9 – 4.12
- Unit III** : Chapter 14 - Section 14.1 – 14.3
- Unit IV** : Chapter 14 - Section 14.3 – 14.11
- Unit V** : Chapter 15 - Section 15.10 & 15.11

VI SEMESTER			
Core 11	COMPLEX ANALYSIS	15UMAC61	
Hrs/Week: 6	Hrs/Sem: 6 x 15 = 90	Hrs./ Unit : 18	Credits : 5

Objectives:

1. To enrich the student with the fundamental ideas and theorems about complex plane, analytic forms, linear transformations, complex integration, power series expansions and calculus of residues.
2. To introduce the concepts of differentiation, integration forms of real variables.

Unit I

Differentiability - Analytic functions - Cauchy's Riemann equations - Harmonic functions

Unit II

Bilinear Transformations - Cross Ratio - Fixed Points of Bilinear Transformation.

Unit III

Complex Integration – Definite integral - Cauchy's theorem - Cauchy's integral Formula - Higher Derivatives

Unit IV

Series expansion -- Taylor's Series - Laurent's Series - Zeros of an Analytic function - Singularities.

Unit V

Residues - Cauchy's Residues theorem - Evaluation of Definite integrals – Type 1 and Type 2

Text Book:

Complex Analysis by S.Arumugam, A.Thangapandi Isaac and A.Somasundaram, SCITECH Publications (India) Pvt Ltd., -- Edition 2007.

Unit I : Chapter II: Sec 2.5 to 2.8
 Unit II : Chapter III Section 3.1 to 3.4
 Unit III: Chapter VI Section 6.1 to 6.4
 Unit IV: Chapter VII Section 7.1 to 7.4
 Unit V : Chapter VIII Section 8.1 to 8.3

Reference Book:

Complex Analysis by Narayanan and T.K.Manickavashagam Pillay.

VI SEMESTER			
Core 12	GRAPH THEORY		15UMAC62
Hrs/Week: 6	Hrs/Sem: 6x 15 = 90	Hrs./ Unit : 18	Credits : 6

Objectives:

1. To provide a basic foundation for topics like Subgraphs, Degree sequences, Connectedness, etc.
2. To introduce Eulerian, Hamiltonian graphs, Trees and Planar.

Unit I

Graphs – Degrees - Subgraphs – Isomorphism - independent sets and coverings - intersection graph and line graph – Matrices of a graph - Operations on graphs.

Unit II

Degree sequences - Walks, Trails and Paths - Connectedness - Connectivity .

Unit III

Eulerian Graphs - Hamiltonian Graphs - Characterization of Trees - Centre of a tree.

Unit IV

Matchings- Matchings in Bipartite graphs - Planar graphs – Properties .

Unit V

Chromatic number - chromatic index.-The Five Colour theorem - Four Colour Problem . Chromatic polynomial of graphs

Text Book :

Invitation to Graph Theory by S.Arumugam & S.Ramachandran Scitech Publications (India) Ltd., Reprint 2012.

Unit I : Chapter II

Unit II : Chapter III & IV

Unit III : Chapter V & VI

Unit IV : Chapter VII & VIII

Unit V : Chapter IX

Reference Book:

Graph Theory by S.Kumaravelu & Suseela Kumaravelu - Janaki Calendar Corporation, Sivakasi.

VI SEMESTER			
Core 13	NUMERICAL METHODS		15UMAC63
Hrs/ Week:6	Hrs/Sem : 6x 15 = 90	Hrs./Unit : 18	Credits : 6

Objectives:

1. To introduce the basic concepts of numerical analysis.
2. To introduce the idea of finite differences and the associated concepts which have important applications in Numerical Analysis.
3. To enable the students to solve differential equations and partial differential equations numerically.

Unit I

Finite Differences- Difference operators, other difference operators, Difference equations, Formation of difference equations, Linear difference equations.

Unit II

Interpolation-Newton's forward interpolation formula, Newton's Backward interpolation formula, Newton's central interpolation formula-Strilling's method, Lagrange's formula and its inverse formula, Newton's Divided Difference interpolation formula.

Unit III

Numerical derivatives – Derivatives for equally spaced data.

Unit IV

Numerical integration – Newton- Cote's quadrature formula – Trapezoidal rule – Simpson's one third rule – Simpson's three eight rule.

Unit V

Numerical solution of ordinary differential equations – Euler's method - Taylor's series method – Runge Kutta methods – Predictor – Corrector method.

Text Book

Numerical Methods by Dr.S.Arumugam, Issac and Somasundaram, Scitech Publication, 2002 Edition.

Unit I : Chapter VI - Section: 6.0-6.2

Unit II : Chapter VII - Section: 7.0-7.6

Unit III: Chapter VIII- Section : 8.0-8.4

Unit IV: Chapter VIII -Section:8.5-8.6

Unit V : Chapter X- Section: 10.0- 10.6

Reference Books:

Numerical methods with C++ Programming by A. Somasundaram, & Chandrasekaran, Prentice Hall of India pvt Ltd Delhi Edition 2005.

VI SEMESTER

C14	PROJECT	15UMAP61
Hrs/Week:6	Hrs/Sem:6 x 15= 90	Hrs./Unit:18
		Credits :5

Objectives

At the end of the semester the student should be able to:

1. Identify the potential areas of the research in his/her field.
2. Collect the data from various sources including the internet, analyse them, make new connections and link them to practical life.
3. Read and write originally and usefully.

GUIDELINES

1. The project may be done either individually or in groups with a maximum of 5 students.
2. The project should contain at least 30 pages in A4 size paper.
3. Marks for the project report will be 100 with 60 for the project and 40 for viva-voce.

VI SEMESTER			
CE 2 (A)	ASTRONOMY		15UMAE6A
Hrs/Week: 6	Hrs/Sem: 6x 15 = 90	Hrs./ Unit : 18	Credits : 6

Objectives:

1. To give a deep knowledge of celestial bodies

UNIT I

Spherical Trigonometry (only formulae) - Celestial sphere - Four systems of coordinates - Diurnal motion

UNIT II

Zones of earth – perpetual day and perpetual night – Terrestrial latitude and longitude – International date Line (only definition) – Dip - Twilight – Shortest twilight.

UNIT III

Refraction – Tangent formulae – Cassini’s formula – Effects – Horizontal refraction – Geocentric parallax.

UNIT IV

Kepler’s laws – verification – Newton’s deductions – Anomalies – planets— inferior and superior – Bode’s law – elongation – sidereal period – synodic period – phase – direct and retrograde motion – stationary points – angle subtended at the sun when two planes are stationary

UNIT V

Time – Equation of time – Seasons calendar – Conversion of time .

TEXT BOOK :

Astronomy by S.Kumaravelu –Edition 2002

Unit I : Chapter I & Chapter II

Unit II : Chapter III Sec 1, 2, 5 & 6

Unit III: Chapter IV & V

Unit IV: Chapter VI & XIV

Unit V : Chapter VII

REFERENCE BOOK:

Astronomy by G.V.Ramachandran

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.

DEPARTMENT OF MATHEMATICS			
Allied Statistics Offered to B.Sc. Mathematics Students			
I SEMESTER			
AI 1	STATISTICS		15USTA11
Hrs /Week : 6	Hrs/ Sem : 6 x 15 = 90	Hrs./ Unit : 18	Credits:5

Objectives:

1. To introduce various statistical tools to satisfy the need of concept personals.
2. To make the students understand how sampling technique are used in real life problems.

Unit I

Measures of Central Tendency – Simple average – Mean, Median and Mode – Geometrical mean and Harmonic mean -Measures of dispersion-Range- Quartile deviation- Standard deviation and Mean deviation – Coefficient of variation.

Unit II

Correlation and regression: Scatter diagram – Karl Pearson’s Coefficient of Correlation – Properties – Rank Correlation- Lines of regression - Regression coefficient and properties.

Unit III

Association of attributes-consistency of data – criterion of independence – Yule’s coefficient of association

Unit IV

Sampling distribution –Testing of hypothesis –Problems on large samples

Unit V

Test of significance for small samples based on t–distribution and F–Distribution

Text Book:

Statistics by S.Arumugam and Issac ., New Gamma Publication house, Edition 2006

Unit I : Chapter II Section 2.1 to 2.4, Chapter 3 Section 3.1

Unit II : Chapter VI Section 6.1 to 6.3

Unit III : Chapter VIII Section 8.1, 8.2

Unit IV : Chapter XIV Section 14.2 - 14.5

Unit V : Chapter XV Section 15.1, 15.2

Reference Book:

Probability and Statistics by Joseph A Mangaladoss Presi—Persi Publication

II SEMESTER			
AI 2	PROBABILITY THEORY		15USTA21
Hrs /Week : 6	Hrs/ Sem : 6 x 15 = 90	Hrs./ Unit : 18	Credits : 5

Objectives:

1. To introduce various statistical tools to satisfy the need of concept personals.
2. To impart a knowledge about the statistical distributions.

Unit I

Random Experiments – trials and events – mutually exclusive independent and equally likely events-probability - Definition- statistical & axiomatic – addition theorem – conditional probability – multiplication theorem- pair wise independent & mutually independent events – Baye’s theorem.

Unit II

Random variable – discrete & continuous-Probability Functions – mass & density distribution function, Expectations – moments-addition & multiplication theorems on expectations (without proof)

Unit III

Moments,Skewness and Kurtosis- Moment generating functions and their properties - Cumulant Generating function -Characteristic functions.

Unit IV

Some Special Distributions- Binomial Distributions – Poisson distribution.

Unit V

Normal Distribution - Standard normal distribution – Properties – Simple problems.

Text Book

Statistics by S.Arumugam and Issac ., New Gamma Publication house, Edition 2006

Unit I : Chapter XI

Unit II : Chapter XII Section 12.0 – 12.4

Unit III : Chapter IV and Chapter XII: Section 12.5 -12.6

Unit IV : Chapter XIII Section 13.0 – 13.2

Unit V : Chapter XIII Section 13.3

Reference Books:

Probability and Statistics by Joseph A Mangaladoss Presi—Persi Publication

ALLIED MATHEMATICS FOR PHYSICS/CHEMISTRY STUDENTS

I SEMESTER

A I – 1	STATISTICS AND CALCULUS	15UMAA11
Hrs /Week : 6	Hrs/ Sem : 6 x 15 = 90	Hrs./ Unit : 18
		Credits : 5

Objectives:

1. To enable the students to understand physical science by a knowledge of elementary calculus.
2. To introduce various statistical tools to satisfy the need of concept personals.

Unit I

Measures of Central Tendency – simple average – Mean, Median & Mode – Geometrical mean and Harmonic mean.

Unit II

Measures of dispersion range-quartile deviation-standard deviation and mean deviation – coefficient of variation.

Unit III

Correlation and regression: Scatter diagram – Karl Pearson’s Coefficient of Correlation – properties –Rank Correlation- lines of regression - regression coefficient and properties.

Unit IV

Pedal equations - Curvature – Radius of Curvature in Cartesian , parametric & polar co-ordinates – Evolute -Circle and centre of curvature

Unit V

Beta and Gamma functions

Text Books:

1. Statistics by S. Arumugam and Isaac , New Gamma Publications
2. Calculus by S.Arumugam and Isaac, New Gamma Publications
 - Unit 1 : Chapter II Section 2.1 - 2.4
 - Unit II : Chapter III Section 3.1
 - Unit III : Chapter VI Section 6.1 0- 6.3
 - Unit IV : Text Book 2 Part I Chapter III Section 3.3, 3.4
 - Unit V : Text Book 2 Part II Chapter IV

Reference Book:

1. Probability and Statistics by Joseph A. Mangaladoss Presi—Persi Publication
2. Calculus Volume I&II by S. Narayanan &T.K.Manicavachagam Pillay, S.Viswanathan

II SEMESTER			
A I – 2	ALGEBRA & DIFFERENTIAL EQUATIONS	15UMAA21	
Hrs/Week: 6	Hrs/Sem: 6 x 15 = 90	Hrs./ Unit : 18	Credits : 5

Objective:

- To enable the students to understand physical science by a knowledge of elementary calculus.

Unit I

Every equation $f(x)=0$ of degree n has n roots - Relation between roots and coefficients - Symmetric functions of roots in terms of coefficients.

Unit II

Reciprocal equations- Transformation of equations.

Unit III

Approximate solutions of numerical equations using Newton's method and Horner's method.

Unit IV

First order higher degree Differential equations - Solvable for p , x and y - Clairaut's form

Unit V

Vector differentiation – gradient-curl- divergents-solenoidal-irrotational-formulae involving gradient, curl and divergent.

Text Book:

1. Algebra and Sequences and Series by Joseph A. Mangaladoss , Presi – Persi Publications –Edition 2004
2. Differential equation & Applications by S. Arumugam, New Gamma Publications—Edition 2008
3. Analytical Geometry 3D, Vector Calculus & Trigonometry by S. Arumugam & Issac Edition 2004.

Unit I	: Chapter I: Section 1.1, 1.2, 1.3.
Unit II	: Chapter I: Section 1.4, Chapter III: Section 3.1-3.5
Unit III	: Chapter IV: Section 4.1., 4.2
Unit IV	: TB 2 Chapter I: Section 1.7
Unit V	: TB3 Chapter VII

Reference Book:

1. Differential Equation & Application By Sankaranarayanan & Others.

DEPARTMENT OF PHYSICS			
Part III – Allied Physics offered by Physics Department to B.Sc. Mathematics and B.Sc. Chemistry Students			
III SEMESTER			
AII 1	ALLIED PHYSICS - I		15UPHA31
Hrs/Week: 3	Hrs/Sem: 3x15= 45	Hrs./ Unit : 9	Credit: 4

UNIT I Elasticity

Elastic moduli - Poisson's ratio - relation between elastic constants - Expression for bending moment – cantilever - expression for depression - experiment to find young's modulus (uniform bending) - expression for elevation - experiment to find young's modulus using microscope (non uniform bending) - expression for depression - experiment to find Young's modulus using scale and telescope

UNIT II Interference and Diffraction

Young's experiment - Condition for interference - Additional phase difference due to dissimilar reflections - Colours of thin film-Air wedge - Thickness of wire - Fresnel and Fraunhofer diffraction-Plane transmission grating - Theory and experiment to find wave length by normal incidence method. Distinction between interference and diffraction bands.

UNIT III Polarisation

Double refraction - Nicol prism - Brewster's law -Production and analysis of plane, circularly and elliptically polarised light, half wave and quarter wave plate - Optical activity – specific rotation (definition)

UNIT IV Transport Phenomena

Mean free path – expression for mean free path (Zeroth order approximation) Transport phenomena – Viscosity, thermal conductivity, diffusion

UNIT V Transfer of Heat

Conduction – Coefficient of thermal conductivity – definition – Thermal conductivity of a bad conductor – Lee's Disc experiment – Convection - Newton's law of cooling – determination of specific heat capacity of liquid – Radiation – Stefan's law – Planck law.

REFERENCE BOOKS:

1. Properties of matter - Brijlal & Subrahmanyam – S.Chand & Co. – New Delhi.
2. College Physics -Volume 1 - A.B.Gupta – Books and Allied (P) Ltd. – Kolkatta-700010.
3. Heat and Thermodynamics Brijlal & Subramaniyam S.Chand &Co. – New Delhi.
4. A Text book of Optics Brijlal , Subrahmanyam & M.N.Avathanu – S.Chand & Co. – New Delhi.

DEPARTMENT OF PHYSICS			
Part III – Allied Physics offered by Physics Department to B.Sc. Mathematics and B.Sc. Chemistry Students			
IV SEMESTER			
AII 2	ALLIED PHYSICS - II		15UPHA41
Hrs/Week: 3	Hrs/Sem: 3x15= 45	Hrs./ Unit : 9	Credit: 4

UNIT I Relativity and Wave Mechanics

Frame of reference - Galilean transformation - Postulates - Lorentz transformation - de Broglie's theory of matter waves - Expression for de Broglie wavelength – Davison and Germer experiment

UNIT II Nuclear Physics

Nuclear structure - Properties of nucleus - Packing fraction - Binding energy - BE/A curve - Nuclear forces - Nuclear stability - Liquid drop model.

UNIT III Electricity & Electromagnetism

Charge-Current-Potential difference- Resistance & Resistivity - Ohm's law- Kirchoff's law- Potentiometer – Principles - Calibration of Voltmeter – Capacitance – Self induction – self inductance of toroidal solenoid – determination of Rayleigh method – mutual inductance between coils – determination of mutual induction using B.G

UNIT IV Basic Electronics

Semi-conductor diode – Diode Characteristics – Zener diode characteristics -Regulation with Zener diode – Bridge rectifier – Biasing of transistor – RC amplifier .

UNIT V Digital Electronics

Basic logic gates – NOR , NAND gates – EX-OR gate – Boolean equations and logic circuit from table – NOR and NAND gates as universal building blocks – Binary adder – Half adder – Full adder

REFERENCE BOOKS:

1. Modern Physics – R.Murugesan and Kiruthiga Sivaprasath - (15th edition) – S.Chand & Co., New Delhi.
2. Electricity & Magnetism - R.Murugesan. 8th edition – S.Chand & Co., New Delhi.
3. Introduction to Integrated Electronics, Digital and Analog – V.Vijayendran – S.Viswanathan Pvt. Ltd., Chennai.

III & IV SEMESTERS		
AP	ALLIED PHYSICS PRACTICAL	15UPHA4P
Hrs/Week: 3	Hrs/Sem: 3x15=45	Credit: 2

1. Young's modulus - Uniform bending (Pin and Microscope)
2. Young's modulus - Non Uniform bending (scale and Telescope)
3. Young's modulus - Cantilever - depression
4. Lee's disc - K of card board
5. Verification of Newton's law of cooling
6. Spectrometer Grating - Oblique incidence
7. Newton's rings - Radius of curvature - μ
8. Air wedge - thickness of wire
9. Calibration of Voltmeter?
10. Characteristics of Zener diode
11. Basic logic gates OR, NOT & AND
12. Transistor Characteristics (CE mode)

SKIL BASED ELECTIVE FOR MATHS STUDENTS

III SEMESTER

SBE 1	NUMERICAL ABILITY	15UMAS31
Hrs /Week:3	Hrs / Sem: 3 x 15 = 45	Hrs/Unit : 9 Credits: 2

Objective:

- The problems in the text are intended to help sharpen the students understanding the subject.

Unit I

Problems on numbers

Unit II

Problems on ages

Unit III

Profit and loss

Unit IV

Time and Work

Unit V

Simple and compound interest

Text Book:

Quantitative Aptitude by R.S. Aggarwal published by S.Chand & Co., Ltd., Edition 2010 (without data sufficiency questions).

Unit I : Chapter 7

Unit II : Chapter 8

Unit III: Chapter 11

Unit IV: Chapter 15

Unit V: Chapter 21, 22

IV SEMESTER			
SBE 2	OFFICE AUTOMATION		15UMAS41
Hrs /Week:3	Hrs / Sem: 3 x 15 = 45	Hrs/Unit : 9	Credits: 2

Objective:

- To focus the students on windows environment and to make the student to have an indepth learning of MS-Word 2007 by covering all functionality aspects of the package.

Unit I

Introduction to Microsoft word 2007 – creating and saving a word document – applying basic formatting – working with styles – applying bulleted and numbered lists – printing a word document

Unit II

Working with graphics and Tables – editing graphical objects – adding and deleting columns and rows in a table in word document – setting paragraph indent and spacing – headers and footers – page setup options – applying themes – spelling and Grammer check – tracking changes within the document

Unit III

Introduction to Excel 2007 – creating and saving an excel workbook – adding data using Auto fill – inserting and deleting cells – wrapping texts – adding borders to cells – formatting – Renaming a worksheet

Unit IV

Working with tables and charts – formatting a table – working with charts – chart title – adding grid lines – adding axis titles – changing chart style, chart layout, chart type – working with formulas and functions

Unit V

Introduction to power point 2007 – creating and saving a presentation – slide show – packaging the presentation on a CD – enhancing power point presentation – adding and removing animation effects & transition effects

Text Book:

Office 2007 in simple steps by Kogent Solutions Inc. – published by Dreamtech Press.

- Unit I : Chapter 2
- Unit II : Chapter 3 & 4
- Unit III : Chapter 5
- Unit IV : Chapter 6 & 7
- Unit V : Chapter 8,9 And 10

Reference Book:

Stephen L.Nelson – Office 2000 The complete reference, TATA McGraw Hill Publishing company limited.

NON MAJOR ELECTIVE

III SEMESTER			
NME I	MATHEMATICS FOR COMPETITIVE EXAMS. -I	15UMAN31	
Hrs /Week:3	Hrs / Sem: 3 x 15 = 45	Hrs/Unit : 9	Credits: 2

Objective:

- To enable the students to assimilate the fundamental concepts and techniques for solving the mathematical problems and in turn attend all types of entrance examinations.

Unit I

Average

Unit II

Problems on Numbers

Unit III

Problems on ages

Unit IV

Percentage

Unit V

Odd man Out and Series

Text Book :

Quantitative Aptitude by R.S. Aggarwal published by S.Chand & Co., Ltd., Edition 2010 (without data sufficiency questions).

Unit I : Chapter 6

Unit II : Chapter 7

Unit III: Chapter 8

Unit IV: Chapter 10

Unit V: Chapter 35

IV SEMESTER			
NME 2	MATHEMATICS FOR COMPETITIVE EXAMS. - II	15UMAN41	
Hrs /Week:3	Hrs / Sem: 3 x 15 = 45	Hrs/Unit : 9	Credits: 2

Objective:

- To enable the students to assimilate the fundamental concepts and techniques for solving the mathematical problems and in turn attend all types of entrance examinations

Unit I

Profit and loss

Unit II

Ratio and Proportion

Unit III

Time and Work.

Unit IV

Simple Interest.

Unit V

Compound Interest

Text Book:

Quantitative Aptitude by R.S. Aggarwal published by S.Chand & Co., Ltd., Edition 2010 (without data sufficiency questions).

Unit I : Chapter 11

Unit II : Chapter 12

Unit III: Chapter 15

Unit IV: Chapter 21

Unit V: Chapter 22

PART IV – NON-MAJOR ELECTIVE (AIDED COURSES) (2015 – 2018)							
SEM	TITLE OF THE PAPER	S.CODE	H/W	C	MARKS		
					I	E	T
DEPT. OF ENGLISH							
III	<i>Computer Assisted Language Learning: Reading & Writing</i>	15UENN31	3	2	25	75	100
IV	<i>Computer Assisted Language Learning: Listening & Speaking</i>	15UENN41	3	2	25	75	100
DEPT. OF HISTORY							
III	<i>Modern Constitution – I</i>	15UHSN31	3	2	25	75	100
IV	<i>Modern Constitution – II</i>	15UHSN41	3	2	25	75	100
DEPT. OF MATHEMATICS							
III	<i>Mathematics for Competitive Examinations – I</i>	15UMAN31	3	2	25	75	100
IV	<i>Mathematics for Competitive Examinations – II</i>	15UMAN41	3	2	25	75	100
DEPT. OF PHYSICS							
III	<i>Basic Physics – I</i>	15UPHN31	3	2	25	75	100
IV	<i>Basic Physics - II</i>	15UPHN41	3	2	25	75	100
DEPT. OF CHEMISTRY							
III	<i>Water Management</i>	15UCHN31	3	2	25	75	100
IV	<i>Applied Chemistry</i>	15UCHN41	3	2	25	75	100
DEPT. OF ZOOLOGY							
III	<i>Ornamental Fish culture</i>	15UZON31	3	2	25	75	100
IV	<i>Apiculture</i>	15UZON41	3	2	25	75	100
DEPT. OF COMPUTER SCIENCE							
III	<i>Office Automation</i>	15UCSN31	3	2	25	75	100
IV	<i>Desktop Publishing</i>	15UCSN41	3	2	25	75	100
DEPT. OF COMMERCE							
III	<i>Principles of Commerce</i>	15UCON31	3	2	25	75	100
IV	<i>Basics in Accounting*</i>	15UCON41	3	2	25	75	100

* Common to Department of Commerce and Department of Commerce (CA)

I SEMESTER			
EVS	ENVIRONMENTAL STUDIES		15UEVS11
Hrs/ Week: 2	Hrs/ Sem: 30	Hrs/ UNIT: 6	Credits: 1

UNIT - I: Nature of Environmental Studies

Goals, Objectives and guiding principles of environmental studies. Towards sustainable development - Environmental segments- Atmosphere, Hydrosphere, Lithosphere, Biosphere – definition. Pollution episodes -- Hiroshima – Nagasaki, - Bhopal gas Tragedy, Fukushima – Stone leprosy in Taj Mahal

UNIT - II: Natural Resources

Renewable and Non Renewable resources - classification.

- Forest resources: Use and over - exploitation, Aforestation and deforestation.
- Water resources: Use and over - utilization and conservation of surface and ground water - Rain harvesting.
- Marine Resources: Fisheries and Coral reefs.
- Mineral resources: Use and exploitation - environmental impacts of extracting and using mineral resources.
- Food resources: Effects of modern agriculture fertilizers - pesticide problem.
- Energy resources: Growing energy needs - use of alternate energy source - Solar cells & wind mills.
- Land resources: Land degradation

UNIT - III: Ecosystem

- Concept of Eco-systems - Tropic level, food chains, food web and Ecological pyramids. Types, structure & Functions of the following:
 - a) Aquatic ecosystem
 - b) Grassland ecosystem
 - c) Forest ecosystem
 - d) Desert ecosystem
 - e) Living conditions on other planets (Briefly)

UNIT - IV: Biodiversity & Its Conservation

Introduction - Definition: eco system diversity, species and Genetic Hot spots of biodiversity - Western Ghats, Eastern Himalayas

and Gulf of Mannar. Threats to biodiversity - Habitual Loss, Poaching of wild life and Man - wild life conflicts.

Conservation of biodiversity: Insitu and ex-insitu.

UNIT - V: Environmental Pollution

Sources, effects, prevention and control measures of the following.

- a) Air pollution: Composition of clean air, Global warming, Ozone layer depletion.
- b) Water Pollution: Fresh and Marine water pollution
- c) Noise Pollution
- d) Soil pollution
- e) Bio degradable and Non Bio degradable wastes
 - Air (prevention & Control of Pollution) Act.
 - Environmental Protection Act
 - Water (Prevention & Control of pollution) Act
 - Environmental movements - Green peace and Chipco,
 - Role of State & Central pollution Control Boards.

REFERENCE BOOKS:

1. Basic of Environmental Science. Viyajalakhmi, Murugesan and Sukumaran - Manonmaniam Sundaranar University publications.
2. Environmental Studies. John de Brito, Victor, Narayanan and Patric Raja - published by St. Xavier's College, Palayamkottai.
3. Environmental Science and Biotechnology. A.G. Murugesan and C. Raja Kumar - MJP Publishers.
4. Fundamental of Environmental pollution - Krishnan Kannan - Chand & Company Ltd., New Delhi 1997.
5. Environmental Studies. S. Muthiah, Ramalakshmi publications, Tirunelveli.
6. Environmental Studies. V.M. Selvaraj, Bavani Publications, Tirunelveli.

II SEMESTER			
VE1	VALUE EDUCATION – I		15USVE2A
Hrs/ Week: 2	Hrs/ Sem: 30	Hrs/ Unit: 6	Credits: 1

Objectives:

1. To inculcate moral values in the minds of students.
2. To teach ethical practices to be adopted by students in their life.
3. To make students honest and upright in their life.

UNIT I

Islam – Meaning – Importance – A complete Religion – The religion accepted by God – Five Pillars of Islam – Kalima – Prayers – Fasting – Zakat – Haj.

Iman – Monotheism – Angels – Books – Prophets – Dooms Day – Life after death – Heaven and Hell.

UNIT II

Quran – The Book of Allah – Wahi – Revelation to Prophet Muhammad(sal) – Compilation – Preservance – Structure – Content – Purpose – Source of Islamic Law – Sura Fathiha , Kafirun, Iqlas, Falakh and Nas.

UNIT III

Hadith – Siha Sitha – Buhari – Muslim – Tirmithi – Abu Dawood – Nasai – Ibn Maja – Collection of Hadith – Meaning of 40 Hadith.

UNIT IV

Life History of Prophet Muhammad (sal) – Aiamul Jahiliya – Prophet’s Childhood and Marriage – Prophethood – Life at Mecca – Life at Medinah – Farewell Address – Seal of Prophethood.

UNIT V

Good character – Etiquettes – Halal and Haram – Duties towards Allah – Duties towards fellow beings – Masnoon Duas.

REFERENCE BOOKS:

1. V.A. Moahmed Ashrof – Islamic Dimensions – Reflection and Review on Quranic Themes.
2. The Presidency of Islamic Researchers – Revised & Edited – The Holy Quran.
3. M. Manzoor Nomani – Islamic Faith & Practice.
4. Abdul Hasan Ali Nadvi – Muhammad Rasulullah.
5. K. Ali – A Study of Islamic History.
6. Abdul Rahuman Abdullah – Islamic Dress code for Women.
7. Dr. Munir Ahamed Mughal – Code For Believers.
8. Abdul Malik Mujahid – Gems and Jewels.

II SEMESTER			
VE2	VALUE EDUCATION – II		15USVE2B
Hrs/ Week: 2	Hrs/ Sem: 30	Hrs/ Unit: 6	Credits: 1

UNIT I

Individual Morality – Objective of Moral life – Living in accordance with the code of Morality – the goodness of Morality – Morality and *Thirukural*- The need for faith.

UNIT II

Adherence to higher code of Morality – Fear of God – Good Moral Values – Duty to Parents – Teacher, respecting elders – Moral Etiquettes – Right-minded Principle – High Principles for Proper conduct.

UNIT III

Inculcating good attitudes – Open mindedness – Morale – analysing the pros and cons of good and bad – Service to others – Mind Power, tolerance, respecting others, showing love to others, patience – tranquility – Modesty, kindness and forgiveness.

UNIT IV

Quotations and moral Stories expressing Good characters of Great personalities – Life History of Great people: Mahatma Gandhi, Abraham Lincoln, Dr. A.P.J. Abdul Kalam.

UNIT V

Truth, the importance of uprightness, integrity, friendship – Health awareness on Alcohol and drug abuse – inculcating reading habit – reading good books – Hygiene – Dowry – Corruption.

TEXTBOOK:

Publication of Sadakathullah Appa College.

SCHEME OF EXAMINATIONS UNDER CBCS (2015 - 2018)

The medium of instruction in all UG and PG courses is English and students shall write the CIA Tests and Semester Examinations in English. However, if the examinations were written in Tamil, the answer papers will be valued.

DISTRIBUTION OF MARKS FOR CIA AND SEMESTER EXAMINATIONS UNDERGRADUATE, CERTIFICATE & DIPLOMA COURSES

SUBJECT	TOTAL MARKS	CIA TEST	SEMESTER EXAMINATION	PASSING MINIMUM		
				CIA TEST	SEM. EXAM.	OVER ALL
Theory	100	25	75	Nil	30	40
Practical	100	40	60	Nil	24	40
Project	100	Nil	Report - 60 marks Viva Voce - 40 marks	Nil	40	40

POSTGRADUATE COURSES

SUBJECT	TOTAL MARKS	CIA TEST	SEMESTER EXAMINATION	PASSING MINIMUM		
				CIA EXAM.	SEM. EXAM.	OVER ALL
Theory	100	25	75	nil	38	50
Practical	100	40	60	nil	30	50
Project	100	nil	Report - 60 marks Viva Voce - 40 marks	nil	50	50

DIVISION OF MARKS FOR CIA TEST

SUBJECT	MARKS	ASSIGNMENT FOR UG / ASSIGNMENT OR SEMINAR FOR PG	REGULARITY	RECORD NOTE	TOTAL MARKS
Theory	20	5	--	--	25
Practical	30	--	5	5	40

1. The duration of each CIA Test is ONE hour and the Semester Examination is THREE hours.
2. Three CIA tests of 20 marks each will be conducted and the average marks of the best two tests out of the three tests will be taken.
3. The I test will be based on the first 1.5 units of the syllabus, the II test will be based on the next 1.5 units of the syllabus and the III test will be based on the next 1.5 units of the syllabus.
4. Two assignments for Undergraduate, Certificate, Diploma and Advanced Diploma Courses and two assignments OR two seminars for Postgraduate Courses.
5. The duration and the pattern of question paper for practical examination may be decided by the respective Boards of Studies. However, out of 60 marks in the semester practical examination, 10 marks may be allotted for record and 50 marks for practical.
6. Three internal practical tests of 25 marks each will be conducted for science students in the even semester and the best two out of the three will be taken. The total 50 marks of the best two tests will be converted to 30 by using the following formula:

$$\left(\frac{\text{Marks secured in the first best Practical Test (Out of 25)} + \text{Marks secured in the next best Practical Test (out of 25)}}{2} \right) \times 0.6$$
7. The Heads of Science Departments are requested to keep a record of attendance of practicals for students to assign marks for regularity.

QUESTION PAPER PATTERN FOR CIA TEST (THEORY)

Duration: 1 Hr

Maximum Marks: 20

Section	Question Type	No. of Questions & Marks	Marks
A	No Choice Answer should not exceed 75 words	2 Questions 2 marks each	2 x 2 = 4
B	Internal choice (Either or type) Answer should not exceed 200 words	2 Questions 4 marks each	2 x 4 = 8
C	Open Choice (Answer ANY ONE out of Two) Answer should not exceed 400 words	1 Question 8 marks	1 x 8 = 8
TOTAL			20 MARKS

**QUESTION PAPER PATTERN FOR SEMESTER EXAMINATION
(THEORY)**

Duration: 3 Hrs

Maximum Marks: 75

Section	Question Type	No. of Questions & Marks	Marks
A	No Choice Answer should not exceed 75 words	10 Questions - 2 marks each (2 Questions from each unit)	10 x 2 = 20
B	Internal choice (Either or type) Answer should not exceed 200 words	5 Questions with internal choice. Each carries 5 marks (Two questions from each unit)	5 x 5 = 25
C	Open Choice (Answer ANY THREE out of FIVE) Answer should not exceed 400 words	3 Questions out of 5 - 10 marks each (1 Question from each unit)	3 x 10 = 30
TOTAL			75 MARKS