

# **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

Sl. No.	Course Title	Subject Code	Page No.
1	Course Structure	-	1
2	இக்காலத் தமிழ்	18ULTA11	7
3	Applied Grammar and Translation – I	18ULAR11	9
4	Prose, Poetry and Remedial Grammar - I	18ULEN11	10
5	English Communication	18ULEC11	11
6	Calculus	18UCMA11	12
7	Theory of Equations	18UCMA12	13
8	I-Allied - I - Statistics	18UAST11	14
9	Environmental Studies	18UENS11	15
10	சமயத் தமிழ்	18ULTA21	17
11	Applied Grammar and Translation - II	18ULAR21	19
12	Prose, Poetry and Remedial Grammar - II	18ULEN21	20
13	<b>Analytical geometry of 3D and Trigonometry</b>	<b>18UCMA21</b>	<b>21</b>
14	Differential Equations and Vector Calculus	18UCMA22	22
15	I-Allied - II – Probability Theory	18UAST21	23
16	Value Education- I	18USVE2A	24
17	Value Education - II	18USVE2B	25
18	பயன்பாட்டுத் தமிழ்	18ULTA31	26
19	Applied Grammar and Translation-III	18ULAR31	27
20	One - Act Plays and Writing Skill	18ULEN31	28
21	<b>Sequences and Series</b>	<b>18UCMA31</b>	<b>30</b>
22	<b>Number Theory</b>	<b>18UEMA3A</b>	<b>31</b>
23	Office Automation	18UEMA3B	32
24	II-Allied Physics -I	18UAPH31	33
25	II-Allied Physics Practical – I	18UAPH3P1	34
26	Mathematics for Competitive Examination-I	18UNMA31	34
27	சங்கத் தமிழ்	18ULTA41	35
28	Classical Prose	18ULAR31	37
29	A Practical Course in Spoken English	18ULEN41	38
30	Abstract Algebra	18UCMA41	39
31	Linear Programming	18UEMA4A	40
32	<b>Fuzzy Mathematics</b>	<b>18UEMA4B</b>	<b>41</b>
33	II-Allied Physics –II	18UAPH41	42
34	II-Allied Physics Practical –II	18UAPH4P1	43
35	Mathematics for Competitive Examination – II	18UNMA41	44
36	<b>Linear Algebra</b>	<b>18UCMA51</b>	<b>45</b>
37	Real Analysis	18UCMA52	46
38	Combinatorial Mathematics	18UCMA53	47
39	<b>Operations Research</b>	<b>18UCMA54</b>	<b>48</b>
40	Astronomy	18UCMA55	49
41	<b>Statics</b>	<b>18UEMA5A</b>	<b>50</b>
42	Programming in C-I	18UEMA5B	51
43	Numerical Ability – I	18USMA51	52
44	Complex Analysis	18UCMA61	53
45	Graph theory	18UCMA62	54
46	Numerical Methods	18UCMA63	55
47	Project	18UCMA64	56
48	<b>Dynamics</b>	<b>18UEMA6A</b>	<b>57</b>
49	Programming in C-II	18UEMA6B	58
50	Numerical Ability-II	18USMA61	59
51	Personality Development	18USPD62	60

<b>B.Sc. Mathematics (2018– 2021)</b> <b>(Applicable for students admitted in June 2019 and onwards)</b> <b>(With Statistics and Physics Allied)</b>											
<b>DISTRIBUTION OF CREDITS, NO. OF PAPERS &amp; MARKS</b>											
<b>Part</b>	<b>Course</b>		<b>Semester</b>	<b>Hours</b>	<b>Credits</b>	<b>Papers</b>	<b>Marks</b>				
<b>I</b>	Tamil / Arabic		I to IV	24	16	4	400				
<b>II</b>	English		I to IV	24	16	5	400				
<b>III</b>	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				
<b>IV</b>	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				
<b>V</b>	Extension Activities		I to IV+	--	1+1*	1	100				
	MOOC <sup>\$</sup>		I – V	-	2#						
<b>TOTAL</b>				<b>180</b>	<b>141+1*+2#</b>	<b>42</b>	<b>4000</b>				
<b>SEMESTER WISE DISTRIBUTION OF HOURS</b>											
<b>Part</b>	<b>I</b>	<b>II</b>	<b>III</b>				<b>IV</b>				<b>Total</b>
<b>SEM</b>	<b>T/A</b>	<b>ENG</b>	<b>DSC</b>	<b>PRO/ FW</b>	<b>DSE</b>	<b>AL</b>	<b>NME</b>	<b>SEC</b>	<b>SBC</b>	<b>EVS/VE</b>	
<b>I</b>	6	6	10	-	-	6	-	-	-	2	<b>30</b>
<b>II</b>	6	6	10	-	-	6	-	-	-	2	<b>30</b>
<b>III</b>	6	6	6	-	4	6	2	-	-	-	<b>30</b>
<b>IV</b>	6	6	6	-	4	6	2	-	-	-	<b>30</b>
<b>V</b>	-	-	24	-	4	-	-	2	-	-	<b>30</b>
<b>VI</b>	-	-	16	6	4	-	-	2	2	-	<b>30</b>
<b>Total</b>	<b>24</b>	<b>24</b>	<b>72</b>	<b>6</b>	<b>16</b>	<b>24</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>4</b>	<b>180</b>

+ 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)

<sup>\$</sup> 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
<b>I SEMESTER</b>								
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
II I	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
<b>TOTAL</b>				<b>30</b>	<b>22</b>	----	----	<b>600</b>
<b>II SEMESTER</b>								
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
II I	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					
<b>TOTAL</b>				<b>30</b>	<b>22</b>			<b>600</b>
<b>III SEMESTER</b>								
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
<b>TOTAL</b>				<b>30</b>	<b>22</b>			<b>650</b>

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*				
<b>TOTAL</b>				<b>30</b>	<b>23+</b>	<b>1*</b>		<b>750</b>	
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	
<b>TOTAL</b>				<b>30</b>	<b>26</b>			<b>700</b>	
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	
<b>TOTAL</b>				<b>30</b>	<b>26</b>			<b>700</b>	
<b>I-V Sem</b>	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**

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

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

<b>Part III Core, Core Elective &amp; Project (For B.Sc. Mathematics Major)</b>								
<b>SEM</b>	<b>P</b>	<b>TITLE OF THE PAPER</b>	<b>S.CODE</b>	<b>H/W</b>	<b>C</b>	<b>MARKS</b>		
						<b>I</b>	<b>E</b>	<b>T</b>
<b>I</b>	DSC1	Calculus	18UCMA11	5	4	25	75	100
	DSC2	Theory of Equations	18UCMA12	5	4	25	75	100
<b>II</b>	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
<b>III</b>	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					
<b>IV</b>	DSC6	Abstract Algebra	18UCMA41	6	4	25	75	100
	DSE-2A	Linear Programming	18UEMA4A	4	4	25	75	100
	DSE-2B	FUZZY MATHEMATICS	18UEMA4B					
<b>V</b>	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					
<b>VI</b>	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					
<b>TOTAL</b>				<b>94</b>	<b>78</b>			<b>1900</b>

**PART III – ALLIED I – MATHEMATICS & ALLIED – II PHYSICS**

SEM	SUB	TITLE OF THE PAPER	S.CODE	H/ W	C	MARKS		
						I	E	T
I	AI-1	Statistics	18UAST11	6	4	25	75	100
II	AI-2	Probability Theory	18UAST21	6	4	25	75	100
III	AII-1	Allied Physics – I	18UAPH31	4	4	25	75	100
	AII-P1	Allied Physics Practicals-I	18UAPH3P1	2	1	20	30	50
IV	AII-2	Allied Physics – II	18UAPH41	4	3	25	75	100
	AII-P2	Allied Physics Practicals – II	18UAPH4P1	2	1	20	30	50
<b>TOTAL</b>				<b>24</b>	<b>16</b>			<b>500</b>

**Part IV – NME (For other Students)**

III	NME-I	Mathematics for Competitive Examination-I	18UNMA31	2	2	25	75	100
IV	NME-II	Mathematics for Competitive Examination – II	18UNMA41	2	2	25	75	100
<b>TOTAL</b>				<b>4</b>	<b>4</b>			<b>200</b>

**Part IV – SEC/SBC**

V	SEC-I	Numerical Ability – I	18USMA51	2	2	25	75	100
VI	SEC-II	Numerical Ability-II	18USMA61	2	2	25	75	100
VI	SBC	Personality Development	18USPD62	2	2	25	75	100
<b>TOTAL</b>				<b>6</b>	<b>6</b>			<b>300</b>

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

I	EVS	Environmental Studies	18UENS11	2	2	25	75	100
II	VE	Value Education- I	18USVE2A	2	2	25	75	100
		Value Education-II	18USVE2B					
<b>TOTAL</b>				<b>4</b>	<b>4</b>			<b>200</b>

**PART – V – Extension Activities**

SEM	Extension Activities (Choose anyone)	S.CODE	H/W	C	MARKS		
					I	E	T
I to IV	NCC	18UEXNCC		1			100
	NSS	18UEXNSS					
	Physical Education	18UEXPHE					
	Red Ribbon Club	18UEXRRC					
	Youth Red Cross	18UEXYRC					
	Youth Welfare	18UEXYWL					
	Yoga	18UEXYOG					
III-IV	Sadakath Outreach Programme (SOP)	18UEXSOP		1*			
<b>Total</b>			-	<b>1+1*</b>			<b>100</b>



<b>முதல் பருவம்</b>			
<b>PART - 1 TAMIL</b>			
<b>TA - 1</b>	<b>இக்காலத்தமிழ்</b>		<b>18ULTA11</b>
<b>Hrs/Week: 6</b>	<b>Hrs/Sem: 90</b>	<b>Hrs/Unit: 18</b>	<b>Credits:4</b>

**நோக்கம்**

- தமிழ்ப்படைப்பிலக்கியங்களான புதுக்கவிதைகள், சிறு கதைகள் ஆகியவற்றை எழுத வைத்தல்
- சமூகம் பற்றிய சிந்தனைகளைப் படைப்பிலக்கியங்கள் மூலம் ஏற்படுத்துதல்.

**அலகு - 1 தமிழ்க்கவிதைகள்**

- |                                      |                             |
|--------------------------------------|-----------------------------|
| 1. பரம்பொருள் வாழ்த்து               | - மகாகவிபாரதியார்           |
| 2. தமிழின் இனிமை                     | - பாவேந்தர் பாரதிதாசன்      |
| 3. கொக்கு                            | - ந.பிச்சமூர்த்தி           |
| 4. நான்                              | - தருமு சிவராம் (பிரமிள்)   |
| 5. முக்காலம்                         | - சி.மணி                    |
| 6. தோழர் மோசிகீரனார்                 | - ஞானக்கூத்தன்              |
| 7. நகுலன் கவிதைகள்                   | - நகுலன்                    |
| 8. எதிர்வரும் யாவரும்                | - கல்யாண்ஜி                 |
| 9. ஆயிரம் திருநாமம் பாடி             | - கவிக்கோ அப்துல் ரகுமான்   |
| 10. மரங்களைப் பாடுவேன்               | - வைரமுத்து                 |
| 11. இளைய தோழனுக்கு                   | - மு.மேத்தா                 |
| 12. செய்யுள்                         | - கலாப்ரியா                 |
| 13. பெயர் தெரியாப்பறவை               | - தேன்மொழிதாஸ்              |
| 14. நிசப்த்தத்தில் குளிரும் வார்த்தை | - அனார்                     |
| 15. முதல்துளி                        | - பாலைவன லாந்தர்            |
| 16. இந்தக்காலம்                      | - மனுஷ்யபுத்திரன்           |
| 17. பூவின் பதில்                     | - நாகூர் ருமி               |
| 18. அறிவுமதி கவிதைகள்                | - அறிவுமதி                  |
| 19. வேர் பிடித்த மரம்                | - க.அம்சப்ரியா              |
| 20. நட்சத்திரக் கிழவி                | - ப.சுடலைமணி                |
| 21. கீதாஞ்சலி                        | - மகாகவிஇரவீந்தரநாத் தாகூர் |
| 22. ஜென் கவிதைகள்                    | - பாஷோ                      |

**அலகு - 2 சிறுகதைஇன்பம்**

- |                         |                            |
|-------------------------|----------------------------|
| 1. விடியுமா?            | - கு.பா.ராஜகோபாலன்         |
| 2. காலனும் கிழவியும்    | - புதுமைப்பித்தன்          |
| 3. கதவு                 | - கி.ராஜநாராயணன்           |
| 4. காலத்தின் ஆவர்த்தனம் | - தோப்பில் முஹம்மது மீரான் |
| 5. சொர்க்கக் கன்னிகை    | - கருணா மணாளன்             |
| 6. செடிகளுக்கு          | - வண்ணதாசன்                |
| 7. கனவில் உதிர்ந்த பூ   | - நாரும்பூநாதன்            |
| 8. சங்காத்தி            | - தீன்                     |
| 9. ராஜமீன்              | - கீரனூர் ஜாகீர்ராஜா       |

**அலகு -3 கட்டுரைக் கனிகள்**

1. தமிழில் ஹைக்கூகவிதைகள்
2. கவிக்கோ அப்துல் ரகுமானின் கவிதைகள்
3. நாட்டுப்புற இலக்கியங்கள்
5. இணையத்தில் தமிழ்
6. தமிழ்ச் சிறுகதைஇலக்கியம்
7. இயற்கையைக் கொண்டாடும் ஜென் கவிதைகள்

**அலகு - 4 இலக்கியவரலாறு**

1. தமிழ்ப் புதுக்கவிதை தோற்றமும் வளர்ச்சியும்
2. தமிழ்ச் சிறுகதை தோற்றமும் வளர்ச்சியும்
3. தற்காலச் சிறுகதையாசிரியர்கள் ஓர் அறிமுகம்
4. புதுக்கவிதைகள் எழுதப்பயிற்சி தந்து மாணவர் கவிதைத் தொகுப்பை வெளியிடல்.

**அலகு - 5 எழுத்து இலக்கணம் & எழுத்து வகைகள் அறிமுகம்**

1. முதலெழுத்துகள், சார்பெழுத்துகள், சுட்டெழுத்துக்கள், வினாவெழுத்துகள்
2. மொழி முதல் எழுத்துகள், மொழி இறுதி எழுத்துகள், வல்லினம் மிகுமிடங்கள், வல்லினம் மிகாவிடங்கள்.
3. நாளிதழ்களில் இடம்பெறும் செய்திகளில் பிழைகளைக் கண்டறிந்து எழுதப்பயிற்சி

**பாடநூல்**

**“இன்பத்தமிழ்”**

சதக்கத்துல்லாஹ் அப்பா கல்லூரித் தமிழ்த்துறை வெளியீடு

ரஹ்மத்நகர், திருநெல்வேலி & 627 011.

**பார்வை நூல்கள் மற்றும் வழி காட்டு இணையதளங்கள்**

1. வல்லிக்கண்ணன்  
புதுக்கவிதை தோற்றமும் வளர்ச்சியும்
2. ந. சுப்புரெட்டியார்  
புதுக்கவிதை போக்கும் நோக்கம்
3. பேராசிரியர் சு. பாலசந்திரன்  
புதுக்கவிதை & ஒரு புதுப்பார்வை
4. எஸ். ராமகிருஷ்ணன்  
கதாவிலாசம்  
விகடன் பிரசுரம்  
757, அண்ணாசாலை  
சென்னை & 600 002.

**இணையதளங்கள்**

1. [www.tamilvu.org](http://www.tamilvu.org)
2. [www.azhiyasudargal.blogspot.in](http://www.azhiyasudargal.blogspot.in)
3. [www.neelamegam.blogspot.in](http://www.neelamegam.blogspot.in)
4. [www.jeyamohan.in](http://www.jeyamohan.in)
5. [www.sramakrishnan.com](http://www.sramakrishnan.com)

SEMESTER - I			
AR-1	APPLIED GRAMMAR AND TRANSLATION-I		18ULAR11
Hrs/ Week: 6	Hrs/ Sem: 90	Hrs/ Unit: 18	Credits: 4

**Objectives:** To enable the students to learn Alphabets, Pronunciation, Basic Grammar, Reading, Writing of Arabic Language

**UNIT I: Lessons1 to4 (Textbook – 1)**

من الدرس الأول إلى الدرس الرابع

**UNIT II: Lessons5to 8 (Textbook – 1)**

من الدرس الخامس إلى الدرس الثامن

**UNIT III: Grammar Portions (Textbook – 2)**

- 1) Words and the types of words (أجزاء الكلام)
- 2) Nominal Sentence (الجملة الاسمية)
- 3) Adjective and Noun-qualified (الصفة والموصوف)
- 4) Subject and Predicate
- 5) Masculine and Feminine (المذكر والمؤنث)
- 6) Interrogatives (أدوات الاستفهام)
- 7) Singular, Dual and Feminine (المفرد والتثنية والجمع)
- 8) Possessiveness (المضاف والمضاف إليه)
- 9) Detached Pronouns (الضمائر المنفصلة)
- 10) Prepositions (حروف الجر)
- 11) Demonstrative pronouns (أسماء الإشارة)
- 12) Relative pronouns (الأسماء الموصولة)

**UNIT IV: Lessons 9to12 (Textbook – 1)**

من الدرس التاسع إلى الدرس الثاني عشر

**UNIT V: Lessons 13 to 16 (Textbook – 1)**

من الدرس الثالث عشر إلى الدرس السادس عشر

#### TEXTBOOKS

- 1) Duroosul Lughatil Arabiya Part – I Lessons 1 to 16 only byDr.V. Abdur Rahim. Available at: Islamic foundation Trust, 78 Perambur High Road, Perambur, Chennai- 600 012.
- 2) Arabic for Beginners (selected topics only) By Dr. Syed Ali (Former HOD of Arabic, The New College, Royappettach, (Chennai) (International Edition 2001) (UBS Publishers & Distributors Ltd) 5, Ansari Road New Delhi -110 002.

<b>I SEMESTER</b>			
<b>Part - II English</b>			
<b>EN I A</b>	<b>Prose, Poetry and Grammar - I</b>		<b>18ULEN11</b>
<b>Hrs/ Week: 4</b>	<b>Hrs/ Sem: 60</b>	<b>Hrs/ Unit: 12</b>	<b>Credits:2</b>

**Objectives:**

- To answer comprehensive questions on passages of moderate level of difficulty.
- To write a critical appreciation of the prescribed poems.
- To write grammatically.

**UNIT I PROSE**

1. Education Provides a Solid Foundation- A.P. J. Abdul Kalam
2. Love Story- Maneka Gandhi

**UNIT II PROSE**

3. Speech on Indian Independence- Jawaharlal Nehru
4. Film-Making- Satyajit Ray

**UNIT III POETRY**

1. In the Bazaars of Hyderabad- Sarojini Naidu
2. Middle Age- Kamala Das

**UNIT IV GRAMMAR**

1. Parts of Speech: Verb
2. Tenses

**UNIT V COMMUNICATION SKILLS**

1. Unseen Passages
2. Letter Writing: Personal and Business Letters
3. Curriculum Vitae (CV)

**TEXTBOOK:**

Kulat L. Ambadas, Dr. Joshi, Sandeep. et. al. (ed). *Blooming Buds*. Hyderabad: Orient Black Swan, 2017.

<b>I SEMESTER</b>			
<b>EN I B</b>	<b>ENGLISH FOR COMMUNICATION</b>		<b>18ULEC11</b>
<b>Hrs/ Week: 2</b>	<b>Hrs/ Sem: 30</b>	<b>Hrs/ Unit: 6</b>	<b>Credits:2</b>

**Objectives:**

- To teach students basic Grammatical categories.
- To teach students the four skills viz. Listening, Speaking, Reading and Writing and to impart language skills through tasks.
- To inculcate in students the skills necessary for social and academic circumstances.

**UNIT I**

Parts of Speech (Pages 5 to 17)

**UNIT II**

Listening and Speaking (Pages 22 to 34) and (56 to 59)

**UNIT III**

Reading (Pages 35 to 45)

**UNIT IV**

Writing - I

Punctuation and Kinds of Sentences (Pages 46 to 55)

**UNIT V**

Writing - II

Filling in Forms & Wrap-up (Pages 60 to 78)

**TEXTBOOK:**

Board of Editors. *Content and Language Integrated Learning to Enhance Communication Skills. Semester I Module 1.* Chennai: Tamil Nadu State Council for Higher Education, 2017.

<b>I SEMESTER</b>			
<b>DSC 1</b>	<b>CALCULUS</b>		<b>18UCMA11</b>
<b>Hrs/Week: 5</b>	<b>Hrs/Sem:75</b>	<b>Hrs./ Unit: 15</b>	<b>Credit:4</b>

**Objectives:**

- To impart the knowledge of differentiation and integration.
- 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.

**TEXTBOOK:**

Calculus by S. Arumugam & Issac, New Gamma Publications --Edition 2011

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 Volume I&II by S. Narayanan& T.K. Manicavachagam Pillay, Viswanathan. S Printers & Publishers Pvt Ltd., - Edition 2007 (Vol. I) & Edition 2014 (Vol.II).

<b>I SEMESTER</b>			
<b>DSC 2</b>	<b>THEORY OF EQUATIONS</b>		<b>18UCMA12</b>
<b>Hrs/Week: 5</b>	<b>Hrs/Sem:75</b>	<b>Hrs./ Unit: 15</b>	<b>Credit:4</b>

**Objectives:**

- To enable the students to understand the transformation of equations.
- To develop the technique of solving equations of  $n^{\text{th}}$  degree.

**UNIT I**

Theorems on theory of equations - Relation between roots and coefficients

**UNIT II**

Symmetric functions of roots in terms of coefficients- Sum of the  $r^{\text{th}}$  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

**TEXTBOOK:**

Classical Algebra, by Joseph A. Mangaladoss, S. Firthous Fatima, M. Himaya Jaleela Begum and S. Syed Ali Fathima, 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

<b>I SEMESTER</b>			
<b>A- I</b>	<b>STATISTICS</b>		<b>18UAST11</b>
<b>Hrs/Week: 6</b>	<b>Hrs/Sem:90</b>	<b>Hrs./ Unit: 18</b>	<b>Credit:4</b>

**Objectives:**

- To introduce various statistical tools to satisfy the need of concept personals.
- 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: 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 (Except test of significance for Correlation coefficient)

**UNIT V**

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

**TEXTBOOK:**

Statistics by S. Arumugam and Isaac., New Gamma Publishing house, Edition July 2013

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

Unit II: Chapter VI Section 6.1 - 6.3

Unit III: Chapter VIII Section 8.1 - 8.3

Unit IV: Chapter XIV Section 14.1 - 14.5

Unit V: Chapter XV Section 15.1, 15.2

**REFERENCE BOOK:**

Fundamentals of Mathematical Statistics, S.C. Gupta and V.K. Kapoor, Published by Sultan Chand & Sons, 11<sup>th</sup> Edition – 2012.



I SEMESTER			
<b>EVS</b>	<b>ENVIRONMENTAL STUDIES</b>		<b>18UENS11</b>
<b>Hrs/ Week: 2</b>	<b>Hrs/ Sem: 30</b>	<b>Hrs/ UNIT: 6</b>	<b>Credits:2</b>

### 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 & windmills.
- Land resources: Land degradation

### UNIT - III: Ecosystem

- Concept of Eco-systems - Tropic level, food chains, food web and Ecological pyramids, Living conditions on other planets (Brief account).

Types, structure & Functions of the following:

- a) Aquatic ecosystem
- b) Grassland ecosystem
- c) Forest ecosystem
- d) Desert ecosystem

### UNIT - IV: Biodiversity & Its Conservation

Introduction - Definition: ecosystem diversity, species diversity and Genetic diversity. Hot spots of biodiversity - Western Ghats, Eastern Himalayas and Gulf of Mannar. Threats to biodiversity - Habitat Loss, Poaching of wildlife and Man - wildlife conflicts.

Conservation of biodiversity: *In-situ* and *Ex-situ*.

### 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 water and Marine water.
- c) Noise Pollution
- d) Soil pollution

Biodegradable and Non-Biodegradable wastes; Environmental Acts

- Air (prevention & Control of Pollution) Act.
- Environmental Protection Act
- Water (Prevention & Control of pollution) Act
- Environmental movements - Green peace and Chipco movement.
- Role of Central & State pollution Control Boards.

**REFERENCE BOOKS:**

1. Basic of Environmental Science. Vijayalakhmi, 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, 2008.
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.

<b>இரண்டாம் பருவம்</b>			
<b>PART - 1 TAMIL</b>			
<b>TA- 2</b>	<b>சமயத்தமிழ்</b>		<b>18ULTA21</b>
<b>Hrs/Week: 6</b>	<b>Hrs/Sem: 90</b>	<b>Hrs/Unit: 18</b>	<b>Credits:4</b>

**நோக்கம்**

1. பலசமயக் கருத்துக்களை ஒப்பிட்டுச் சமய நல்லிணக்கத்தோடு வாழ வழிகாட்டுதல்
2. தமிழ்நாடு அரசுப் பணியாளர் தேர்வாணையத் தேர்வுக்கு மாணவர்களை ஆயத்தப்படுத்துதல்.

**அலகு & 1தமிழ்ச் செய்யுள் (துறை வெளியீடு)**

- |  |   |
|--|---|
| 1. அ. திருநாவுக்கரசர்                                    | <b>சைவம்</b><br>- மாசில் வீணையும்...<br>- நாமார்க்கும் குடியல்லோம்...<br>- அப்பன் நீ அம்மை நீ |
| ஆ. திருஞானசம்பந்தர்                                      | - தோடுடைய செவியன்...<br>- வேயுறு தோளிபங்கள்<br>- மருந்தவை மந்திரம்...                         |
| இ. சுந்தரமூர்த்தி நாயனார்                                | - பித்தா பிறைசூடி...  |
| 2. திருவாசகம் & மாணிக்கவாசகர்                            | - பால் நினைந்தூட்டும்....   |
| 3. திருவெம்பாவை  | - ஆதியும் அந்தமும் இல்லா...   |
| 4. திருமந்திரம் & திருமூலர்                              | - ஒன்றே குலமும் ஒருவனே தேவனும்  |
| 5. அ. பொய்கையாழ்வார்                                     | <b>வைணவம்</b><br>- வையம் தகளியா...  |
| ஆ. பூதத்தாழ்வார்   | - அன்பேதகளியா...  |
| இ. பேயாழ்வார்  | - திருக்கண்டேன்..   |
| 6. திருப்பாவை & ஆண்டாள்                                  | - மார்கழித் திங்கள்...  |
| 7. வளையாயுயீ   | <b>சமணம்</b><br>- மக்கட் செல்வம்  |
| 8. புத்தபிரான்   | <b>பௌத்தம்</b><br>- மு.ரா.பெருமாள்  |
| 9. இயேசு காவியம் (மலைப் பொழிவு)<br>முதல் நான்கு பாடல்கள் | <b>கிறித்தவம்</b><br>- கண்ணதாசன்  |
| 10. அல்லாஹ்  | <b>இஸ்லாம்</b><br>- உமறுப்புலவர்  |
| 11. நபிகள்நாயக மான்மிய மஞ்சரி                            | - சதாவதானிசய்குத்தம்பிபாவலர்<br>(குறிப்பிட்டபாடல்கள்)   |
| 12. குணங்குடி மஸ்தான் பாடல்கள்                           | - பாசக்கயிற்றுவலை   |
| 13. ஞானப்புகழ்ச்சி                                       | - தக்கலை பீர்முகம்மது அப்பா   |
| 14. அலகிலா அருளம்  | - இறையருட் கவிமணி<br>கா. அப்துல்கபூர்   |
| 15. திருக்குறள்  | <b>நீதிஇலக்கியம்</b><br>- ஒழுக்கமுடைமை  |
| 13. நாலடியார்  | - கல்விகரையில்  |

வாடிவாசல்

**அலகு - 2 புதினம்**

- சி.சு.செல்லப்பா,  
காலச்சுவடு பதிப்பகம், நாகர்கோவில்

**அலகு - 3 உரைநடை (தமிழ்த்துறை வெளியீடு)**

போட்டித் தேர்வுகளுக்குக் கட்டுரை எழுதும் பயிற்சி

1. தமிழ் இலக்கியத்தில் சமயநல்லிணக்கச் சிந்தனைகள்
2. நபிகள்நாயகம் (ஸல்) அன்பின் தாயகம்
3. சதக்கத்துல்லாஹ் அப்பா அவர்களின் வாழ்வும் பணியும்
4. தமிழ் இலக்கியங்களில் மனிதநேயச் சிந்தனைகள்
5. தமிழ் இலக்கியத்தில் மதுஒழிப்புச் சிந்தனைகள்
6. சூஃபியச் சித்தாந்தமும் சித்தர்களும்

**அலகு - 4**

(போட்டித் தேர்வுத் தயாரிப்பு)

இலக்கியவரலாறு

1. சைவம், வைணவம், கிறித்தவம், இசுலாம் வளர்த்த தமிழ்
2. புகழ் பெற்றதமிழ் நூல்கள், நூலாசிரியர்கள்

**அலகு - 5**

தமிழ்நாடு அரசுப் பணியாளர் தேர்வாணையம் நடத்தும் போட்டித் தேர்வுக்குரிய பொதுத் தமிழ் இலக்கணப்பகுதி & ஓர் அறிமுகம்

1. வேர்ச் சொல்லைக் கண்டறிதல்
2. பெயரெச்சம், வினையெச்சம், முற்றெச்சம் பற்றி அறிதல்
3. வினைத்தொகை, பண்புத்தொகை பற்றி அறிதல்
4. வினைமுற்று, வினையாலணையும் பெயர் கண்டறிதல்
5. இரட்டைக்கிளவி, அடுக்குத் தொடர் அறிதல்
6. வேற்றுமைத் தொகையைக் கண்டறிதல்

**பாடநூல்**

நற்றமிழ், சதக்கத்துல்லாஹ் அப்பா கல்லூரித் தமிழ்த்துறை வெளியீடு

**வழிகாட்டு இணையதளங்கள்**

1. www.noolulagam.com
2. www.tamilauthors.com
3. www.tnpsc.gov.in
4. www.tnpscexams.in
5. www.tamilvu.org

SEMESTER - II			
AR-2	APPLIED GRAMMAR AND TRANSLATION-II		18ULAR21
Hrs/ Week: 6	Hrs/ Sem: 90	Hrs/ Unit: 18	Credits: 4

**Objectives:** To make the students to develop the skill of basic Arabic Grammar and Translation skills from Arabic to English vice-versa.

**UNIT I: Lessons 1 to 3 (Textbook – 1)**

من الدرس الأول إلى الدرس الثالث

**UNIT II: Lessons 4 to 6 (Textbook – 1)**

من الدرس الرابع إلى الدرس السادس

**UNIT III: Grammar Portions (Textbook – 2)**

- 1) Inna and Its sisters (إن وأخواتها)
- 2) Elative (اسم التفضيل)
- 3) Perfect Tense (الفعل الماضي)
- 4) Imperfect Tense (الفعل المضارع)
- 5) Doer and Object (الفاعل والمفعول)
- 6) Kaana and its sisters (كان وأخواتها)
- 7) Classification of Verb into Sound and weak verb (تقسيم الفعل إلى صحيح ومعتل)
- 8) Transitive and Intransitive verb (الفعل اللازم والمتعدي)
- 9) Verbal Noun (المصدر)

**UNIT IV: Lessons 7 to 9 (Textbook – 1)**

من الدرس السابع إلى الدرس التاسع

**UNIT V: Lessons 10 to 12 (Textbook – 1)**

من الدرس العاشر إلى الدرس الثاني عشر

**TEXTBOOKS**

1. Duroosul Lughatil Arabiya Part – II Lessons 1 to 12 only by Dr. V. Abdur Rahim. Available at: Islamic foundation Trust, 78 Perambur High Road, Perambur, Chennai- 600 012.
2. Arabic Tutor Part - I, II & III, By: Moulana Ebrahim Muhammad Karachi- Darul Ishaat.

<b>II SEMESTER</b>			
<b>EN2</b>	<b>PART II ENGLISH Prose, Poetry and Grammar - II</b>		<b>18ULEN21</b>
<b>Hrs/ Week: 6</b>	<b>Hrs/ Sem: 90</b>	<b>Hrs/ Unit: 18</b>	<b>Credits: 4</b>

**Objectives:**

- To answer comprehensive questions on a passage of moderate level of difficulty.
- To write a critical appreciation of the prescribed poems and write sentences in English grammatically.

**UNIT I PROSE**

1. Appro JRD- Sudha Murthy
2. Packing- Jerome K. Jerome

**UNIT II PROSE**

3. How I Became a Public Speaker- G. B. Shaw
4. Values in Life- Rudyard Kipling

**UNIT III POETRY**

1. Money-Madness- D. H. Lawrence
2. No Men are Foreign- James Kirkup
3. On Another's Sorrow- William Blake

**UNIT IV GRAMMAR**

1. Subject-Verb Agreement
2. Verbs: Forms of 'to be', 'have', 'do'; modal auxiliaries

**UNIT V COMMUNICATION SKILLS**

1. Story Building
2. e-Communication: Fax; e-mail
3. Notices, Agendas and Minutes

**TEXTBOOK:**

Kulat L Ambadas, Dr. Joshi, Sandeep. et. al. (ed). *Blooming Buds*. Hyderabad: Orient Black Swan, 2017.

<b>II SEMESTER</b>			
<b>DSC 3</b>	<b>ANALYTICAL GEOMETRY OF 3D AND TRIGONOMETRY</b>		<b>18UCMA21</b>
<b>Hrs/ Week: 5</b>	<b>Hrs/ Sem: 75</b>	<b>Hrs/ Unit: 15</b>	<b>Credits: 4</b>

**Objective:**

- To give more knowledge of the geometrical figures through algebraic methods.
- To have a better idea about logarithms of complex quantities through Trigonometry.

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

**UNIT IV**

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

**UNIT V**

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

**TEXTBOOKS:**

1. Analytical Geometry 3-D & Vector Calculus by S. Arumugam and Isaac, New Gamma Publication House, 2011 Edition.
2. Algebra (Theory of equations, Theory of numbers and Trigonometry) by S. Arumugam & Isaac, New Gamma Publications --Edition 2011.
  - Unit I: TB1 -Chapter I
  - Unit II: TB1 - Chapter II
  - Unit III: TB1 - Chapter III Section 3.1,3.2.
  - Unit IV:TB1 - Chapter IV
  - Unit V: TB2 - Chapter VII, VIII, IX

**REFERENCE BOOK:**

1. Analytical Geometry of Three Dimension, T.K. Manickavachagam Pillay & Narayanan., S. Vishwanathan- Printer & Publishers Pvt. Ltd., Edition 2013.
2. Sequences and Series and Trigonometry by Joseph A. Mangaladoss Presi-Persi Publications, May 2013.

<b>II SEMESTER</b>			
<b>DSC 4</b>	<b>DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS</b>		<b>18UCMA22</b>
<b>Hrs/ Week: 5</b>	<b>Hrs/ Sem: 75</b>	<b>Hrs/ Unit: 15</b>	<b>Credits: 4</b>

**Objectives:**

- To enrich the students with a knowledge of differentiation of vectors.
- 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.

**TEXTBOOK:**

1. Differential equation & Applications by S. Arumugam & Isaac, New Gamma Publications-Edition 2011.
2. Analytical Geometry 3D and Vector Calculus by S. Arumugam & Issac, Edition 2011.

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 and Vector Calculus by Joseph A. Mangaladoss, Presi-Persi Publications – Edition 2012.



<b>II SEMESTER</b>			
<b>AI-2</b>	<b>PROBABILITY THEORY</b>		<b>18UAST21</b>
<b>Hrs/ Week: 6</b>	<b>Hrs/ Sem: 90</b>	<b>Hrs/ Unit: 18</b>	<b>Credits: 4</b>

**Objectives:**

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

**UNIT I**

Random Experiments – Trials and Events – Mutually exclusive and Exhaustive events - Probability - Definition- Conditional Probability – Multiplication theorem- Pairwise independent and Mutually independent events – Baye’s theorem.

**UNIT II**

Random variable - Discrete and Continuous - Probability Density Functions –Distribution function – Mathematical Expectations.

**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.

**TEXTBOOK**

Statistics by S. Arumugam and Isaac., New Gamma Publishing house, Edition 2013

Unit I: Chapter XI

Unit II: Chapter XII Section 12.0 – 12.4

Unit III: Chapter III 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 BOOK:**

Fundamentals of Mathematical Statistics, S.C. Gupta and V.K. Kapoor, Published by Sulthan Chand & Sons, 11<sup>th</sup> Edition.

<b>II SEMESTER</b>			
<b>VE - I</b>	<b>VALUE EDUCATION - I</b>		<b>18USVE2A</b>
<b>Hrs/ Week: 2</b>	<b>Hrs/ Sem: 30</b>	<b>Hrs/ Unit: 6</b>	<b>Credits:2</b>

**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 – Perseverance – 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.

<b>II SEMESTER</b>			
<b>VE II</b>	<b>VALUE EDUCATION – II</b>		<b>18USVE2B</b>
<b>Hrs/ Week: 2</b>	<b>Hrs/ Sem: 30</b>	<b>Hrs/ Unit: 6</b>	<b>Credits: 2</b>

**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 – 25one25zing 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.

<b>மூன்றாம் பருவம்</b>			
<b>PART - 1 TAMIL</b>			
<b>TA - 3</b>	<b>பயன்பாட்டுத்தமிழ்</b>		<b>18ULTA31</b>
<b>Hrs/Week: 6</b>	<b>Hrs/Sem: 90</b>	<b>Hrs/Unit: 18</b>	<b>Credits:4</b>

**நோக்கம்**

1. தமிழின் காப்பியஇலக்கிய வளத்தை மாணவர்களுக்கு உணர்த்துதல்.
2. இந்திய ஆட்சிப் பணித்தேர்வுக்கு மாணவர்களை ஆயத்தப்படுத்துதல்.
3. செய்தி வெளிப்பாட்டு உத்திகளைத் கற்றுத் தந்து மாணவர்களை ஊடகவியலாளர்களாக உருவாக்க முயலுதல்

**அலகு - 1தமிழ்ச் செய்யுள்திரட்டு (துறை வெளியீடு)**

1. சிலப்பதிகாரம் - காட்சிக்காதை
2. மணிமேகலை - ஆபுத்திரன் திறம் அறிவித்த காதை
3. பெரியபுராணம் - கண்ணப்பநாயனார் புராணம்
4. கம்பராமாயணம் - வாலிவதைப்படலம்
5. இரட்சண்ய யாத்திரிகம் - தீயமகன் திருந்திய கதை
6. சீறாப்புராணம் - மானுக்குப் பிணைநின்றபடலம்

**அலகு - 2**

“ஐ.ஏ.எஸ். தேர்வும் அணுகுமுறையும்” வெ.இறையன்பு இ.ஆ.ப, நியூ செஞ்சரி புக ஹவுஸ், அம்பத்தூர், சென்னை-8

**அலகு - 3ஊடகப்படைப்பாக்கம்**

- வானொலிக்கு உரைச்சித்திரம் தொலைக்காட்சி நிகழ்ச்சித் தயாரிப்புக்கு எழுதுதல்
- தொலைக்காட்சிச் செய்தியறிக்கை தயாரித்தல்.
- தமிழ் நாளிதழ்களுக்குச் சிறப்புக் கட்டுரைகள், வாசகர் கடிதங்கள் எழுதுதல் & இலக்கியப்படைப்பாளருடன் நேர்காணல்-தொலைக்காட்சி விவாதம்
- நேர்முக வருணனை
- சமூகஊடகங்களின் தாக்கம்

**அலகு - 4 தமிழ் இலக்கியவரலாறு**

- ஐம்பெரும் காப்பியங்கள்
- ஐஞ்சிறு காப்பியங்கள்
- சிற்றிலக்கியங்கள் (உலா, தூது, பிள்ளைத்தமிழ், பரணி)

**அலகு - 5 இலக்கணம்**

(தமிழ்நாடு அரசுப் பணியாளர் தேர்வாணையத்தின் பொதுத்தமிழ் இலக்கணப்பகுதி)

- பிழைத் திருத்தம், சந்திப்பிழைகள், ஒருமை&பன்மை பிழைகள், மரபுப் பிழைகள்
- வழுவச் சொற்களை நீக்குதல், பிறமொழிச் சொற்களை நீக்குதல், வேர்சொல்லைச் தேர்வு செய்தல்.

**பாடநூல்**

இருந்தமிழ், சதக்கத்துல்லாஹ்அப்பா கல்லூரித் தமிழ்த்துறை வெளியீடு

**பார்வை நூல்கள்**

- |   |   |
|---|---|
| தமிழ் இலக்கியவரலாறு   | -க.பஞ்சாங்கம், அன்னம் அகரம் வெளியீடு, கும்பகோணம். |
| இதழியல் நுணுக்கங்கள்  | -செண்பகா பதிப்பகம், சென்னை-17                     |
| வானொலிநிகழ்ச்சிக் கலை   | -சிந்துமலர் வெளியீடு, சென்னை                      |
| சீறாப்புராணம் மூலமும் பொழிப்புரையும்-ஹாஜி எம்.முகமது யூசுப், இரண்டாம் பாகம் |   |
| மக்கள்ஊடகத் தொடர்பியல்  | -மீடியா பப்ளிகேஷன்ஸ், மதுரை                       |
| தொலைக்காட்சி நிகழ்ச்சிக் கலை  | -வள்ளுவன் வெளியீட்டகம், சென்னை.                   |

SEMESTER III			
<b>AR-3</b>	<b>Applied Grammar and Translation-III</b>		<b>18ULAR31</b>
<b>Hrs/ Week: 6</b>	<b>Hrs/Sem: 90</b>	<b>Hrs/ Unit: 18</b>	<b>Credits: 4</b>

**Objectives:** To enable the students to understand simple Arabic sentences and construct Arabic sentences simple by their own

**UNIT I: Lessons 13 to 16 (Textbook – 1)**

من الدرس الثالث عشر إلى الدرس السادس عشر

**UNIT II: Lessons 17 to 19 (Textbook – 1)**

من الدرس السابع عشر إلى الدرس التاسع عشر

**Unit III: Grammar Portions (Textbook – 2)**

- 1) Imperative and Prohibition (الأمر والنهي)
- 2) Original letters which are not enhanced (الفعل المجرد)
3. Original letters which are enhanced (مزيد فيه)
- 4) Subjunctive mood (الحروف الناصبة)
- 5) Jussive Mood (الحروف الجازمة)
- 6) Negative particles (ما و لا وما ولا النافيتان)
- 7) Number 1 to 10,000 (العدد من الواحد إلى عشرة آلاف)

**UNIT IV: Lessons 20 to 22 (Textbook – 1)**

من الدرس العشرون إلى الدرس الثاني والعشرون

**UNIT V: Lessons 23 to 25 (Textbook – 1)**

من الدرس الثالث والعشرون إلى الدرس الخامس والعشرون

**TEXTBOOKS**

- 1) Duroosul Lughatil Arabiya Part – II Lessons 13 to 25 only by Dr. V. Abdur Rahim. Available at: Islamic foundation Trust, 78 Perambur High Road, Perambur, Chennai- 600 012.
- 2) Arabic Tutor Part-I, II & III, By: Moulana Ebrahim Muhammad Karachi-Darul Ishaat,

<b>III SEMESTER</b>			
<b>Part - II - English</b>			
<b>EN 3</b>	<b>ONE-ACT PLAYS AND WRITING SKILL</b>		<b>18ULEN31</b>
<b>Hrs/ Week: 6</b>	<b>Hrs/ Sem: 90</b>	<b>Hrs/ Unit: 18</b>	<b>Credits: 4</b>

**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. The Bishop's Candlesticks - Norman McKinnell
2. The Proposal - Anton Chekov
3. The Hour of Truth - Percival Wilde

**UNIT II – ONE-ACT PLAYS**

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

**UNIT III – WRITING SKILL**

1. **Messages** (Pages 1-9 of *Written English for You* to be taught and the tasks given to 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 10-20 *Written English for You* to 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 Enquiry
3. **Letters – 2** (Pages 36-42 of *Written English for You* to be taught and the tasks given in the pages 38 and 44 should be accomplished in the *Record of Writing*)
  - i) Letters to inform your plan of visit
  - ii) Letters of Request
  - iii) Letters of Asking for Advice

**UNIT IV – WRITING SKILL**

4. **Essays** (Pages 66-79 to be taught and only the tasks 1-3 from pages 79 and 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) What can be the length of an Essay?
  - vii) Why am I writing this Essay?

- viii) Who am I writing for?
  - ix) How to begin an Essay?
  - x) How to organize an Essay?
  - xi) What to avoid in writing an Essay?
5. **Narrating** (Pages 109-116 of *Written English for You* to be taught only the tasks 1 and 2 from pages 115 to 116 to 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 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 in pages 172-178 to 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 prescribed textbook ***Written English for You.***

#### **TEXTBOOKS**

1. Compiled by a Board of Editors. *Plays for Pleasure*. Chennai: Paavai Publications, 2009.
2. Sayed Mohammed. Y, ed. *Three One-Act Plays*. Tirunelveli: Muhammed Taahaa Publications, 2011.
3. Radhakrishna Pillai. G, ed. *Written English for you*. Chennai: Emerald Publishers, 1990 (rpt. 2008).

<b>III SEMESTER</b>			
<b>DSC 5</b>	<b>SEQUENCES AND SERIES</b>		<b>18UCMA31</b>
<b>Hrs/ Week: 6</b>	<b>Hrs/ Sem: 90</b>	<b>Hrs/ Unit: 18</b>	<b>Credits: 4</b>

**Objectives:**

- To understand the principles of behavior of sequences.
- To understand the basic principles of convergences of series through various tests.

**UNIT I**

Sequences-Bounded Sequences, Monotonic, Convergent, Divergent and Oscillating sequences – algebra of limits.

**UNIT II**

Behaviour of Monotonic Sequences, Some Theorems on Limits, Subsequences, Cauchy Sequences.

**UNIT III**

Series of positive terms, Convergence of Geometric, Harmonic series – Cauchy's General principles of convergence of series – comparison test.

**UNIT IV**

Kummer's test – ratio test – Raabe's test- Cauchy's root test – Cauchy's condensation test (without proof).

**UNIT V**

Series of arbitrary terms: Alternating Series – Absolute Convergence- Tests for Convergence of series of arbitrary terms.

**TEXTBOOK:**

Sequences & Series by S Arumugam & Isaac New Gamma Publishing House, Edition 2002.

Unit I: Chapter III: Section 3.1 to 3.6.

Unit II: Chapter III: Section 3.7 to 3.11

Unit III: Chapter IV: Section 4.1, 4.2.

Unit IV: Chapter IV: Section 4.3,4.4

Unit V: Chapter V: Section 5.1,5.2,5.3

**REFERENCE BOOK:**

Sequences and Series and Trigonometry by Joseph A. Mangaladoss Presi-Persi Publications, 2013 edition.



III SEMESTER			
DSE 1A	NUMBER THEORY		18UEMA3A
Hrs/ Week: 4	Hrs/ Sem: 60	Hrs/ Unit: 12	Credits: 4

**Objective:**

- To make the students understand the basic properties of the integers.
- To improve the students ability of Mathematical thinking.

**UNIT I: Divisibility Theory:**

Early Number theory – The Division algorithm – the Greatest Common divisor – The Euclidean Algorithm

**UNIT II:**

The Diophantine Equation  $ax + by = c$  – **Primes and their distribution:** The fundamental theorem of arithmetic – The Sieve Eratosthenes - The Goldbach conjecture.

**UNIT III: The Theory of Congruences:**

Carl Friedrich Gauss - Basic Properties of Congruence - Binary and Decimal Representations of Integers - Linear Congruences and the Chinese Remainder Theorem.

**UNIT IV: Fermat's Theorem:**

Pierre de Fermat - Fermat's Little Theorem and Pseudoprimes - Wilson's Theorem - The Fermat-Kraitchik Factorization Method.

**UNIT V: Euler's Generalization of Fermat's Theorem:**

Leonhard Euler - Euler's Phi-Function - Euler's Theorem - Some Properties of the Phi-Function.

**TEXTBOOK:**

Elements of Number Theory by David M. Burton, Seventh Edition, McGraw Hill Higher Education publications, New Delhi.

Unit I: Chapter 2 (Section 2.1 – 2.4)

Unit II: Chapter 2 (Section 2.5) and Chapter 3

Unit III: Chapter 4

Unit IV: Chapter 5

Unit V: Chapter 7

**REFERENCE BOOK:**

Beginning Number theory by Neville Robbins – Second Edition – 2006.

<b>III SEMESTER</b>			
<b>DSE 1B</b>	<b>OFFICEAUTOMATION</b>		<b>18UEMA3B</b>
<b>Hrs/ Week: 4</b>	<b>Hrs/ Sem: 60</b>	<b>Hrs/ Unit: 12</b>	<b>Credits: 4</b>

**Objective:**

- To impart knowledge on the basics of Office automation in the three basics activities – Storage of information, Data exchange and Data Management
- To improve customer relation and to achieve better management control.

**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 grammar 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

**TEXTBOOK:**

Office 2007 in simple steps by Kogent Solutions Inc. – published by Dreamtech Press – Edition 2010.

- 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.

<b>PART III – ALLIED II</b>			
<b>Allied Physics offered by Physics Department to B.Sc. Mathematics and B.Sc. Chemistry Students</b>			
<b>III SEMESTER</b>			
<b>AII – 1</b>	<b>ALLIED PHYSICS – I</b>		<b>18UAPH31</b>
<b>Hrs/ Week: 4</b>	<b>Hrs/ Sem: 60</b>	<b>Hrs/ Unit: 12</b>	<b>Credits: 3</b>

**Objectives:**

- To acquire an in-depth knowledge of Elasticity.
- To understand the basic phenomena of light
- To inculcate the knowledge about heat transfer phenomena.

**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 polarized 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.

**BOOKS FOR STUDY AND REFERENCES:**

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

<b>III SEMESTER</b>		
<b>AII –P1</b>	<b>ALLIED PHYSICS – I PRACTICALS</b>	<b>18UAPH3P1</b>
<b>Hrs/ Week: 2</b>	<b>Hrs/ Sem: 30</b>	<b>Credits: 1</b>

1. Young's modulus – Uniform bending (Pin and Microscope)
2. Young's modulus – Non-Uniform bending (scale and Telescope)
3. Verification of Kirchoff's law.
4. Verification of Newton's law of cooling
5. Spectrometer Grating – Oblique incidence
6. LCR series circuit
7. Air wedge – Thickness of wire
8. Calibration of Voltmeter using potentiometer
9. Characteristics of Zener diode
10. Basic logic gates OR, NOT & AND

<b>III SEMESTER</b>			
<b>NME I</b>	<b>MATHEMATICS FOR COMPETITIVE EXAMINATION - I</b>		<b>18UNMA51</b>
<b>Hrs/ Week: 2</b>	<b>Hrs/ Sem: 30</b>	<b>Hrs/ Unit: 6</b>	<b>Credits: 2</b>

**Objective:**

- To enable the students to assimilate the fundamental concepts and techniques for solving the mathematical problems
- To enable the students to 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.

**TEXTBOOK:**

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

**REFERENCE BOOK:**

Quantitative Aptitude by R. Gupta published by Ramesh Publishing House, Edition 2012.

நான்காம் பருவம்			
PART - I - TAMIL			
TA - 4	சங்கத்தமிழ்		18ULTA41
Hrs/Week: 6	Hrs/Sem: 90	Hrs/Unit: 18	Credits: 4

### நோக்கம்

- 1.சங்கஇலக்கியம் குறித்த புரிதலை மாணவர்களுக்கு ஏற்படுத்துதல்.
- 2.இணையத்தில் தமிழின் இடத்தினை உணர்த்துதல்.
- 3.மாணவர்களை இணையத்தைப்பயன்படுத்த அறிவுறுத்துதல்.

### அலகு - 1

தமிழ்ச் செய்யுள் (துறை வெளியீடு)

நற்றிணை (பாடல் எண்கள் 68-95), குறுந்தொகை (பாடல் எண்கள் 2, 23), ஐங்குறுநூறு (பாடல் எண்கள் 23, 49), பதிற்றுப்பத்து (பாடல் எண் 69), பரிபாடல் (செவ்வேள்-திருப்பரங்குன்றத்தின் அமைப்பும் சிறப்பும்-பாடல் எண்கள் 1 முதல் 20 வரை), கலித்தொகை (பாடல் எண் 10), அகநானூறு (பாடல் எண் 44), புறநானூறு (பாடல் எண் 187) மற்றும் பத்துப்பாட்டில் குறிஞ்சிப்பாட்டு முதல் 98 வரிகள்.

### அலகு-2

நம்பிக்கைத் தமிழ் -கல்லூரித் தமிழ்த்துறை வெளியீடு,

### அலகு - 3

இணையமும் தமிழும்

- தமிழ் இலக்கியப் பதிவுகளும் இணையமும்
- இணையத்தில் படைப்பை வெளியிடும் முறைகள்
- தமிழ் விக்கிபீடியா -அறிமுகம்
- வலைப் பூக்களை உருவாக்க மாணவர்களுக்குப் பயிற்சி தரல்
- தமிழ் மின் நூலகம்
- மின் நூல்களும் வாசகத் தன்மையும்
- புகழ்பெற்ற தமிழ் இலக்கியத் தளங்கள் குறித்த அறிமுகம்.

### அலகு - 4

இலக்கியவரலாறு

- சங்கஇலக்கியம் ஓர் அறிமுகம்
- எட்டுத்தொகை, பத்துப்பாட்டு
- சங்க இலக்கியத் திணைக் கோட்பாடும் சங்ககால மக்கள் வாழ்வியலும்

### அலகு - 5

இலக்கணம்

- தமிழர் வாழ்வில் அகமும் புறமும்
- ஐவகைநிலங்களின் முதல், கரு, உரிப் பொருட்கள்
- அறத்தொடு நின்றல்
- களவு, கற்பு விளக்கம்
- புறத்திணைகள்

**பார்வை நூல்கள்**

தமிழ்க் கணினி இணையப்பயன்பாடுகள்- முனைவர் துரை. மணிகண்டன்  
 த.வானதி  
 கமலினிபதிப்பகம்  
 கச்சமங்கலம் அஞ்சல்,  
 தோகூர் வழி,  
 தஞ்சாவூர் மாவட்டம்

இணையத் தமிழ்-தமிழ்த்துறை வெளியீடு  
 சதக்கத்துல்லாஹ் அப்பா கல்லூரி  
 திருநெல்வேலி.

**வழிகாட்டு இணையதளங்கள்**

1. [www.selliyal.com](http://www.selliyal.com)
2. [www.tamilvu.org](http://www.tamilvu.org)
3. [www.tamilcanadian.com](http://www.tamilcanadian.com)
4. [www.bbc.com](http://www.bbc.com)
5. [www.tamilinayam.com](http://www.tamilinayam.com)

	<b>SEMESTER - IV</b>		
<b>AR-4</b>	<b>CLASSICAL PROSE</b>		<b>18ULAR41</b>
<b>Hrs/ Week: 6</b>	<b>Hrs/ Sem: 90</b>	<b>Hrs/ Unit: 18</b>	<b>Credits:4</b>

**Objectives:** To impart the moral values in the students and build their personality to make them better citizens to serve the society.

**UNIT I: Verses from 1 to 12 from (Sura – al – Hujraat)(Textbook – 1)**  
من الآية "يا أيها الذين آمنوا لا تقدموا" إلى الآية "يا أيها الذين آمنوا اجتنبوا"

**UNIT II: Verses from 10 to 18 from (Sura – al – Hujraat) & verses from Surah Luqman from (12 to 19) (Textbook – 1)**  
من الآية "يا أيها الناس إنا خلقناكم" إلى الآية "إن الله يعلم غيب السموات"  
من الآية "ولقد آتينا لقمان الحكمة" إلى الآية "واقصد في مشيك"

**UNIT III: Collection and compilation of Quran and Hadeeth, History of Imam Abu Hanifa, Malik, Asshafi, Ahmad, Bukhari, Muslim, Abu Dawood, At-Tirmidi, An-Nasae and Ibn-Majah (Textbook – 1)**

**UNIT IV: Hadeeth 1 to 10 (Textbook – 2)**  
من الحديث "لا تأكلوا بالشمال" - إلى الحديث "خيركم من تعلم القرآن"

**UNIT V: Hadeeth 11 to 20 (Textbook – 2)**  
من الحديث "لا تمنعوا نساءكم" - إلى الحديث "حق المسلم على المسلم خمس"

#### **TEXTBOOKS**

- 1) Tafseer Suratul Hujuraath and from 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 Available at: Islamic foundation Trust, 78, Perambur High Road, Perambur, Chennai- 600 012.

IV SEMESTER			
<b>EN4</b>	<b>Part - II - English</b> <b>A PRACTICAL COURSE IN SPOKEN ENGLISH</b>		<b>18ULEN41</b>
<b>Hrs/ Week: 6</b>	<b>Hrs/ Sem: 90</b>	<b>Hrs/ Unit: 18</b>	<b>Credits: 4</b>

**Objectives:**

1. To express one's 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 and etc., & Pronunciation Practice: Vowels (Chapters 4 – 8 of *A Course in Spoken English*)

**UNIT III**

Developing descriptive competency, narrative competency, arguing competency, comparing competency and pronunciation practice: Diphthongs (Chapters 9 – 13 of *A Course in Spoken English*)

**UNIT IV**

Practicing 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. Board of Editors, Department of English, Sadakathullah Appa College, *A Workbook for A Course in Spoken English*, 2011.
3. Spoken English Practice Record.

**Evaluation Scheme:**

I Internal Oral Test: 15 Marks  
II Internal Oral Test: 15 Marks  
III Internal Oral Test: 15 Marks

} The best two of the three  
CIA test marks will be added up

**Distribution of Marks**

The best two of the three CIA test marks	:	30 Marks
Loud Reading	:	5 Marks
Listening Test	:	5 Marks
Internal Marks	:	40 Marks
External Oral Test	:	50 Marks
Record Note	:	05 Marks
Workbook	:	05 Marks
External Marks	:	60 Marks



IV SEMESTER			
<b>DSC6</b>	<b>ABSTRACT ALGEBRA</b>		<b>18UCMA41</b>
<b>Hrs/ Week: 6</b>	<b>Hrs/ Sem: 90</b>	<b>Hrs/ Unit: 18</b>	<b>Credits: 4</b>

**Objectives:**

- To introduce various structure like groups, rings, ideals and to study the similarities of such structures.
- To impart the knowledge of group theory and ring theory.

**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.

**UNIT III**

Normal subgroups – Quotient groups - Isomorphism- Cayley's theorem - Homomorphism- Fundamental theorem of homomorphism.

**UNIT IV**

Rings–elementary properties-Isomorphism - Types of rings - Integral Domain -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.

**TEXTBOOK:**

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

- Unit I: Chapter II: Section 2.1-2.4, 3.1 - 3.3.
- Unit II: Chapter III: Section 3.4-3.8
- Unit III: Chapter III: Section 3.9- 3.11
- Unit IV: Chapter IV: Section 4.1- 4.6
- Unit V: Chapter IV: Section 4.7- 4.11

**REFERENCE BOOK:**

Basic Abstract Algebra by P.B. Bhattacharya, S.K. Jain and S.R. Nagpaul, Published by Cambridge University Press, Second Edition.

<b>IV SEMESTER</b>			
<b>DSE:2A</b>	<b>LINEAR PROGRAMMING</b>		<b>18UEMA4A</b>
<b>Hrs/ Week: 4</b>	<b>Hrs/ Sem: 60</b>	<b>Hrs/ Unit: 12</b>	<b>Credits: 4</b>

**Objectives:**

- To familiarize the students with the techniques of Linear Programming problem to be applied.
- To learn about structure preserving maps between groups and their consequences.

**UNIT I**

Linear Programming problem – Mathematical Formulation of the problem –Illustration and simple problems (only for Product Allocation problem, Product mix problem and Production problem) - Graphical method.

**UNIT II**

General linear programming problem – Canonical and standard form of LPP – Simplex Method (maximization Problem) -Simplex Algorithm – Sample problems.

**UNIT III**

Charnes' Penalty Method - procedure for solving minimization problem by Big 'M' Method – Illustration and simple problems (Except for Two-Phase Method).

**UNIT IV**

Duality – General Primal-Dual pair -Formulating a Dual problem – Duallity and Simplex Method.

**UNIT V**

Dual of a Dual is primal- Fundamental theorem for Duality- Basic and Basic Duality Theorem– Complementary Slackness Theorem – Dual Simplex method.

**TEXTBOOK:**

Operations Research by Kanti Swarup, P. K. Gupta, Man Mohan -Fourteenth Edition 2014 – Sultan Chand & Sons, Educational Publisher, New Delhi. (Excluding Two-Phase Method and Theorems without proof)

Unit I: Chapter 2 Section 2.2-2.4 and Chapter 3 Section 3.2.

Unit II: Chapter 3 Section 3.4, 3.5 and Chapter 4 Section 4.1, 4.3.

Unit III: Chapter 4 Section 4.4, 4.5.

Unit IV: Chapter 5 Section 5.2, 5.3, 5.7.

Unit V: Chapter 5 Section 5.5, 5.6, 5.8.

**REFERENCE BOOK:**

Operations Research by P.R. Vittal & V. Malini, Margham Publications, Edition 2015.

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

**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 –  $\alpha$ -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.

IV SEMESTER			
<b>AII – 2</b>	<b>ALLIED PHYSICS – II</b>		<b>18UAPH41</b>
<b>Hrs/ Week: 4</b>	<b>Hrs/ Sem: 60</b>	<b>Hrs/ Unit: 12</b>	<b>Credits: 3</b>

**Objectives:**

- To study the wave nature of matter and to understand the nucleus and its properties.
- To give an insight to the electric and magnetic phenomena.
- To study the characteristics and to working principles of diodes and transistors.
- To understand the logic gates and boolean algebra
- To inculcate the knowledge about heat transfer phenomena

**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 – Capacitor – LCR series circuit – LCR parallel circuit – Self induction – self inductance of toroidal solenoid – mutual inductance between coils.

**UNIT IV: Basic Electronics**

Semiconductor diode – Diode Characteristics – Zener diode characteristics – Regulation with Zener diode – Bridge rectifier – Biasing of transistor – RC Coupled 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

**BOOKS FOR STUDY AND REFERENCES:**

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

<b>IV SEMESTER</b>		
<b>AII – P2</b>	<b>ALLIED PHYSICS PRACTICALS - II</b>	<b>18UAPH41</b>
<b>Hrs/ Week: 2</b>	<b>Hrs/ Sem: 30</b>	<b>Credits: 1</b>

1. Young's modulus – Cantilever – depression
2. Lee's disc – Thermal Conductivity
3. Transistor Characteristics (CE mode)
4. Viscosity- capillary flow
5. Spectrometer Grating – Normal incidence
6. Newton's rings – Refractive Index of lens
7. LCR parallel circuit
8. NAND as universal gate
9. NOR as universal gate
10. Calibration of low range Ammeter- Potentiometer

**REFERENCE BOOKS:**

1. Practical Physics - Ouseph, Srinivasan & Vijayendran,
2. Practical Physics – P. R. Sasi Kumar, PHI.
3. Advanced Practical Physics - S. P. Singh, Pragathi Prakasam.
4. Practical Physics – St. Joseph College, Trichy.

<b>IV SEMESTER</b>			
<b>NME II</b>	<b>MATHEMATICS FOR COMPETITIVE EXAMINATION – II</b>		<b>18UNMA41</b>
<b>Hrs/ Week: 2</b>	<b>Hrs/ Sem: 30</b>	<b>Hrs/ Unit: 6</b>	<b>Credits: 2</b>

**Objective:**

- To enable the students to assimilate the fundamental concepts and techniques for solving the mathematical problems
- To enable the students to 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.

**TEXTBOOK:**

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

**REFERENCE BOOK:**

Quantitative Aptitude by R. Gupta published by Ramesh Publishing House, Edition 2012.

<b>V SEMESTER</b>			
<b>DSC 7</b>	<b>LINEAR ALGEBRA</b>		<b>18UCMA51</b>
<b>Hrs/ Week: 5</b>	<b>Hrs/ Sem: 75</b>	<b>Hrs/ Unit: 15</b>	<b>Credits: 4</b>

**Objectives:**

- To enrich the students with a knowledge of the basic concepts of Vector Space.
- 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**

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

**UNIT V**

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

**TEXTBOOK:**

Modern Algebra by Dr. S. Arumugam and Issac --SCITECH Publications (India) Pvt Ltd-Edition 2012.

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 VI: Section 6.1, 6.2, 6.3

Unit V: Chapter VII: Section 7.1, 7.2, 7.3, 7.7, 7.8

**REFERENCE BOOK:**

University Algebra by N.S. Gopalakrishnan, Second Edition-2001, New Age International Pvt, Ltd.

<b>V SEMESTER</b>			
<b>DSC 8</b>	<b>REAL ANALYSIS</b>		<b>18UCMA52</b>
<b>Hrs/ Week: 5</b>	<b>Hrs/ Sem: 75</b>	<b>Hrs/ Unit: 15</b>	<b>Credits: 4</b>

**Objectives:**

- To impart the knowledge of the basic terms of the analysis like opens set, closed set, Closure etc.
- To understand the concept of complete metric space, connected metric space and compact metric space.
- To identify the continuity of a function defined on metric spaces and homeomorphisms.

**UNIT I**

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

**UNITII**

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

**UNITIII**

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

**UNITIV**

Connectedness - Equivalent conditions - Connected subsets of  $\mathbb{R}$  - Connectedness and continuity - Intermediate Value theorem- Contraction mapping theorem. (Except Picard's Theorem)

**UNITV**

Compactness - Compact Metric spaces - Heine Borel theorem – Compactness and Continuity.

**TEXTBOOK:**

Modern Analysis by S. Arumugam and Isaac, New Gamma Publishing House, Edition June 2013.

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 VIII: Section 8.1. (except theorem 8.3)

Unit V: Chapter VI: Section 6.1, 6.2, 6.4.

**REFERENCE BOOK:**

Methods of Real Analysis by Richard R. Goldberg, Oxford and IBH Publishing Co Pvt. Ltd – Indian Edition – 1970.



<b>V SEMESTER</b>			
<b>DSC 9</b>	<b>COMBINATORIAL MATHEMATICS</b>		<b>18UCMA53</b>
<b>Hrs/ Week: 5</b>	<b>Hrs/ Sem: 75</b>	<b>Hrs/ Unit: 15</b>	<b>Credits: 4</b>

**Objectives:**

- To impart knowledge of applications of mathematics especially in the field of Combinations and permutations.
- 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.

**TEXTBOOK:**

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

Unit I: Chapter I & Chapter II

Unit II: Chapter III

Unit III: Chapter IV

Unit IV: Chapter V

Unit V: Chapter VI

**REFERENCE BOOK:**

Introduction to Combinatorics – C.L. Liu

<b>V SEMESTER</b>			
<b>DSC 10</b>	<b>OPERATIONS RESEARCH</b>		<b>18UCMA54</b>
<b>Hrs/ Week: 5</b>	<b>Hrs/ Sem: 75</b>	<b>Hrs/ Unit: 15</b>	<b>Credits: 4</b>

**Objectives:**

- To familiarize the students with the techniques of O.R to be applied.
- To impart knowledge of the computation procedure of optimality.

**UNIT I**

Transportation problem – LP formulation of Transportation problem – Transportation Table – Loops – Solution of Transportation problem – Finding an Initial Basic feasible solution- Vogel's Approximation Methods (VAM) – Test for optimality – Transposition Algorithm - MODI Method– Sample problems.

**UNIT II**

Transportation problem – Existence of solution –Triangular Basis in a TP- Finding an Initial Basic feasible solution – North-West Corner Rule – Least Cost Method - Test for optimality – Transposition Algorithm - Stepping-Stone Method– Sample problems.

**UNIT III**

Assignment problem –Mathematical formulation – Solution of Assignment problem – Hungarian Method- Special Classes in Assignment problem.

**UNIT IV**

Two Person Zero Sum Game-Some basic terms- The Maxi-Min and Mini-Max Principle -Game without Saddle point- Mixed Strategies - Graphical Solution of  $2 \times n$  and  $m \times 2$ - Simple problems.

**UNIT V**

Network flow problem – Minimal Spanning Tree Problem-Shortest route Problems

**TEXTBOOK:**

Operations Research by Kanti Swarup, P. K. Gupta, Man Mohan -fourteenth edition 2014 – Sultan Chand & Sons, Educational Publisher, New Delhi. (Theorems without proof)

Unit I: Chapter 10 Section 10.2, 10.5, 10.6, 10.8, 10.9 (VAM only), 10.10, 10.13 (MODI Method Only)

Unit II: Chapter 10 Section 10.3, 10.7, 10.9 (North-West Corner Rule and Least Cost Method only), 10.13 (Stepping-Stone Method Only)

Unit III: Chapter 11 Section 11.2-11.4

Unit IV: Chapter 17 Section 17.2-17.6.

Unit V: Chapter 24 Section 24.2-24.4

**REFERENCE BOOK:**

Operations Research by P.R. Vittal & V. Malini, Margham Publications, Edition 2015.

<b>V SEMESTER</b>			
<b>DSC 11</b>	<b>ASTRONOMY</b>		<b>18UCMA55</b>
<b>Hrs/ Week: 4</b>	<b>Hrs/ Sem: 60</b>	<b>Hrs/ Unit: 12</b>	<b>Credits: 4</b>

**Objectives:**

1. To give an in-dept knowledge about celestial bodies.
2. To solve problems in elementary mechanics

**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 - Verifications – 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 – Conversation of time.

**TEXTBOOK**

Astronomy by S. Kumaravel & Surhula Kumaravel, - Edition 2014 – A. Baskara Selvan Printer.

- Unit I: Chapter I & Chapter II  
 Unit II: Chapter III- Sections: 1, 2, 5 & 6.  
 Unit III: Chapter IV & Chapter V  
 Unit IV: Chapter VI & Chapter IX  
 Unit V: Chapter VII

**REFERENCE BOOK:**

Astronomy by GV. Ramachandran

V SEMESTER			
<b>DSE3A</b>	<b>STATICS</b>		<b>18UEMA5A</b>
<b>Hrs/ Week: 4</b>	<b>Hrs/ Sem: 60</b>	<b>Hrs/ Unit: 12</b>	<b>Credits: 4</b>

**Objectives:**

- 1.To have an in-depth knowledge of objects in motion
- 2.Tosolve problems in elementary Statics

**UNIT I**

Introduction - Forces Acting at a point- Parallelogram law of forces – Lami’s Theorem- Problems.

**UNIT II**

Parallel Forces and Moments - Resultant of two parallel forces- Center of two parallel forces -Varignon’s Theorem of Moments.

**UNIT III**

Equilibrium of three forces acting on a rigid body- Three Coplanar Forces – Theorems and Problems.

**UNIT IV**

Friction- Laws of friction – Angle of friction – Equilibrium of a body on a rough inclines plane- Problems

**UNIT V**

Equilibrium of strings – Equation of common catenary – Tension at a point – Geometrical properties of the common catenary - problems.

**TEXTBOOK**

Statics by Dr. M.K. Venkatraman - Edition July 2013 – Agasthiar Publications

- Unit I: Chapter I, Chapter II (Sec: 2.1 to 2.9)
- Unit II: Chapter III (Sec:3.1 to 3.12)
- Unit III: Chapter V (Sec: 5.1 to 5.6)
- Unit IV: Chapter VII (Sec 7.1 to 7.12)
- Unit V: Chapter XI (Sec:11.1 to 11.6)

**REFERENCE BOOK:**

Mechanics by P. Durai Pandian, S. Chand Limited, 1995, Laxmi Durai Pandian, Muthamil Jeyaprakasam – Edition 2007

<b>V SEMESTER</b>			
<b>DSE3B</b>	<b>PROGRAMMING INC- I</b>		<b>18UEMA5B</b>
<b>Hrs/ Week: 4</b>	<b>Hrs/ Sem: 60</b>	<b>Hrs/ Unit: 12</b>	<b>Credits: 4</b>

**Objectives:**

- To learn the basic programming concepts.
- To have an in-depth knowledge of Algorithms and Programs in C.

**UNIT I**

Constants – Variables and data types

**UNIT II**

Operations and expressions

**UNIT III**

Managing input and output operations

**UNIT IV**

Decision making and Branching

**UNIT V**

Decision making and Looping

**TEXTBOOK:**

Programming in ANSI C by E. Balagurusamy-Tata McGraw-Hill Publishing Company Limited -Sixth Edition - 2013

- Unit I: Chapter I
- Unit II: Chapter II
- Unit III: Chapter III
- Unit IV: Chapter IV
- Unit V: Chapter V

**REFERENCE BOOK:**

Programming in C by D. Ravichandran-New age international Pvt. Ltd. Publishers-Edition 2011

<b>V SEMESTER</b>			
<b>SEC- I</b>	<b>NUMERICAL ABILITY – I</b>		<b>18USMA51</b>
<b>Hrs/ Week: 2</b>	<b>Hrs/ Sem: 30</b>	<b>Hrs/ Unit: 6</b>	<b>Credits: 2</b>

**Objective:**

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

**UNIT I**

Problems on numbers.

**UNITII**

Problems on ages

**UNITIII**

Profit and loss.

**UNITIV**

Simple Interest

**UNITV**

Compound Interest

**TEXTBOOK:**

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 21
- Unit V: Chapter 22

**REFERENCE BOOK:**

Quantitative Aptitude by R. Gupta published by Ramesh Publishing House, Edition 2012.

VI SEMESTER			
<b>DSC12</b>	<b>COMPLEXANALYSIS</b>		<b>18UCMA61</b>
<b>Hrs/ Week: 6</b>	<b>Hrs/ Sem: 90</b>	<b>Hrs/ Unit: 18</b>	<b>Credits: 4</b>

**Objectives:**

- 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.
- 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

**TEXTBOOK:**

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

Unit I: Chapter II: Section 2.5 to 2.8

Unit II: Chapter III Section 3.1 to 3.5

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 (Except Type 3)

**REFERENCE BOOK:**

Complex Analysis by P. Durai Pandian, Laxmi Durai Pandian, D. Muhilan, Emerald Publisher, Reprinted 2001.

VI SEMESTER			
<b>DSC13</b>	<b>GRAPHTHEORY</b>		<b>18UCMA62</b>
<b>Hrs/ Week: 5</b>	<b>Hrs/ Sem: 75</b>	<b>Hrs/ Unit: 15</b>	<b>Credits: 4</b>

**Objectives:**

- To provide a basic foundation for topics like Subgraphs, Degree sequences, Connectedness, etc.
- 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.

**UNITII**

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

**UNITIII**

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

**UNITIV**

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

**UNITV**

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

**TEXTBOOK:**

Invitation to Graph Theory by S. Arumugam & S. Ramachandran SCITECH Publications (India) Ltd., Reprint 2014.

- 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 G. Suresh Singh – PHI learning Pvt. Ltd – 2010.



<b>VI SEMESTER</b>			
<b>DSC14</b>	<b>NUMERICALMETHODS</b>		<b>18UCMA63</b>
<b>Hrs/ Week: 5</b>	<b>Hrs/ Sem: 75</b>	<b>Hrs/ Unit: 15</b>	<b>Credits: 4</b>

**Objectives:**

- To introduce the idea of finite differences and the associated concepts which have important applications in Numerical Method.
- To enable the students to solve ordinary differential equations numerically.

**UNIT I**

Finite Differences- Difference operators, Other difference operator, Sum of series.

**UNIT II**

Interpolation-Newton's forward interpolation formula, Newton's backward interpolation formula, Newton's central interpolation formula (Strilling's formula Only).

**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.

**TEXTBOOK**

Numerical Methods by Dr. S. Arumugam, Issac and Somasundaram, SCITECH Publication, 2007 Reprint.

- Unit I: Chapter VI - Section: 6.0-6.2 and 6.4
- Unit II: Chapter VII - Section: 7.0-7.2
- 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, 10.1, 10.3-10.6

**REFERENCE BOOK:**

Numerical Methods by Dr. A. Kandasamy & Dr. K. Thilagavathy and Dr. K. Gunavathi, S. Chand & Company Pvt Ltd, Delhi, Reprint 2018.

<b>VI SEMESTER</b>		
<b>DSC15</b>	<b>PROJECT</b>	<b>18UCMA64</b>
<b>Hrs/ Week: 6</b>	<b>Hrs/ Sem: 90</b>	<b>Credits: 6</b>

### **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 presentation of project and 40 for viva-voce.

### **Evaluation Scheme:**

The project will be evaluated by both Internal and External Examiners. Each Examiner will evaluate for 100 marks. The allocation of marks for project is as follows:

<b>S. No</b>	<b>Particulars</b>	<b>Internal Examiner</b>	<b>External Examiner</b>
1	Wording of Title	5	5
2	Objectives / Formulation including Hypothesis	5	5
3	Review of Literature	10	10
4	Relevance to Project to Social Need	5	5
5	Methodology/Technique/ Procedure Adopted	20	20
6	Summary/Finding/ Conclusion/Summation	5	5
7	Bibliography/Annexure/ Foot notes/Works Cited	10	10
	<b>Total</b>	60	60

VI SEMESTER			
DSE4A	DYNAMICS		18UEMA6A
Hrs/ Week: 4	Hrs/ Sem: 60	Hrs/ Unit: 12	Credits: 4

**Objectives:**

- To have an in-depth knowledge of objects in motion
- To solve problems in elementary Dynamics

**UNIT I:**

Projectiles – Path of a Projectile – Characteristics of the motion of a Projectile -Problems.

**UNIT II:**

Collution of elastic bodies -Laws of Impact - Problems.

**UNIT III:**

Simple Harmonic Motion – Geometrical representation of Simple Harmonic Motion - Problems.

**UNIT IV:**

Motion under the action of the central force – Velocity and Acceleration in Polar Co-ordinates- Problems.

**UNIT V:**

Motion under a central force- Differential Equation of central object- Pedal Equation of central object- Problems.

**TEXTBOOK:**

Dynamics by Dr. M.K. Venkatraman - Edition Jan 2014 – Agasthiar Publications

- Unit I: Chapter VI (Sec: 6.1 to 6.6)
- Unit II: Chapter VIII (Sec:8.1 to 8.4)
- Unit III: Chapter X (Sec: 10.1 to 10.5)
- Unit IV: Chapter XI (Sec 11.1 to 11.4)
- Unit V: Chapter XI (Sec:11.5 to 11.11)

**REFERENCE BOOK:**

Mechanics by P. Durai Pandian, S. Chand Limited, 1995, Laxmi Durai Pandian, Muthamil Jeyaprakasam – Edition 2007

VI SEMESTER			
<b>DSE4B</b>	<b>PROGRAMMING INC- II</b>		<b>18UEMA6B</b>
<b>Hrs/ Week: 4</b>	<b>Hrs/ Sem: 60</b>	<b>Hrs/ Unit: 12</b>	<b>Credits: 4</b>

**Objectives:**

- To learn the structured programming concepts.
- To have an in-depth knowledge of Algorithms and Programs in C.\

**UNIT I**

Arrays

**UNIT II**

Character Arrays and Strings

**UNIT III**

User-Defined function

**UNIT IV**

Structures and Unions

**UNIT V**

Pointers

**TEXTBOOK:**

Programming in ANSI C by E. Balagurusamy

Unit I: Chapter VII

Unit II: Chapter VIII

Unit III: Chapter IX

Unit IV: Chapter X

Unit V: Chapter XI

**REFERENCE BOOK:**Programming in C by D. Ravichandran-New age international Pvt. Ltd. publishers-  
Edition 2011

VI SEMESTER			
<b>SEC II</b>	<b>NUMERICAL ABILITY – II</b>		<b>18USMA61</b>
<b>Hrs/ Week: 2</b>	<b>Hrs/ Sem: 30</b>	<b>Hrs/ Unit: 6</b>	<b>Credits: 2</b>

**Objective:**

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

**UNIT I**

Time and Work.

**UNIT II**

Time and Distance.

**UNIT III**

Problems on Trains.

**UNIT IV**

Logarithms.

**UNIT V**

Heights and Distances

**TEXTBOOK:**

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

Unit I: Chapter 15

Unit II: Chapter 17

Unit III: Chapter 18

Unit IV: Chapter 23

Unit V: Chapter 34

**REFERENCE BOOK:**

Quantitative Aptitude by R. Gupta published by Ramesh Publishing House, Edition 2012.

<b>VI SEMESTER</b>		
<b>SBC</b>	<b>PERSONALITY DEVELOPMENT</b>	<b>18USPD62</b>
<b>Hrs / Week: 2Hrs / Sem: 30Hrs / Unit: 6Credits:2</b>		

**UNIT - I**

**PERSONALITY** - Definition – Determinants – Personality Traits –Theories of Personality – Importance of Personality Development. **SELF AWARENESS** – Meaning – Benefits of Self – Awareness – Developing Self – Awareness. **SWOT** – Meaning – Importance- Application – Components.

**UNIT – II**

**SELF MONITORING** – Meaning –Advantages and Disadvantages self-monitor - Self – monitoring and job performance. **PERCEPTION**- Definition-Factor influencing perception- Perception process. **ATTITUDE** – Meaning-Formation of attitude – Types of attitude - Measurement of Attitudes. **ASSERTIVENESS** - Meaning – Assertiveness in Communication – Assertiveness Techniques.

**UNIT – III**

**TEAM BUILDING** – Meaning – Types of teams – Importance of Team building- Creating Effective Team. **LEADERSHIP** – Definition – Leadership style – Qualities of an Effective leader. **NEGOTIATION SKILLS** – Meaning – Principles of Negotiation – Types of Negotiation – The Negotiation Process. **CONFLICT MANAGEMENT** – Definition- Types of Conflict- Levels of Conflict.

**UNIT -IV**

**COMMUNICATION** – Definition – Importance of communication – Process of communication –Barriers in communication – Overcoming Communication Barriers. **EMOTIONAL INTELLIGENCE**: Meaning – Components of Emotional Intelligence- Significance of managing Emotional intelligence. **STRESS MANAGEMENT** – Meaning – Sources of Stress – Symptoms of Stress – Consequences of Stress – Managing Stress.

**UNIT – V**

**SOCIAL GRACES** – Meaning – Social Grace at Work – Acquiring Social Graces. **TABLE MANNERS** – Meaning – Table Etiquettes in Multicultural Environment- Do's and Don'ts of Table Etiquettes. **DRESS CODE** – Meaning- Dress Code for selected Occasions – Dress Code for an Interview. **GROUP DISCUSSION** – Meaning – Personality traits required for Group Discussion- Process of Group Discussion. **INTERVIEW** – Definition- Types of skills – Employer Expectations –Planning for the Interview – Interview Questions- Critical Interview Questions.

**References:**

3. Dr.S. Narayana Rajan, Dr. B. Rajasekaran, G. Venkadasalaphi, V. Vijuresh Nayaham and Herald M.Dhas, **Personality Development**, Publication Division, Manonmaniam Sundaranar University, Tirunelveli
4. Stephan P. Robbins, **Organisational Behaviour**, Tenth Edition, Prentice Hall of India Private Limited, New Delhi,2008
5. Jit S. Chandan, **Orgnisational Behaviour**, Third Edition, Vikas Publishing House Private Limited, 2008
6. Dr. K.K. Ramachandran and Dr. K.K. Karthick, **From Campus to Corporate**, Macmillan Publishers India Limited, New Delhi, 2010.

<b>SCHEME OF EXAMINATIONS UNDER CBCS (2018 - 2021)</b>
--

The medium of instruction in all UG and PG courses is English, and students must write the CIA Tests and Semester Examinations in English.

**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.	OVERALL
<b>Theory</b>	100	25	75	Nil	30	40
<b>Practical (4 hrs)</b>	100	40	60	Nil	24	40
<b>Practical (2 hrs)</b>	50	20	30	Nil	12	20
<b>Project</b>	100	Nil	Report - 60 marks Viva Voce - 40 marks	Nil	Nil	40

**DIVISION OF MARKS FOR CIA TEST**

SUBJECT	MARKS	ASSIGNMENT FOR UG / ASSIGNMENT OR SEMINAR FOR PG	RECORD NOTE	TOTAL MARKS
<b>Theory</b>	20	5	--	<b>25</b>
<b>Practical (4 hrs)</b>	30	--	10	<b>40</b>
<b>Practical (2 hrs)</b>	15	--	5	<b>20</b>

- The duration of each CIA Test is ONE hour, and the Semester Examination is THREE hours.
- 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.
- 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.
- Two assignments for Undergraduate, Certificate, Diploma and Advanced Diploma Courses and two assignments OR two seminars for Postgraduate Courses has to be submitted.
- 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.
- Two internal practical tests of 30/15 marks each will be conducted for science students in the respective semester and the average will be taken. The record marks allotted for the above practical are 10 and 5 respectively.

**QUESTION PAPER PATTERN FOR CIA TEST (THEORY)****Duration: 1 Hr Maximum Marks: 20**

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

**QUESTION PAPER PATTERN FOR SEMESTER EXAMINATION (THEORY)****Duration: 3 Hrs****Maximum Marks: 75**

<b>Section</b>	<b>Question Type</b>	<b>No. of Questions &amp; Marks</b>	<b>Marks</b>
<b>A</b>	No Choice Answer should not exceed 75 words	10 Questions - 2 marks each (2 Questions from each unit)	10 x 2 = 20
<b>B</b>	Internal choice (Either or type) Answer should not exceed 200 words	5 Questions with internal choice. Each carry 5 marks (Two questions from each unit)	5 x 5 = 25
<b>C</b>	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
<b>TOTAL</b>			<b>75 MARKS</b>