B.Sc. MATHEMATICS
SYLLABUS - 2017

SCHOOLS OF EXCELLENCE
with
CHOICE BASED CREDIT SYSTEM (CBCS)

SCHOOL OF COMPUTING SCIENCES
St. JOSEPH'S COLLEGE (Autonomous)
Special Heritage Status Awarded by UGC
Accredited at 'A' Grade (3rd cycle) by NAAC
College with Potential for Excellence Conferred by UGC
DBT-STAR & DST-FIST Sponsored College
TIRUCHIRAPPALLI - 620 002, INDIA

SCHOOLS OF EXCELLENCE
WITH CHOICE BASED CREDIT SYSTEM
(CBCS)

UNDERGRADUATE COURSES

St. Joseph's College (Autonomous), a pioneer in higher education in India, strives to work towards the academic excellence. In this regard, it has initiated the implementation of five "Schools of Excellence" from the academic year 2014 – 15, to standup to the challenges of the 21st century.

Each School integrates related disciplines under one roof. The school system allows the enhanced academic mobility and enriched employability of the students. At the same time this system preserves the identity, autonomy and uniqueness of every department and reinforces their efforts to be student centric in curriculum designing and skill imparting. These five schools will work concertedly to achieve and accomplish the following objectives:

- Optimal utilization of resources both human and material for the academic flexibility leading to excellence.
- Students experience or enjoy their choice of courses and credits for their horizontal mobility.
- The existing curricular structure as specified by TANSCHE and other higher educational institutions facilitate the Credit-Transfer Across the Disciplines (CTAD) - a uniqueness of the choice based credit system.
- Human excellence in specialized areas
- Thrust in internship and / or projects as a lead towards research and
- The multi-discipline nature of the newly evolved structure (School System) caters to the needs of stake-holders, especially the employers.

What is Credit system?

Weightage to a course is given in relation to the hours assigned for the course. Generally one hour per week has one credit. For viability and conformity to the guidelines credits are awarded irrespective of the teaching hours. The following Table shows the correlation between credits and hours. However, there could be some flexibility because of practicals, field visits, tutorials and nature of project work.

For UG courses, a student must earn a minimum of 150 credits as mentioned in the table below. The total number of minimum courses offered by a department are given in the course pattern.

SUMMARY OF HOURS AND CREDITS
UG COURSES

Part	Semester	Specification	No. of Courses	Hours	Credits	Total Credits
I	I-IV	**Languages** (Tamil/Hindi/French/Sanskrit)	4	16	12	**12**
II	I-IV	**General English**	4	20	12	**12**
III	I-VI	**Core** Theory		11-16		
		Practicals		3-6		
	V-VI	Project Work	1	90	60	
	IV-VI	**Core Electives**	3	12	12	
	V	Self-paced Learning (Partial Online Course)	1	-	2	
	VI	Comprehensive Examination	1	-	2	
	I-VI	**Allied**	4/6	24	20	
	III & V	**Extra Credit Courses**	**2**	-	**(4)**	
	VI	**Internship**	1	-	2	**98**
1V	V	**Skilled Based Electives:** Between Schools (BS)	1	2	2	
	VI	Within School (WS)	1	2	2	
	V	**Inter Departmental Courses (IDC)** Soft Skills / NCC	1	2	2	
	I	**Non-Major Courses (NMC)** Communicative English	1	-	5	
	II	Computer Literacy	1	2	2	
	III	Environmental Studies (Partial Online Course)	1	2	2	
	I-IV	**Value Education**	4	8	8	**23**
V	I-V	**SHEPHERD & Gender Studies**	-	-		
	I-V	**AICUF, Fine Arts, Nature Club, NCC, NSS**	-	-	-	
	V	**Career Guidance & Training**	-	-	-	**5**
		TOTAL		**180**	**150**	**150 (+4 extra credits)**

Course Pattern

The Undergraduate degree course consists of five vital components. They are as follows:

Part -I : Languages (Tamil / Hindi / French / Sanskrit)

Part-II : General English

Part-III : Core Course (Theory, Practical, Core Electives, Allied, Project, Internship and Comprehensive Examinations)

Part-IV : SBE, NMC, Value Education, Soft Skills/National Cadet Corps and Environmental Studies (EVS)

Part-V : Community Service (SHEPHERD) and Gender Studies, AICUF, Fine Arts, Nature Club, NCC, NSS, etc.

Non-Major Courses (NMC)

There are three NMC's – Communicative English, Computer Literacy and Environmental Studies offered in the I, II & III Semesters respectively.

Extra Credit Courses

In order to facilitate the students gaining extra credits, the extra credit courses are given. There are two extra credit courses – Massive Open Online Courses (MOOC) and Skill-based Course – offered in the III and V Semesters respectively.

According to the guidelines of UGC, the students are encouraged to avail this option of enriching by enrolling themselves in the MOOC provided by various portals such as SWAYAM, NPTEL, etc. Skill based course is offered by the department apart from their regular class hours.

Value Education Courses

There are four courses offered in the first four semesters for the First & Second UG students.

Non-Major Elective / Skill Based Elective

These courses are offered in two perspectives as electives "Within School" (WS) and "Between School" (BS).

Subject Code Fixation

The following code system (11 characters) is adopted for Under Graduate courses:

Year of Revision	UG Code of the Dept	Semester	Specification of the Part	Subject Category	Running no. in that part
↓	↓	↓	↓	↓	↓
17	U##	x	x	xx	xx
17	**UMA**	**1**	**3**	**2**	**01**

For Example :

I B.Sc. Mathematics, first semester **Basic Mathematics**

The code of the paper is 17UMA130201.

Thus, the subject code is fixed for other subjects.

Subject Category

00 - Languages (Tamil / Hindi / French / Sanskrit)

01 - General English

02 - Core (Theory, Practical, Comprehensive Exams, Internship and Project)

03 - Core Electives

04 - Allied

05 - Extra Credit Courses

06 - Skill Based Electives (BS) & (WS)

07 - Soft Skill

08 - NMC (Communicative English, Computer Literacy/SAP)

09 - EVS (Environmental Studies)

10 - Value Education

11 - Community Service (SHEPHERD) and Gender Studies

12 - AICUF / Nature Club / Fine Arts / NCC / NSS etc.

EXAMINATION: Continuous Internal Assessment (CIA)

UG - Distribution of CIA Marks	
Passing Minimum: 40 Marks	
Library Referencing	5
3 Components	35
Mid-Semester Test	30
End-Semester Test	30
CIA	**100**

MID-SEM & END–SEM TEST

Centralised – Conducted by the office of COE

1. Mid-Sem Test & End-Sem Test: (2 Hours each); will have Objective + Descriptive elements; with the existing question pattern PART-A, PART-B, and PART-C.

2. CIA Component III for UG & PG will be of 15 marks and compulsorily objective multiple choice question type.

3. The CIA Component III must be conducted by the department / faculty concerned at a suitable computer centres.

4. The 10 marks of Part-A of Mid-Sem and End-Sem Tests will comprise only: **Objective Multiple Choice Questions**; **True / False**; and **Fill-in the Blanks**.

5. The number of hours for the 5 marks allotted for Library Referencing work would be 30 hours per semester. The marks scored out of 5 will be given to all the courses of the semester.

6. English Composition once a fortnight will form one of the components for UG General English.

SEMESTER EXAMINATION

Testing with Objective and Descriptive questions

Part-A: Objective MCQs only (30 Marks)

Answers are to be marked on OMR score-sheet. The OMR score-sheets will be supplied along with the Main Answer Book. 40 minutes after the start of the examination the OMR score-sheets will be collected

Part-B & C: Descriptive (70 Marks)

Part-B: 5 x 5 = 25 marks (Inbuilt Choice);
Part-C: 3 x 15 = 45 marks; 3 out of 5 questions (Open Choice).

The Accounts Paper of Commerce will have
Part-A: Objective = 25
Part-B: Descriptive 3 x 25 = 75 marks.

Duration of Examination must be rational; proportional to teaching hours 90 minute-examination / 50 Marks for courses of 2/3 hours/week (all Part IV UG Courses) 3-hours examination for courses of 4-6 hours/week.

Grading System
1. Grading

The total marks will be calculated by adding both CIA and the end-semester examinations for each of the courses. The total marks thus obtained will then be graded as per details provided in the following Table-1.

From the second semester onwards, the total performance within a semester and the continuous performance starting from the first semester are indicated by Semester **Grade Point Average (GPA)** and **Cumulative Grade Point Average (CGPA)** respectively. These two are calculated by the following formulae:

$$\text{GPA} = \frac{\sum_{i=1}^{n} C_i G_i}{\sum_{i=1}^{n} C_i}, \qquad \text{WAM (Weighted Average Marks)} = \frac{\sum_{i=1}^{n} C_i M_i}{\sum_{i=1}^{n} C_i}$$

where, 'C$_i$' is the Credit earned for the Course-*i*,
'G$_i$' is the Grade Point obtained by the student for the Course '*i*',
'M' is the marks obtained for the course '*i*', and
'*n*' is the number of Courses **Passed** in that semester.

CGPA: Average GPA of all the Courses starting from the first semester to the current semester.

2. Classification of Final Results
  i) For each of the three parts, there shall be separate classification on the basis of the CGPA, as indicated in the following Table-2.

ii) For the purpose of declaring a candidate to have qualified for the Degree of Bachelor of Arts/Science/Commerce/Management/Literature as Outstanding/Excellent/Very Good/Good/Above average/Average, the marks and the corresponding CGPA earned by the candidate in Part-III alone will be the criterion, provided he/she has secured the prescribed passing minimum in the LCs and the ELCs.

iii) Grade in Part-IV and Part-V shall be shown separately and it shall not be taken into account for classification.

iv) Absence from an examination shall not be taken as an attempt.

Table-1: Grading of the Courses

Marks Range	Grade Point	Corresponding Grade
90 and above	10	O
80 and above but below 90	9	A+
70 and above but below 80	8	A
60 and above but below 70	7	B+
50 and above but below 60	6	B
40 and above but below 50	5	C
Below 40	0	RA

Table-2: Final Result

CGPA	Classification of Final Results	Corresponding Grade
9.00 and above	O	Outstanding
8.00 to 8.99	A+	Excellent
7.00 to 7.99	A	Very Good
6.00 to 6.99	B+	Good
5.00 to 5.99	B	Above Average
4.00 to 4.99	C	Average
Below 4.00	RA	Re-appearance

Credit based weighted Mark System isadopted for individual semesters and cumulative semesters in the column 'Marks Secured' (for 100).

A Pass in SHEPHERD will continue to be mandatory although the marks will not count for the calculation of the CGPA.

Declaration of Result:
Mr./Ms. _____ has successfully completed the Under Grduate in _____ programme. The candidate's Cumulative Grade Point Average (CGPA) in Part-III is _____ and the class secured is _____ by completing the minimum of 150 credits. The candidate has acquired _____ (if any) more credits from SHEPHERD / AICUF/ Fine Arts / Sports & Games / NCC / NSS / Nature Club etc. The candidate has also acquired _____ (if any) extra credits offered by the parent department courses.

B. Sc. Mathematics

Course Pattern - 2017 Set

Sem		Part	CODE	Title of the paper	Hrs	Cr
I	I	Language	17UGT110001	Language-I	4	3
	II	English	17UGE120101	General English-I	5	3
	III	Core	17UMA130201	Basic Mathematics	7	4
			17UMA130202	Integral Calculus	6	4
		Allied	17UMA130401	Allied :Statistics-I	6	5
	IV	NMC	17UCE140801	Communicative English	-	5
		V. Edn	17UFC141001	Essentials of humanity	2	2
				Total for Semester I	**30**	**26**
II	I	Language	17UGT210002	Language-II	4	3
	II	English	17UGE220102	General English-II	5	3
	III	Core	17UMA230203	Analytical Geometry	6	4
			17UMA230204	Differential Equations	5	3
		Allied	17UMA230402	Allied: Statistics-II	6	5
	IV	NMC	17UCE240802	Computer Literacy	2	2
		V. Edn	17UFC241002	Fundamentals of human rights	2	2
				Total for Semester II	**30**	**22**
III	I	Language	17UGT310003	Language-III	4	3
	II	English	17UGE320103	General English-III	5	3
	III	Core	17UMA330205	Statics	6	4
			17UMA330206	Sequence and Series	5	4
		Extra Credit Course	17UMA330501	Massive Open Online Course	-	(2)
		Allied	17UMA330403A	Allied: Physics-I/or	6	4/
			17UMA330403B	Allied: Accounts I		5
	IV	NMC/EVS	17UCE340901	Environmental Studies (Partial online course)	2	2
		V. Edn	17UFC341003A	Formation of youth- I (or)	2	2
			17UFC341003B	Religious Doctrine-I		
				Total for Semester III	**30**	**22/23 +(2)**
IV	I	Language	17UGT410004	Language-IV	4	3
	II	English	17UGE420104	General English-IV	5	3
	III	Core	17UMA430207	Classical Algebra	4	3
			17UMA430208	Algebra I	5	3
		Core Elective I (WD)	17UMA430301A	Automata Theory (or)	4	4
			17UMA430301B	Astronomy		
		Allied	17UMA430404A	Allied: Physics–II +	4+2	4+2/
			17UMA430405	Allied: Physics Practicals (or)		
			17UMA430404B	Allied: Accounts- II	6	5
	IV	V. Edn	17UFC441004A	Formation of youth- II (or)	2	2
			17UFC441004B	Religious Doctrine-II		
				Total for Semester IV	**30**	**24/23**

Sem		Part	Code	Title of the paper	Hr	Cr
V	III	Core	17UMA530209	Real Analysis	6	4
			17UMA530210	Dynamics	6	4
			17UMA530211	Algebra II	5	4
			17UMA530212	Operations Research	5	4
		Extra Credit Course	17UMA530502	Extra Credit Course	-	(2)
		Core Elective II (WS)	17UMA530302A	Number Theory	4	4
			17UMA530302B	Logic and Boolean Algebra		
		Self-Paced Learning	17UMA530213	History of Mathematics - Online partial course	-	2
	IV	SBE(BS)	17UMA540601A	Mathematics for Competitive Examinations (Ordinary)	2	2
			17UMA540601B	MATLAB Applications		
		IDC	17USS540701A	Soft Skills	2	2
			17USS540701B	National Cadet Corps		
				Total for Semester-V	**30**	**26+(2)**
VI	III	Core	17UMA630214	Complex Analysis	7	4
			17UMA630215	Computer Oriented Numerical Methods in 'C' Programming	5	3
			17UMA630216	Computer Lab ('C' Programming)	2	1
			17UMA630217	Linear Algebra	6	4
			17UMA630218	Graph Theory	4	3
			17UMA630219	Comprehensive Exam	-	2
			17UMA630220	Internship	-	2
		Core Elective III (WS)	17UMA630303A	Fuzzy Theory	4	4
			17UMA630303B	Optimization Techniques		
	IV	SBE (WS)	17UMA640602A	Mathematics for Competitive Examinations (Advanced)	2	2
			17UMA640602B	LaTeX		
				Total for Semester-VI	**30**	**25**
	V	Shepherd	17UCW651101	Community Service Work (SHEPHERD) and Gender Studies		5
				Total Credit for all Semesters	**180**	**150+(4)**

Programme Outcomes (POs):

1. Undergraduate students are to be passionately engaged in initial learning with an aim to think differently as agents of new knowledge, understanding and applying new ideas in order to acquire employability/ self-employment.
2. Undergraduate students are trained to take up higher learning programmes.
3. Undergraduate students are made to be competent and socially responsible citizen of India.
4. Undergraduate students are to be exposed to technical, analytical and creative skills.
5. Undergraduate students are to be imparted with a broad conceptual background in the Biological sciences / Computing sciences / Languages and culture / Management studies / Physical sciences.

Programme Specific Outcomes (PSOs):

1. Critical and Analytical Thinking Skills
2. Problem Skills
3. Communication and Presentation Skills
4. Teamwork Skills
5. Knowledge
6. Information Technology/Techniques
7. Ethics and Social Responsibility
8. Entrepreneurial Skills

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பருவம்: 1   மணி நேரம்: 4
17UGT110001   புள்ளிகள்: 3

பொதுத்தமிழ்-I

பாடத்தின் விளைவு

- சமூக மாற்றச் சிந்தனைகளை உள்ளடக்கிய தற்கால இலக்கியப்பரப்பை அறிதல்
- புதுக்கவிதை, சிறுகதை, உரைநடை ஆகியவற்றின் இலக்கியத்திறன் கண்டறிதல்.
- சந்திப்பிழையின்றி எழுதும் திறன் பெறுதல்.
- வாழ்க்கை வரலாற்றுக் கட்டுரைகளை வாசிக்கும் திறன் பெறுதல்.
- அன்றாடப் பயன்பாட்டிலுள்ள ஆங்கிலச்சொற்களுக்குப் பொருத்தமான சொற்களை உருவாக்கச்செய்தல்
- அரசுப்போட்டித் தேர்வுகளுக்கேற்ப தமிழ்மொழியில் பயிற்சி அளித்தல்.

அலகு-1	மகாகவி பாரதியார் கவிதைகள்	
	பாரதிதாசன் கவிதைகள்	
	நாமக்கல் கவிஞர் கவிதைகள்	
	உரைநடை - முதல் மூன்று கட்டுரைகள்	(12 மணி நேரம்)
அலகு-2	பாவலரேறு பெருஞ்சித்திரனார் பாடல்கள்	
	கண்ணதாசன் கவிதைகள்	
	இலக்கிய வரலாறு (பக். 239- 300)	
	இலக்கணம் -வலிமிகும் இடங்கள்	(14 மணி நேரம்)
அலகு-3	சமூகக்கவிதைகள்	
	இலக்கிய வரலாறு (பக்.300 -362)	
	சிறுகதை - முதல் ஆறு சிறுகதைகள்	(14 மணி நேரம்)
அலகு-4	அரசியல் கவிதைகள்	
	இலக்கணம் - வலி மிகா இடங்கள்	(10 மணி நேரம்)
அலகு-5	மொழிபெயர்ப்புக்கவிதைகள்	
	சிறுகதை- 7 முதல் 12 முடிய உள்ள சிறுகதைகள்	
	உரைநடை- 4முதல் 6 முடிய உள்ள கட்டுரைகள்	(10 மணிநேரம்)

பாடநூல்

1. பொதுத்தமிழ்- செய்யுள் திரட்டு- தமிழாய்வுத்துறை வெளியீடு-2017-2020
2. சமூகவியல் நோக்கில் தமிழ் இலக்கிய வரலாறு, தமிழாய்வுத்துறை வெளியீடு, தூய வளனார் கல்லூரி, திருச்சிராப்பள்ளி-2
3. உரைநடை நூல் - தமிழாய்வுத்துறை வெளியீடு.
4. சிறுகதைத்தொகுப்பு : (நாட்டுடைமையாக்கப்பட்ட படைப்பாளர்களின் சிறுகதைகள்), தமிழாய்வுத்துறை வெளியீடு.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester I	Course Code 17UGT110001	Title of the Paper பொதுத்தமிழ்-1																Hours 4	Credits 3
Course Outcomes (COs)		Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)											Mean Score of COs
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8				
CO1		5	5	4	3	5	5	4	4	4	3	3	4	5				4.2
CO2		5	5	5	3	4	5	4	5	4	3	3	4	5				4.2
CO3		4	4	5	4	3	4	3	5	4	3	3	4	5				3.9
CO4		5	5	4	4	4	5	5	5	4	5	5	5	5				4.5
CO5		5	5	5	4	4	4	5	5	4	3	4	5	5				4.0
CO6		5	5	5	3	4	4	5	4	4	5	4	3	5				3.8
													Mean Overall Score					4.1

Result: The Score for this Course is 4.1 (Very High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs =	Total of Values / Total No. of POs & PSOs
Mean Overall Score for COs =	Total of Mean Scores / Total No. of COs

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HINDI-I

Course Outcomes

At the end of the course, a student should be able to demonstrate…

* Knowledge and understanding of Hindi Conversations
* Improvement of the writing skills.
* Knowledge of Grammar forms
* Effective communicative skills in Hindi.
* The introduction of socially relevant subjects in Modern Hindi Literature
* Appreciation the features of Modern Hindi Prose.

Unit-I   8 hours

Dr Abdul Kalam, Ling Badaliye, Vachan Badaliye, Baathcheeth-Aspathal Mein

Unit-II   12 hours

Hamara Rajchinha, Noun Ling, Kaarak Chinha, Chaar Baayee, Baathcheeth, Dookan Mein

Unit-III   12 hours

Moun hee mantra hai, Vachan, Kaarak, Vishwamitra Ka yagna, Baathcheeth, Hotel mein

Unit-IV   14 hours

Veer Shivaji, Pronoun, Danush Yagna, Baathcheeth-Maidaan mein

Unit-V   14 hours

Rajatilak Kee Thaiyaree, Adjectives, Baathcheeth-Pareeksha ke baare mein

Books Recommended

1. Dakshina Bharathi Hindi Prachar Sabha, Thiagaraya Nagar, Chennai – 600 017, Subodh Hindi Patamala-2, Bharath Milap, Bharath-1, 2016.
2. Ramdev, Vyakaran Pradeep, Hindi Bhavan, 63, Tagore Nagar, Allahabad 2, 2016.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester I	Course Code 17UGH110001						Title of the Paper Hindi-I						Hours 4	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)							Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6		
CO1	4	4	4	3	4	2	2	2	3	4	4	3.2	
CO2	3	3	2	3	2	4	4	4	3	3	2	3.0	
CO3	3	2	2	3	4	2	2	2	3	4	4	2.8	
CO4	3	2	2	3	2	4	4	4	4	2	2	2.9	
CO5	3	3	3	3	3	3	4	4	3	3	3	3.2	
CO6	4	4	4	4	3	4	3	2	4	3	4	3.4	
								Mean Overall Score				3.1	

Result: The Score for this Course is 3.1 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = Total of Values / Total No. of POs & PSOs

Mean Overall Score for COs = Total of Mean Scores / Total No. of COs

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Semestre: I   Heures /Semaine: 4
17UGF110001   Credits : 3

FRANÇAIS-I

Course Outcomes
* Introduire la langue et la culture française aux étudiants
* Comparer la culture de l'Inde et de la France
* Familiariser l'étudiant avec le vocabulaire,
* la grammaire et les conversations se présenter
* Donner des informations en Français
* Conjuguer des verbes, Avoir Etre Aller Faire

Unit-I : A l'aéroport Kamaraj domestic de Chennai   (10 heures)

Saluer, demander et dire le nom, présenter quelqu'un, se présenter, souhaiter la bienvenue a quelqu'un, demander et dire l'identité de quelqu'un.

Grammaire : Etre, s'appeler, pronoms sujets, interrogation

Unit-II : A l'Université   (10 heures)

Demander comment on se porte, présenter quel qu'un, prendre congé, exprimer, l'appréciation.

Grammaire : Articles définis et indéfinis, genre des noms, adjectifs, présent de l'indicatif : verbes réguliers en er, être avoir, apprendre, prépositions a, en, au, aux.

Unit-III : Au café   (10 heures)

Dire ce qu'on aime, donner des informations, exprimer l'admiration, demander des informations sur quelqu'un.

Grammaire : Adjectifs interrogatifs, présent de l'indicatif : avoir, verbes en er , savoir, qu'est ce que c'est?, adjectifs possessifs, négation ,adjectifs irréguliers

Unit-IV : A la plage   (15 heures)

Proposer une sortie, accepter, refuser la proposition

Grammaire : phrases au singulier et au pluriel, pronom indéfini- on, il y a, adjectifs démonstratifs, négation, interrogation, présent de l'indicatif : faire, voir, aller, sortir, connaitre

Unit-V : Un concert et chez Nalli   (15 heures)

Inviter, accepter, exprimer son incapacité d'accepter, complimenter, parlé au téléphone, demander le prix, protester contre le prix.

Grammaire : Présent de l'indicatif : verbes en er, venir, pouvoir, vouloir, articles contracte, avec, a chez, le futur, interrogation est ce que, adverbes

interrogatifs, adjectifs possessifs, accord de l'adjectif, adjectifs exclamatifs, très/trop, présent de l'indicatif : acheter-regarder, l'impératif.

Manuel:

1. K.Madanagobalane, **Synchronie-1**, Samhitâ Publication, 2011.

Livre de référence:

1. Annie Berthet /B_atrix Sampsonis/ Catherine Hugot /V_ronnique M Kizirian / Monique Waendendries, **Alter Ego A1**, Hachette, 2006.
2. Yves Loiseau/R_gineM_rieux, Connexions 1, Didier, 2011.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester I	Course Code 17UGF110001					Title of the Paper French-I						Hours 4	Credits 3
Course Outcomes (COs)	**Programme Outcomes (POs)**					**Programme Specific Outcomes (PSOs)**						**Mean Score of COs**	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6		
CO1	4	4	2	3	4	4	4	2	2	3	3	3.2	
CO2	3	3	3	3	4	4	4	3	3	3	2	3.2	
CO3	3	2	3	2	4	3	2	4	4	3	3	3.0	
CO4	3	3	4	3	4	2	2	3	3	2	2	2.8	
CO5	3	3	4	3	4	3	3	3	4	5	2	3.4	
CO6	3	4	3	3	3	3	3	3	2	4	3	3.1	
										Mean Overall Score		3.1	

Result: The Score for this Course is 3.1 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester: I **Hours/Week: 4**
17UGS110001 **Credits : 3**
SANSKRIT-I
Course Outcomes
At the end of the course, a student should be able to demonstrate…
* Knowledge and understanding of basic Sanskrit grammar
* Knowledge and understanding of essential Sanskrit vocabulary
* Introduction of the writing skills
* Introduction of Sanskrit Aksharas.
* Introduction of Present tense forms
* Implementation of good thoughts from Subashitani

Unit-I **8 hours**

Akharavivaranam – Svaras & Vyanjanaani – Samyukta Aksharani.

Unit-II **12 hours**

Shabdadayah – Aakaaraanta, ikaar aantah. ukaaraantah.
Shabdadayah – Aakaaraanta, iikaar aantah. uukaaraantah.

Unit-III **12 hours**

Anuvaada Prayogah.

Unit- IV **14 hours**

Lat Lakarh – Parasmai – Pada Prayogah = Vakyarupah.

Unit-V **14 hours**

Subhaashitaani

Books Recommended

1. Kulapathy, K. M., Saral Sanskrit Balabodh, Bharathiya Vidya Bhavan, Munshimarg, Mumbai-400 007, 2014
2. R.S. Vadhyar & Sons, Book-Sellers and Publishers, Kalpathi, Palghat-678003, Kerala, SOuth India, Shabdha Manjari, 2014
3. Balasubramaniam R., Samskrita Akshara Siksha, Vangals Publication, 14th Main Road, JP Nagar, Bangalore -78, 2015.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester I	Course Code 17UGS110001	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)						Hours 4	Credits 3
Course Outcomes (COs)		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6		Mean Score of COs
CO1		5	3	5	4	4	3	3	3	3	3	4		3.1
CO2		4	3	4	4	4	4	4	4	4	3	4		3.3
CO3		4	3	3	4	4	3	4	4	3	3	4		3.1
CO4		4	3	3	4	3	3	4	4	3	3	4		3.0
CO5		4	4	4	3	4	4	3	3	3	4	4		3.1
CO6		5	4	4	4	4	3	3	3	3	3	4		3.1
												Mean Overall Score		3.1

Title of the Paper Sanskrit-I

Result: The Score for this Course is 3.1 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester: I   **Hours/Week: 5**
17UGE120101   **Credits: 3**

<center>**GENERAL ENGLISH-I**</center>

Course Outcome

* Introduce themselves to the others
* Narrate simple experiences in a coherent manner
* Understand the underlying meaning in the text
* Describe accurately what he/she observes and experiences
* Converse with friends about their likes and dislikes
* Write leave letters using the appropriate format and language

Unit-I:

01. Personal Details
02. Positive Qualities
03. Listening to Positive Qualities
04. Relating and Grading Qualities
05. My Ambition
06. Abilities and Skills
07. Self-Improvement Word Grid
08. What am I doing?
09. What was I doing?
10. Unscramble the Past Actions
11. What did I do yesterday?

Unit-II:

12. Body Parts
13. Actions and Body Parts
14. Value of Life
15. Describing Self
16. Home Word Grid
17. Unscramble Building Types
18. Plural Form of Naming Words
19. Irregular Plural Forms
20. Plural Naming Words Practice
21. Whose Words?

Unit-III:

22. Plural Forms of Action Words

23. Present Positive Actions
24. Present Negative Actions
25. Un/Countable Naming Words
26. Recognition of Vowel Sounds
27. Indefinite Articles
28. Un/Countable Practice
29. Listen and Match the Visual
30. Letter Spell - Check
31. Drafting Letter

Non-Detailed:
"The Merchant of Venice" from *Six Tales From Shakespeare*

Unit-IV:

32. Friendship Word Grid
33. Friends' Details
34. Guess the Favourites
35. Guess Your Friend
36. Friends as Guests
37. Introducing Friends
38. What are We Doing?
39. What is (s)he / are they Doing?
40. Yes / No Question
41. What was s/he doing?
42. Names and Actions
43. True Friendship
44. Know your Friends
45. Giving Advice/Suggestions
46. Discussion on Friendship
47. My Best Friend

Non-Detailed:
"The Taming of the Shrew" from *Six Tales From Shakespeare*

Unit-V:

48. Kinship Words
49. The Odd One Out
50. My Family Tree
51. Little Boy's Request

52. Occasions for Message
53. Words denoting Place
54. Words denoting Movement
55. Phrases for Giving Directions
56. Find the Destination
57. Giving Directions Practice
58. SMS Language
59. Converting SMS
60. Writing Short Messages
61. Sending SMS
62. The family debate
63. Family Today

Non-Detailed: **"The Tempest" from *Six Tales From Shakespeare***

Textbook

1. Joy, J.L. & Peter, F.M. *Let's Communicate 1*, New Delhi, Trinity Press, 2014. Print.

Non-Detailed Text

1. Dodd, E F. *Six Tales From Shakespeare*. London: Macmillan, 1987. Print. (First three tales)

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester I	Course Code 17UGE120101						Title of the Paper General English-I									Hours 4	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)											Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8				
CO1	4	3	4	4	4	5	4	4	4	3	3	4	4				3.80
CO2	4	3	4	4	4	5	5	4	4	4	4	4	4				4.10
CO3	4	3	4	4	4	3	3	4	4	3	3	4	4				3.60
CO4	4	3	2	4	4	4	4	3	3	5	5	4	4				3.80
CO5	4	3	4	4	4	4	4	3	3	4	4	5	5				3.90
CO6	5	4	4	3	3	4	4	3	4	4	5	4	4				3.90
												Mean Overall Score					3.85

Result: The Score for this Course is 3.85 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester I   **Hours/Week: 7**
17UMA130201   **Credits: 4**

BASIC MATHEMATICS

Course Outcomes:
1. Knowledge of polar equations.
2. Basic knowledge of differentiation, expansion of functions and their applications.
3. Notion of envelopes, curvatures and polar co-ordinates.
4. Application of binomial theorem.
5. Expansion of exponential and logarithmic series.
6. Knowledge of trigonometric functions.

Unit I

Successive differentiation-envelopes- Curvature-Cartesian formula for the radius of curvature - Drawing the graphs e^x, sin x, cos x ,tan x, parabola, ellipse, hyperbola.
Book 1, Chap III (full), Chap X - Sec 2.1 and 2.3.

Unit II

Expansions of $\sin n\theta$, $\cos n\theta$, $\tan n\theta$, $\sin^n\theta$, $\cos^n\theta$, $\sin n\theta$, $\cos n\theta$, $\tan n\theta$ - Hyperbolic functions - Logarithm of complex quantities.
Book 2, Chap III (full), Chap IV (full), Chap V Sec: 5(only).

Unit III

Binomial theorem for rational index – some important particular cases of the Binomial expansion – Numerically greatest term – Partial fraction – Application of the Binomial theorem to the summation of series (Proof of the theorem not required).
Book 3, Chap 3: Sec: 5-6, 8-10.

Unit IV

Exponential series expansion – Logarithmic series expansion (Proofs of the theorems not required).
Book 3, Chap II (full),Chap 4: Sec: 3, 5 - 7.

Unit V

Polar equation of a straight line - Polar equation of a circle-Polar equation of Conic-Equation of chord-Asymptotes of the conic.
Book 4, Chap IX Sec: 1 - 12.

Textbooks:
1. S.Narayanan and T.K.Manicavachagam Pillay, Calculus Volume I, S.Viswanathan Printers & Publishers, 2008.
2. S.Narayanan and T.K.Manicavachagam Pillay, Trigonometry, S.Viswanathan Printers & Publishers, 2001.
3. T.K.Manicavachagam Pillay, T.Natarajan and K.S.Ganapathy, Algebra volume I, S.Viswanathan Printers & Publishers, 2008.
4. T.K.Manicavachagam Pillay and T.Natarajan, A Text book of Analytical geometry – Part I – Two Dimension, S.Viswanathan Printers & Publishers, 2002.

References:
1. P.R.Vittal and V. Malini, Algebra, Calculus and Trigonometry, Margham Publications, Chennai, 1997.
2. P.R.Vittal and V.Malini,Vector Analysis, Margham Publications, Chennai, 1997.
3. P.R.Vittal and V.Malini, Calculus, 3rd Edition (For Polar co-ordinates only) Margham Publications, Chennai, 1997.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester I	Course Code 17UMA130201					Title of the Paper: BASIC MATHEMATICS								Hours 7	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	1	5	5	3	2	1	2	2	2	4	4	4	4	3.0	
CO2	3	5	5	5	4	5	4	4	2	3	1	1	1	3.3	
CO3	3	4	4	4	4	4	4	2	4	4	4	1	1	3.3	
CO4	4	5	5	5	2	2	2	3	3	4	3	1	1	3.1	
CO5	5	5	5	5	1	3	4	4	2	2	2	1	1	3.1	
CO6	5	5	5	5	1	2	2	2	3	3	3	4	4	3.5	
Mean Overall Score														3.2	

Result: The Score for this Course is 3.2 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = Total of Values / Total No. of POs & PSOs	Mean Overall Score for COs = Total of Mean Scores / Total No. of COs

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INTEGRAL CALCULUS

Course Outcomes
* Various techniques of integration.
* Applications of definite integrals.
* Applications of integration.
* Applications of improper integrals .
* Techniques of Beta, Gamma integrals.
* Various integration formulae

UNIT I
Revision of all Integral models including Integration of Rational and Irrational Functions (Articles 1- 9 of Chapter 1)

UNIT II
Properties of Definite integrals – Integration by Parts – Bernoulli's Formula – Integration as Summation (Articles 10-11, 15 of Chapter 1)

UNIT III
Reduction Formulae for $x^n e^{ax}$, $\sin^n x$, $\cos^n x$, $\sin^m x \cos^n x$, $\tan^n x$, $\cot^n x$, $\sec^n x$, $\csc^n x$, $x^m (\log x)^n$, $e^{ax} \cos bx$ (Articles 13-14 of Chapter 1)

UNIT IV
Area Under Plane Curves – Area of a Closed Curves – Length of a Curve – Area of Surface of revolution – Multiple Integrals – Evaluation of Double and Triple Integrals (Cartesian Co-Ordinates only; Articles 1,4,5 of Chapter 2; Articles 1-4 of Chapter 5)

UNIT V
Improper Integrals– Beta and Gamma Functions– Recurrence formula of Gamma Functions – Properties of Beta Functions – Relation between Beta and Gamma Functions – Evaluation of Definite Integrals Using Gamma Functions (Articles 2-5 of Chapter 7)

TEXTBOOK:
1. S. Narayanan and T.K.Manicavachagam Pillay, Calculus (Major), Vol. II, S.Viswanathan Printers & Publishers, 2007.

REFERENCES
1. Dr. M. K Venkataraman, Engineering Mathematics, Volume -2, The National Publishing Company, Madras, 1988.
2. Calculus, Thomas and Finney, Pearson Education, 9th Edition, 2006.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester I	Course Code 17UMA130202						Title of the Paper: INTEGRAL CALCULUS									Hours 6	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)									Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	4	2	4	5	4	4	2	4	4	2	2	3	3.2	
CO2	4	4	2	4	4	4	4	2	3	4	3	2	2	3.2	
CO3	3	4	2	4	5	4	4	2	3	4	3	2	3	3.3	
CO4	4	3	2	4	4	4	4	3	2	4	3	2	2	3.2	
CO5	4	3	3	5	4	4	3	3	3	4	3	2	3	3.3	
CO6	3	3	3	4	4	3	3	3	3	4	3	3	3	3.2	
Mean Overall Score														3.2	

Result: The Score for this Course is 3.2 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$ Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semester I   Hours/Week: 6
17UMA130401   Credits: 5

Allied: STATISTICS-I

Course Outcomes
* History and Introduction of Probability.
* Concepts of Random Variables and Distributions
* Properties of Mathematical Expectations
* Standard Distributions
* Knowledge of moment generating functions
* Applications to real life problems.
* Basic Concepts of Expectation
* Knowledge of continuous and discrete distribution

Unit-I: Short History –Basic Terminology - Axiomatic approach to probability – Some Theorems on Probability - Mathematical Notion - Conditional probability- Multiplication Theorem of Probability –Independent Events- Pairwise Independent Events - Baye's theorem.
Ch. 3: Sec 3.2-3.5, 3.8 (Omit 3.8.3, 3.8.4), 3.9 (Omit 3.9.2), 3.10-3.12, 3.15 Ch 4: Sec 4.2 (Omit 4.2.1)

Unit-II: Random variable - Distribution function - Discrete random variable - Continuous random variable – Two-dimensional random variable.   Ch 5 Sec 5.1-5.5 (Omit 5.5.6-5.5.7)

Unit-III: Mathematical expectation – Expected value of function of a random variable – Properties of expectation – Properties of variance - Covariance - Moment generating function – Cumulants - Chebychev's inequality.
Ch 6: Sec 6.1 - 6.6. Ch 7: Sec 7.1 – 7.2.

Unit-IV: Binomial distribution- Poisson distribution – Geometric distribution
Ch 8: Sec 8.4(Omit 8.4.3, 8.4.10-8.4.12), 8.5 and 8.7

Unit-V: Normal distribution - Gamma distribution – Beta distributions of first and second kind - Exponential distribution (Ch 9: Sec 9.2 (Omit 9.2.11-9.2.15), 9.5 -9.8.

Textbook:
1. S.C. Gupta and V.K. Kapoor, Fundamentals of Mathematical Statistics, 11th edition, Sultan Chand and Sons, 1982.

References:
1. P.R. Vittal, Mathematical Statistics,Margham Publications, Chennai, 2004.
2. J.N. Kapur and H.C. Saxena. Mathematical Statistics 20th Edition, S.Chand & Co Ltd. New Delhi, 2010.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester I	Course Code 17UMA130401					Title of the Paper: Allied: STATISTICS-I								Hours 6	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	3	4	4	3	3	4	4	3	4	3	3	3	3.5	
CO2	3	4	3	4	4	3	4	3	3	4	4	3	3	3.5	
CO3	3	4	3	3	3	3	3	4	4	3	3	3	3	3.4	
CO4	4	4	3	4	3	3	4	3	3	3	3	3	3	3.4	
CO5	3	4	3	3	3	3	4	3	3	4	3	3	4	3.3	
CO6	3	4	3	4	3	4	4	4	3	4	4	3	4	3.6	
CO7	3	3	3	4	3	2	4	3	2	3	3	3	4	3.1	
CO8	4	3	4	3	3	3	2	3	3	4	3	3	2	3.1	
											Mean Overall Score			3.3	

Result: The Score for this Course is 3.3 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = Total of Values / Total No. of POs & PSOs

Mean Overall Score for COs = Total of Mean Scores / Total No. of COs

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ESSENTIALS OF HUMANITY

Course Outcome

1. To ensure creating awareness among the youth on human values.
2. To ensure educating the youth, the basic principles of value education.
3. To ensure the process of analyzing, appreciating and personalizing values as our own.
4. To ensure that students develop various dimensions of human personality.
5. To ensure the youth empowering the gender sensitization, gender differences and gender roles.
6. To ensure preparing the students for the smooth transfer from the stage of teenage to earlier adulthood.

Unit-I

Principles of Value Education - Introduction - Value Education- Characteristics of Values – Kinds of Values

Unit-II

Development of Human Personality - Personality traits - Theories of Personality - Discovering self- Defense mechanism - Power of positive thinking

Unit-III

Dimensions of Human Development - Physical development – Intellectual development - Emotional development - Social Development – Moral development - Spiritual development

Unit-IV

Responsible Parenthood - Human sexuality - Sex and love - Becoming a spouse - Responsible Parenthood

Unit-V

Gender Equality and Empowerment - Historical perspective - Education & economic development -Crimes against Women-Women's rights

Text Book:

Essentials of Humanity, Department of Foundation course, St.Joseph's College, Tiruchirappalli-2, 2016.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester I	Course Code 17UFC141001					Title of the Paper ESSENTIALS OF HUMANITY								Hours 2	Credits 2
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	1	5	4	3	5	4	5	5	5	5	4	3	4.0	
CO2	2	1	5	5	3	5	4	5	5	5	5	4	3	4.0	
CO3	2	1	5	5	4	5	4	4	5	5	5	5	3	4.1	
CO4	2	2	5	4	2	5	4	4	5	4	5	5	5	4.0	
CO5	5	2	5	5	2	4	4	5	5	5	4	4	4	4.2	
CO6	2	1	5	5	4	4	4	5	5	4	4	4	3	3.8	
												Mean Overall Score		4.0	

Result: The Score for this Course is 4.0 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = Total of Values / Total No. of POs & PSOs	Mean Overall Score for COs = Total of Mean Scores / Total No. of COs

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17UGT210002   புள்ளிகள்: 3

பொதுத்தமிழ்-II

பாடத்தின் விளைவு

- சமூக மாற்றச் சிந்தனைகளை உள்ளடக்கிய தற்கால இலக்கியப்பரப்பை அறிதல்
- பக்தி இலக்கியங்களின் வழி இறையியல் கோட்பாடுகளை அறிதல்
- உரைநடைக் கட்டுரை எழுதும் திறன் பெறுதல்- இலக்கணமரபுகளை அறிதல்
- பல்வேறு சமயங்களின் வாழ்வியல் கருத்துக்களை அறிந்து பின்பற்றுதல்
- காப்பியங்களில் உள்ள சமுதாயக் கருத்துக்களை அறிந்துகொள்ளுதல்.
- இதிகாசங்கள் உணர்த்தும் நீதிகளை அறியச்செய்தல்.
  அரசுப்போட்டித் தேர்வுகளுக்கேற்ப பொதுக்கட்டுரைகளும் மொழிப்பயிற்சியும் மாணவர்களுக்கு அளித்தல்.

அலகு: 1   (12 மணி நேரம்)
சிலப்பதிகாரம்   - அந்திமாலைச் சிறப்பு செய்காதை
இலக்கிய வரலாறு   - சைவம் வளர்த்த தமிழ் முதல் புராணங்கள் முடிய.
இலக்கணம்   - எழுத்திலக்கணம்

அலகு: 2   (12 மணி நேரம்)
மணிமேகலை   - உலக அறவி புக்க காதை
பெரியபுராணம்   - தடுத்தாட்கொண்ட புராணம்

அலகு: 3   (12 மணி நேரம்)
கம்பராமாயணம்   - கும்பகர்ணன் வதைப்படலம்
உரைநடை   - 7 முதல் 9 முடிய உள்ள கட்டுரைகள்

அலகு: 4   (12 மணி நேரம்)
சீறாப்புராணம்   - மானுக்குப் பிணை நின்ற படலம்
இலக்கணம்   - சொல்லிலக்கணம்
இலக்கிய வரலாறு   - தமிழ் இலக்கண நூல்கள் முதல் சிற்றிலக்கியங்கள் முடிய.

அலகு: 5   (12 மணி நேரம்)
இரட்சணிய யாத்திரிகம்   - மரணப்படலம்
உரைநடை   - 10 முதல் 12 வரையிலான கட்டுரைகள்

பாடநூல்:

1. செய்யுள் திரட்டு, தமிழாய்வுத்துறை வெளியீடு, 2017-10

2. சமூகவியல் நோக்கில் தமிழ் இலக்கிய வரலாறு, தமிழாய்வுத்துறை வெளியீடு, தூய வளனார் கல்லூரி, திருச்சிராப்பள்ளி-2

3. உரைநடை நூல் - தமிழாய்வுத்துறை வெளியீடு.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester II	Course Code 17UGT210002	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Title of the Paper பொதுத்தமிழ்-II	Hours 4	Credits 3
Course Outcomes (COs)		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		Mean Score of COs	
CO1		5	4	4	4	4	5	5	5	4	4	4	4	4		4.2	
CO2		4	5	5	4	5	5	5	5	5	4	3	4	3		4.4	
CO3		5	5	4	4	5	5	5	5	4	3	3	4	3		4.3	
CO4		5	5	4	3	4	5	5	5	4	3	3	4	3		4.1	
CO5		5	5	4	3	4	5	5	5	4	3	3	4	3		4.1	
CO6		5	5	5	5	4	5	5	5	4	3	3	4	3		4.1	
													Mean Overall Score			4.2	

Result: The Score for this Course is 4.2 (Very High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semestre: II   Hours/Week: 4
17UGH210002   Credits : 3

HINDI-II

Course Outcomes

At the end of the course, a student should be able to demonstrate…

- their effective communicative skills in Hindi
- the introduction of socially relevant subjects in Modern Hindi Literature
- to appreciate the features of Modern Hindi one act plays and short stories
- the ability to fill in application forms Hindi
- use Hindi vocabulary and grammar patterns in a culturally proper ways.
- the ability to write about famous Hindi authors .

Unit-I   **8 hours**

Paeeksha, Lekak Parichaya, Khani kee Basha – Shyli, Verb, Dhathu, Artha likiye ulte Shabda likiye.

Unit- II   **12 hours**

Lekak Parichaya Ekanki kee, Basha Shyli, Ander Nagaree, Sankalan Traya, Pareek shaka Khani ke paatra, Kal, Vachya.

Unit-III   **12 hours**

Chief Kee daavath, Ekanki ke Paatra, Ekankikaar, Ne ka Prayog, Adverb

Unit- IV   **14 hours**

Do Kalakar, Bahoo kee Vidha, Kahaanikaar, Prepositions, conjunctions

Unit-V   **14 hours**

Kahani ke paatra, Ekanke ke paatra, lekak parichaya, Interjunctions, Avikari Shabda

Books Recommended

1. Dakshina Bharath Hindi Prachara Sabha, Thiagaraya Nagar, Chennai - 600 017, Subodh Hindi Patamala-2, Ekanki, Hindi, 2016.
2. Ram Dev Hindi Bhavan, Vyakaran Pradeep, 63, Tagore Nagar, Alahabad, 2, 2013.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester II	Course Code 17UGH210002					Title of the Paper Hindi-II						Hours 4	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)						Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6		
CO1	4	4	4	3	4	3	2	3	4	4	4	3.5	
CO2	3	3	2	3	2	4	4	3	3	2	2	2.8	
CO3	3	2	2	3	4	2	4	4	2	3	4	3.0	
CO4	3	2	2	3	3	4	3	3	4	3	3	3.0	
CO5	3	3	3	3	3	3	3	4	3	4	3	3.1	
CO6	4	4	4	4	3	4	3	3	3	3	2	3.3	
											Mean Overall Score	3.1	

Result: The Score for this Course is 3.1 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = Total of Values / Total No. of POs & PSOs

Mean Overall Score for COs = Total of Mean Scores / Total No. of COs

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FRANÇAIS-I

Course Outcomes

* Faire connaissance des journaux, des courriels, des lettres
* Comprendre les conversations téléphoniques.
* Décrire quelque chose
* Demander son chemin
* Parler des activités du week-end
* Accepter, refuser, exprimer la certitude.

Unit-I: Nouvelles de L'inde   **(10 heures)**

Montrer son inquiétude, s'excuser, exprimer son appréciation, décrire quelqu'un, décrire quelque chose

Grammaire: Présent : verbes en er,-ir, le futur, interrogation totale, féminin d'autres adjectifs.

Unit-II: A la gare Central station   **(10 heures)**

Réserver des billets, demander des renseignements, donner des renseignements

Grammaire: pronoms compléments d'objet direct, présent l'impératif :payer ,partir/sortir, l'impératif, expression du temps, construction avec infinitif

Unit-III : Un lit dans la Cuisine   **(10 heures)**

Donner des ordres, localiser, bire qu'une proposition est stupide ou bizarre

Grammaire : Verbes en er-ranger, mettre impératif, il faut, devoir +infinitif, prépositions de lieu

Unit-IV: Pierre apprend a conduire et mangez –vous correctement ?

     (15 heures)

Rassurer, exprimer l'indirection exprimer l'autorisation, avertir, demander des informations sur les habitudes de quelqu'un, offrir a manger ou a boire, accepter, refuser, exprimer la certitude.

Grammaire: impératif-être, avoir, savoir, pronoms compléments d'objet indirect, le passe compose avec avoir expression de la quantité-articles partitifs, adverbes, pronoms directs et indirects, pronom en, présent des verbes –manger, boire ,offrir ,prendre, la condition avec si.

Unit-V: Ils ont eu tort tous les deux !et Comment as-tu passe le weekend
(10 heures)

Demander son chemin, indiquer le cheminin a quelqu'un, reprocher / conseiller, parler des activités du week-end, demander a quelqu'un de se taire

Grammaire: le passe compose, adverbes mots interrogatifs, le passe compose avec être, faire du….pouvoir, vouloir.

Manuel:

1. K. Madanagobalane, **Synchronie -1**, Samhitâ publication, 2011.

Livre de référence:

1. Annie Berthet / B_atrix Sampsonis / Catherine Hugot / V_ronnique M kizirian / Monique Waendendries, **Alter Ego A1**, Hachette, 2006
2. Yves Loiseau / R_gine M-rieux, Connexions 1, Didier ,2011

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester II	Course Code 17UGF210002						Title of the Paper French-II						Hours 4	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)						Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6			
CO1	4	4	2	3	4	3	3	2	2	3	3	3.0		
CO2	3	3	3	3	4	3	3	2	2	2	3	2.8		
CO3	3	2	3	2	4	3	3	2	2	3	3	2.7		
CO4	3	3	4	3	4	3	3	3	3	3	3	3.2		
CO5	3	3	4	3	4	2	4	4	4	4	5	3.6		
CO6	3	4	3	3	3	3	4	4	3	4	4	3.5		
Mean Overall Score												3.1		

Result: The Score for this Course is 3.1 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester: II
17UGS210002
Hours/Week: 4
Credits : 3

SANSKRIT-II

Course Outcomes

At the end of the course, a student should be able to demonstrate…

* knowledge and understanding of basic Sanskrit grammar
* knowledge and understanding of essential Sanskrit vocabulary
* knowledge and understanding of the appropriateness of basic Sanskrit structures and expressions in a given context
* the ability to understand short passages in written Sanskrit on everyday topics
* the ability to produce short passages in written Sanskrit on everyday topics
* introduction of basic grammar (Avyaya Imperfect tense and Sandirules. Samasah.)

Unit-I   **8 hours**

Visheshanaah
Saravanaama shabdas.

Unit-II   **12 hours**

Sandhi Niyamaah Abhyaasah.(Guna, Visarga, Dirgha, Vrddhi)

Unit-III   **12 hours**

Lang lakaarah. Kriyapadaani

Unit-IV   **14 hours**

Gopala Vimshathi. (1-10) slokas.

Unit-V   **14 hours**

Avyayas, Tatpurusha, Karma dhaaraya samaasah.

Books Recommended

1. Paundrapuram Ashram, Srirangam -620 006. Gopalavimshathi, 2014
2. R.S. Vadhyar & Sons, book – Sellers and Publishers, Kalpathi, Palghat-678 003, Kerala, Southe India, Shabdha Manjari, 2014
3. Kulapthy, K. M., Saral Sanskrit Balabodh, Bharathiya Vidya Bhavan, Munshimarg, Mumbai - 400007, 2014

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester II	Course Code 17UGS210002					Title of the Paper Sanskrit-II						Hours 4	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)						Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6		
CO1	5	3	5	4	4	3	3	3	4	4	3	3.2	
CO2	4	3	4	4	4	3	3	3	3	4	3	3.0	
CO3	4	3	3	4	4	3	3	3	4	4	3	3.0	
CO4	4	3	3	4	3	3	3	4	4	4	3	3.0	
CO5	4	4	4	3	4	3	4	4	4	3	4	3.2	
CO6	5	4	4	4	4	3	3	3	4	4	3	3.2	
											Mean Overall Score	3.1	

Result: The Score for this Course is 3.1 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester: II   **Hours/Week: 5**
17UGE220102   **Credits: 3**

GENERAL ENGLISH-II

Course Outcome
* Ask open-ended questions in real-life situations
* Use polite expressions in appropriate ways
* Use correct punctuation marks and capital letters
* Use appropriate vocabulary
* Put ideas into a cohesive paragraph
* Develop positive self-esteem and thereby communicate effectively

Unit-I
01. Education Word Grid
02. Reading Problems and Solutions
03. Syllabification
04. Forms for Expressing Quality
05. Expressing Comparison
06. Monosyllabic Comparison
07. Di/polysyllabic Comparison
08. The best monosyllablic Comparison
09. The best di/polysyllabic Comparison
10. Practising Quality Words
Non-Detailed:
"Julius Caesar" from *Six Tales From Shakespeare*

Unit –II:
11. Wh Words
12. Yes/No Recollection
13. Unscramble Wh Questions
14. Wh Practice
15. Education and the Poor
16. Controlled Role play
17. Debate on Education
18. Education in the Future
19. Entertainment Word Grid
20. Classify Entertainment Wordlist
21. Guess the Missing Letter

22. Proverb-Visual Description
23. Supply Wh Words
24. Rearrange Questions
25. Information Gap Questions

Unit-III:
26. Asking Questions
27. More about Actions
28. More about Actions and Uses
29. Crime Puzzle
30. Possessive Quiz
31. Humourous News Report
32. Debate on Media and Politics
33. Best Entertainment Source

Unit-IV:
34. Career Word Grid
35. Job-Related Wordlist
36. Who's Who?
37. People at Work
38. Humour at Workplace
39. Profession in Context
40. Functions and Expressions
41. Transition Fill-in
42. Transition Sord Selection
43. Professional Qualities
44. Job Procedures
45. Preparing a Resume
46. Interview Questions
47. Job Cover Letter Format
49. E-mailing an Application
50. Mock Interview
Non-Detailed:
"King Lear" from *Six Tales From Shakespeare*

Unit-V:
51. Society Word Grid
52. Classify Society Wordlist

53. Rearrange the Story
54. Storytelling
55. Story Cluster
56. Words Denoting Time
57. Expressing Time
58. What Can You Buy?
59. Noise Pollution
60. Positive News Headlines
61. Negative News Headlines
62. Matching Conditions
63. What Whould You Do?
64. If I were the Prime Minister
65. My Dream Country

Non-Detailed: "Macbeth" from *Six Tales From Shakespeare*

Textbook
1. Joy, J.L. & Peter, F.M. *Let's Communicate 2*, New Delhi: Trinity Press, 2014. Print.

Non-Detailed Text
1. Dodd, E F. *Six Tales From Shakespeare*. London: Macmillan, 1987. Print. (Last three tales)

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester II	Course Code 17UGE120102					Title of the Paper General English-II								Hours 5	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	4	4	4	5	4	4	3	3	3	4	4	3.9	
CO2	4	3	4	4	4	5	5	4	4	4	4	4	3	4.0	
CO3	4	3	4	4	4	3	3	4	4	3	3	4	4	3.6	
CO4	4	3	3	4	4	4	4	3	3	5	5	4	4	3.8	
CO5	4	3	4	4	4	4	4	3	3	4	5	5	5	3.9	
CO6	5	4	4	3	3	4	4	4	4	4	5	4	4	3.9	
											Mean Overall Score			3.8	

Result: The Score for this Course is 3.8 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester II   **Hours/Week: 6**
17UMA230203   **Credits: 4**

ANALYTICAL GEOMETRY

Course Outcomes
* Introduction of direction cosines of a line, and its properties.
* Concepts of a plane, its various forms, determination of planes under given conditions .
* The students are introduced to the concept of a line, sphere and its properties, circles and tangent planes.
* Concepts of gradient, divergence curl and their properties.
* Evaluation of line, volume and surface integrals and apply them to verify the Gauss divergence and stokes theorem.
* Application of line, volume, and surface integrals

Unit I

Coordinates in space-Direction cosines of a line in space-angle between lines in space-equation of a plane in normal form. (Chapter I, Sec 1.5 to 1.9, Chapter II Sec 2.1 to 2.3, Pages: 09-31) Angle between planes-Distance of a plane from a point.
(Chapter II Sec 2.4 to 2.8 pages: 32-45)

Unit II

Straight lines in space-line of intersection of planes-plane containing a line. Coplanar lines-skew lines and Shortest distance between skew lines-Length of the perpendicular from a point to a line.
(Chapter III Sec 3.1 to 3.3 pages: 56-68, Chapter III Sec 3.4 to 3.7 pages: 69-88)

Unit III

General equation of a sphere-Section of a sphere by a plane-tangent planes-condition of tangency-system of spheres generated by two spheres- system of spheres generated by a sphere and a plane.
(Chapter VI Sec 6.1 to 6.6 pages: 127-149)

Unit IV

Gradient, Divergence and Curl-Definitions, identities and simple problems-Directional derivative and Laplacian-Definition and simple problems.
(Chapter IV, pages 98-122)

Unit V
The line integral-Volume integral-Surface integral-Gauss divergence theorem-Stoke's theorem (Omit proofs of these two theorems)
(Chapter VI, page 136-177)

Textbooks:
1. Shanthi Narayanan and Mittal P.K, Analytical Solid Geometry, 17th Edition, S.Chand &   Co, New Delhi. (For units I to III)
2. Narayanan and Manickavasagam Pillay, Vector Algebra and Analysis, S.Viswanathan Printers & Publishers Pvt.Ltd. 1994.(For unit IV &V),

References:
1. P.Duraipandian, Analytical Geometry 3 Dimensional, Emerald Student Edition, 1970.
2. S.Arumugam and A. Thangapandi Issac, Analaytical Geometry(3D) and Vector Calculus, New Gamma Publishing House.

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DIFFERENTIAL EQUATIONS

Course Outcomes

1. Developing the skills of solving DE.
2. Solving PDEs of first and second order.
3. Understanding the Laplace Transform and its inverse.
4. Constructing the Fourier Series Expansion.
5. Solving DE using Laplace Transforms.
6. Application of DE in the field of Science.

Unit-I: Variables separable, Homogeneous equations, Non- Homogeneous equations of the first degree in x and y- Linear equations - Bernoulli's equation – Exact differential equations – First order DE of higher degree. [Chapter II: Sections 1 - 6.3 & Chapter IV: Fully]

Unit-II: Linear DE with constant coefficients – particular integrals – General method of finding P.I -Special methods for finding P.I-When X is of the form $x^m, e^{ax}x^m, e^{ax}\sin mx, e^{ax}\cos mx$ - Equations reducible to the linear equations [Chapter V: Sections 1 – 6]

Unit-III: Definition of "The Laplace transform" – Properties of Laplace transform – Laplace transform of periodic functions- some general Theorems – The inverse transform – solving linear DE using Laplace transforms. [Chapter IX: Sections 1 – 8]

Unit-IV: Fourier series – Fourier series for even and odd functions – Half range expansions   [Chapter I: Sections – 1,2,6,8,9,10 (omit change of interval, Proofs and derivations)]

Unit-V: Formation of partial Differential Equations – solution of simple types – First order PDE - Charpit's method – Homogeneous and non Homogeneous equations – linear PDE with constant coefficients [Chapter II, omit sections 10, 11, numerical problems only]

Textbooks:

1. S.Narayanan & T.K. Manichavasagam Pillay, Differential equations and its applications, S.Viswanathan Pvt Ltd 2001. (For units I, II, III)
2. M.K. Venkatraman, Engineering Mathematics – III year part B, National Publishing company, Chennai. (For units IV & V)

References:

1. M.K.Venkatraman, Engineering Mathematics – Volume II, , National Publishing Company, Chennai   (for units I & II)
2. M.K.Venkatraman, Engineering Mathematics – III year part A, National Publishing Company, Chennai (for unit III).

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester II	Course Code 17UMA230203					Title of the Paper: ANALYTICAL GEOMETRY								Hours 6	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	2	2	5	4	5	5	3	2	5	4	2	2	3.38	
CO2	4	3	2	5	5	5	5	3	3	5	5	2	4	3.92	
CO3	5	4	2	5	5	5	5	3	4	5	5	2	4	4.15	
CO4	2	3	2	3	4	3	5	3	3	4	3	2	3	3.08	
CO5	5	5	2	5	5	5	5	5	5	5	5	2	4	4.46	
CO6	3	4	2	5	5	5	5	5	5	5	5	2	3	4.15	
Mean Overall Score														3.85	

Result: The Score for this Course is 3.8 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs =	Total of Values / Total No. of POs & PSOs
Mean Overall Score for COs =	Total of Mean Scores / Total No. of COs

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester II	Course Code 17UMA230204					Title of the Paper: DIFFERENTIAL EQUATIONS									Hours 5	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	5	4	5	3	4	4	3	4	3	4	3	4	3.92	
CO2	4	3	5	4	4	3	5	4	3	5	5	3	5	4.00	
CO3	4	5	3	4	3	4	4	5	4	4	4	4	3	3.85	
CO4	4	4	3	5	4	3	5	4	3	4	4	3	5	3.92	
CO5	3	4	4	3	4	5	3	4	4	3	3	4	5	3.77	
CO6	5	4	4	4	3	4	5	3	3	4	4	3	4	3.85	
Mean Overall Score														3.88	

Result: The Score for this Course is 3.8 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Allied: STATISTICS-II

Course Outcomes

* Basic concepts of Sampling and testing of Hypothesis.
* Testing of Hypothesis for real life problems.
* Testing of Hypothesis for small samples
* Knowledge about various types of Estimators
* Concepts of Correlation and rank correlation coefficient
* Practical Knowledge of Correlation and Rank Correlation Coefficient
* Knowledge t-distribution and F-distribution
* Application of Estimation Theory

Unit-I: Introduction - Types of Sampling - Parameter and Statistic - Tests of significance - Test of significance – Procedure for testing of hypothesis - Test of significance for large samples - Sampling of attributes – Sampling of variables. Ch 14 Full

Unit-II: Introduction – Derivation of the chi-square distribution – MGF of chi-square distribution - Application of chi-square distribution. Ch 15: Sec 15.1- 15.3, 15.6 (Omit 15.6.4-15.6.7)

Unit-III: Introduction – Student's t- distribution - Applications of t-distribution – Distribution of sample correlation coefficient when population correlation coefficient is zero- F-distribution - Applications of F-distribution. Ch 16: Sec 16.1-16.6

Unit-IV: Introduction - Characteristics of estimators - Consistency – Unbiasedness- Efficient and Most Efficient Estimators – Sufficiency (Definition only) – Methods of Estimation - MLE (statement of properties and direct simple problems, no theorems) - method of moments. Ch15: Sec 17.1-17.2 (Omit MVU Estimators and Factorisation Theorem), 17.6 (Omit 17.6.2, 17.24)

Unit-V: Introduction – Meaning of Correlation – Scatter diagram – Karl Pearson's Coefficient of Correlation – Rank Correlation. Ch 10: Sec 10.1 - 10.4, 10.7.

Textbook:

1. S.C.Gupta and V.K.Kapoor, Fundamentals of Mathematical Statistics,11th edition, Sultan Chand and Sons, 1982.

References:

1. P. R. Vittal, Mathematical Statistics, Margham Publications, Chennai, 2004.
2. J.N. Kapur and H.C. Saxena. Mathematical Statistics 20th Edition, S.Chand & Co Ltd. New Delhi, 2010.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester II	Course Code 17UMA230402					Title of the Paper: Allied: STATISTICS-II								Hours 6	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)									Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	5	5	4	3	4	3	3	4	4	5	3	3		3.8
CO2	5	4	5	3	5	4	5	3	4	4	4	5	4		4.1
CO3	4	3	5	4	3	5	4	4	4	4	4	5	3		3.9
CO4	5	4	3	4	5	5	4	4	3	3	4	4	4		4.0
CO5	3	4	5	4	4	3	5	3	5	5	5	5	3		4.0
CO6	5	3	4	3	3	4	5	4	3	3	5	4	5		4.0
CO7	4	4	3	3	4	3	3	4	4	4	3	3	3		3.3
CO8	3	4	4	4	3	3	4	3	3	3	4	4	4		3.5
														Mean Overall Score	3.8

Result: The Score for this Course is 3.9 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semester II
17UCE240802A

Hours/Week: 2
Credit: 2

COMPUTER LITERACY

Course Outcomes
1. Understand the basics of Computer Systems
2. Familiar with the applications of MS-Office / HTML & CSS
3. Know the statistical data analysis using R
4. Aware the latest trends and technologies such as Mobile Computing, Big Data and Analytics, Cloud Computing.
5. Understand the concepts of social networking sites.
6. Knowledge in Cyber Crime and Cyber Ethics.

Unit-I: Computer System

Computer - An Introduction - Hardware Components - Input and Output Technologies - Computer Hierarchy- Software Fundamentals - Systems Software and Os- Application Software- Software Licensing - Open Systems- Open Source Software- Programming Languages- Information Systems- General It Trends.

Unit-II: (For Non-CS)

Microsoft Word: Introduction - Word Environment - Opening and Creating a New Document - Saving Documents - Proofing Features - Printing a Document - Formatting Text - Working with Shapes and Lists - Line and Paragraph Spacing- Working with Tables - Columns and Ordering- Working with Pictures- Working with Headers and Footers - Using Indents and Tabs - Using Mail Merge.

Microsoft Excel: Introduction - Document Creation - Renaming a worksheet - Office user interface - Open a New Workbook - Columns, Rows, and Cells - Selecting a cell - - Basic data entry, fill handle - - Insert columns - Arithmetic Calculations & Formulas - Excel Formulas- Calculate with Functions - Function Library - Graphs and Charts - Printing the Document.

Microsoft Powerpoint: Starting PowerPoint - Working with Slides - Applying Theme - Animation- Transitions – Views.

Unit-II: (For CS)

HTML: Introduction - HTML generations – HTML Tags – Headings – Paragraphs – Comments – Line Breaks – Formatting Tags – Hyperlinks – Images – Lists – Tables – Frames – Forms.

CSS: Introduction – Use of External Style Sheet – Defining Styles – Use Relative Sizing – Use Numbered Value for Color.

Unit-III: Statistical Data Analysis

Introduction - R Programming Language - Basic R Commands - Univariate and Bivariate Statistical Measures - Graphic Representation of Statistical Data - Lab Exercise.

Unit-IV: SMAC

Introduction - Understanding the Enterprise of Tomorrow - Social Networking - Mobile Computing - Big Data and Analytics - Cloud Computing

Unit-V: Cyber Crime

Definition - List of Cyber Crimes - Cyber Ethics- Unethical Behaviour - Securing information privacy and confidentiality - Internet Ethics - Indian Information Technology Act - Advantages of Cyber Laws - National e-Governance Plan (NeGP) - eCommerce - Electronic Fund Transfer (EFT)

Book for Study

1. Department of Foundation Course, "Computer Literacy", St. Joseph's College, 2017.

Books for Reference

1. Alexis Leon, "Introduction to computers", Vikas Publishing House Pvt. Ltd., New Delhi, 2008.
2. Alexis Leon and Mathew Leon, "Introduction to computers with Ms Office 2000", Tata McGraw Hill Publishing Co. Ltd., New Delhi, 2005.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester II	Course Code 17UCE240802A					Title of the Paper COMPUTER LITERACY								Hours 2	Credits 2
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	5	4	4	5	5	4	3	4	3	4	4	4	4.15	
CO2	5	5	4	4	4	4	4	4	4	3	4	4	4	4.08	
CO3	4	3	3	4	4	4	4	4	4	3	4	4	4	3.77	
CO4	5	5	4	4	4	5	4	4	4	3	4	4	4	4.15	
CO5	4	4	3	4	4	4	4	4	4	3	4	4	4	4.15	
CO6	5	5	5	4	4	5	4	4	4	4	4	4	4	4.31	
													Mean Overall Score		4.10

Result: The Score for this Course is 4.1 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester II
17UFC241002

<div align="right">

Hours/Week: 2
Credits: 2

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FUNDAMENTALS OF HUMAN RIGHTS

Course Outcome

1. To ensure acquiring the knowledge about the historical background of human rights.
2. To ensure sensitizing the young the values of human rights.
3. To ensure the importance of human rights in the Indian context.
4. To ensure learning the fundamental duties in the constitution of India.
5. To ensure educating the youth in respecting and protecting the rights of every other human being.
6. To ensure teaching the youth on the vulnerabilities of women and children.

Unit-I

Introduction, Classification of Human Rights, Scope of Human Rights, Characteristics of Human Rights, and Challenges for Human Rights in the 21stCentury.

Unit-II

Human Rights in Pre-World War Era, Human Rights in Post-World War Era, Evolution of International Human Rights Law - the General Assembly Proclamation, Institution Building, Implementation and the Post Cold War Period. The ICC.

Unit-III

Introduction, Classification of Fundamental Rights, Salient Features of Fundamental Rights, and Fundamental Duties

Unit-IV

Women's Human Rights, Issues related to women's rights, and Rights of Women's and Children

Unit-V

Human Rights Violations, Human Rights Violations in India - the Human Rights Watch Report, January 2012, Human Rights Organizations.

Text Book:

1. **Techniques of social Analysis: Fundamentals of Human Rights,** Department of Foundation course, St.Joseph's College, Tiruchirappalli, 2015.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester II	Course Code 17UFC241002														Title of the Paper FUNDAMENTALS OF HUMAN RIGHTS		Hours 2	Credits 2
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)										Mean Score of COs		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8					
CO1	5	1	5	5	2	4	4	5	5	4	4	5	5			4.2		
CO2	4	1	5	4	2	4	4	4	5	5	5	5	5			4.0		
CO3	5	1	5	5	2	5	5	4	4	4	5	5	5			4.2		
CO4	4	1	5	5	2	2	4	3	5	5	4	4	5			3.8		
CO5	5	1	5	4	1	5	5	5	5	5	4	4	4			4.1		
CO6	3	1	5	4	1	4	3	5	5	3	4	4	5			3.6		
											Mean Overall Score					3.9		

Result: The Score for this Course is 3.9 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

பருவம்: 3   மணி நேரம்: 4
17UGT310003   புள்ளிகள்: 3

பொதுத்தமிழ்-III

பாடத்தின் விளைவு

* செம்மொழியாம் தமிழ் மொழியின் சிறப்பை அறிதல்.
* பண்டை இலக்கியங்கள் உணர்த்தும் அறக்கருத்துகளை அறிதல்
* புதினம் வாயிலாகத் தற்காலச் சமுதாயச் சிக்கல்களையும், அதற்கான தீர்வுகளையும் ஆராயும் திறன் பெறுதல்
* மானுட வாழ்வில் அகம், புறம் பற்றிய பாகுபாட்டை தமிழ்ச்செய்யுள் வாயிலாக அறிதல்.
* தமிழர்களின் ஈகையும் வீரமும் எடுத்துரைக்கும் புறச்செய்திகளை அறிதல்
* நீதிநூல்கள் மனித வாழ்வை செம்மைப்படுத்தும் பாங்கினை உணர்த்துதல்.

அலகு: 1   (12 மணி நேரம்)

நெடுநல்வாடை (முழுமையும்)

அலகு: 2   (12 மணி நேரம்)

குறுந்தொகை - பாடல்கள் - (32, 323, 305, 290, 168)
யாப்பிலக்கணம் (வெண்பா, ஆசிரியப்பா)

அலகு: 3   (12 மணி நேரம்)

கலித்தொகை - பாடல்கள் - (குறிஞ்சிக்கலி-15, பாலைக்கலி-9, மருதக்கலி-15, நெய்தற்கலி-22, முல்லைக்கலி-07)
இலக்கிய வரலாறு - முதற்பாகம் ('தமிழ் மொழியின் தொன்மையும சிறப்பும்' முதல் 'சங்க தொகை நூல்கள்' முடிய) புதினம்.

அலகு: 4   (12 மணி நேரம்)

பதிற்றுப்பத்து - பாடல்கள் (12, 24,)
புறநானூறு - பாடல்கள் (46, 86, 122, 214, 246)
அணியிலக்கணம்

அலகு: 5   (12 மணி நேரம்)

திருக்குறள் - ஈகை, ஆள்வினை உடைமை, நிறை அழிதல் ஆகிய அதிகாரங்கள்
நாலடியார் - இளமை நிலையாமை(11), பிறன்மனை நயவாமை(82), பெருமை(185), அறிவின்மை(254), காமநுதலியல்.(391).
இலக்கிய வரலாறு - சங்க இலக்கியங்களின் தனித்தன்மைகள் முதல் இரட்டைக் காப்பியங்கள் முடிய

பாடநூல்கள்:

1. செய்யுள் திரட்டு, தமிழாய்வுத் துறை வெளியீடு (2017-2020).
2. சமூகவியல் நோக்கில் தமிழிலக்கிய வரலாறு, தமிழாய்வுத்துறை வெளியீடு, 2014.
3. புதினம் (ஒவ்வொரு கல்வியாண்டும் ஒவ்வொரு புதினம்). காணாமல் போன கவிதை (2017-18).

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Title of the Paper: பொதுத்தமிழ்-III

Semester III	Course Code 17UGT310003													Hours 5	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	5	5	4	5	5	4	5	5	5	4	4	5	4.6	
CO2	5	5	4	3	4	5	4	5	5	5	4	4	5	4.4	
CO3	5	5	5	3	4	5	5	5	5	5	4	3	5	4.5	
CO4	5	4	4	5	4	5	5	5	5	5	4	5	5	4.8	
CO5	5	5	4	4	4	5	5	5	5	5	3	3	5	4.3	
CO6	5	5	5	3	4	5	5	5	5	5	4	3	5	4.5	
												Mean Overall Score		4.5	

Result: The Score for this Course is 4.5 (Very High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = Total of Values / Total No. of POs & PSOs

Mean Overall Score for COs = Total of Mean Scores / Total No. of COs

Semestre: III   **Hours/Week: 4**
17UGH310003   **Credits: 3**

HINDI-III

Course Outcomes

At the end of the course, a student should be able to demonstrate…

* the ability to enable the students to complete the pre-reading task to comprehend the local and global issues in the lessons.
* the ability to enable the students to complete the post-reading task centering on Grammar and Skill Development.
* the relevance of Bhakthi Movement in Hindi Literature.
* the ability to imagine and write poems.
* the ability to quote poetry in Speeches.
* the ability to write friendly and formal letters.

Unit-I   **8 hours**

Tera Sneh Na Kho oon, Kavi Parichaya, Patra Likne ke Kaaran, Patra Kee Avashyakatha, Sandhi keeiye, Vigrah Keejiye

Unit-II   **12 hours**

Ek boondh, Tera Sneh Na Kho oon kavitha kee manovygnaik stiti, Chutti Patra, Sandhi

Unit-III   **12 hours**

Ekloondh Kavitha Ka Uddeshya, Kabir Ke Dohe, Nagar Palika ko Patra, Samas

Unit-IV   **14 hours**

Vimal Indu Kee Vishal Kiranen, Rahim Ke Dohe, Naukari Keliye Avedan Patra, Upasarga

Unit-V   **14 hours**

Thulasi ke Dohe, Kitab Maangne Keliye Patra, Pratyaya, Kaviparichaya

Books Recommended

1. Dakshina Bharath Hindi Prachara Sabha, Thiagaraya Nagar, Subodh Hindi, Paatamala-3, Chennai-600 017, Hindi, 2016.
2. DBHP Sabha, T.Nagar, Chennai-600 017, Abihav Patralekhan, 2016
3. Ram Dev, Vyakaran Pradeep, Hindi Bhavan, 63 Tagore Nagar, Alahabad 2, 2016.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester III	Course Code 17UGH310003	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)						Hours 4 / Credits 3
Course Outcomes (COs)		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	Mean Score of COs
CO1		4	4	4	3	4	3	3	3	4	4	4	3.6
CO2		3	3	2	3	2	3	3	3	5	3	5	3.0
CO3		3	3	3	3	4	3	3	4	3	3	3	3.2
CO4		3	2	2	3	3	3	3	3	3	3	4	2.9
CO5		3	3	3	3	3	3	4	3	3	3	4	3.2
CO6		4	4	4	4	3	3	3	3	3	3	3	3.3
Mean Overall Score													3.2

Title of the Paper: Hindi-III

Result: The Score for this Course is 3.2 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semestre: III　　　　　　　　　　　　　　**Heures /Semaine: 4**
17UGF310003　　　　　　　　　　　　　　　　　**Credits : 3**

FRANÇAIS-III

Course Outcomes

∗ Comparer la culture de l'Inde et de la France
∗ Familiariser l'étudiant avec le vocabulaire, la grammaire et les conversations
∗ Connaître des journaux, des courriels, des lettres
∗ Parler des projets de vacances
∗ Exprimer l'étonnement
∗ Parler de ses projets d'avenir, exprimer l'opposition.

Unit-I: Un entretien et Au restaurant　　　　　　　**(10 heures)**
Demander des informations personnelles à quelqu'un, donner des informations, répondre à une proposition. Réserver une table, demander la carte, commander, apprécier les plats, demander l'addition.

Grammaire: Imparfait, Imparfait et passé composé, expression du temps, expression de la conséquence.Le futur, présent des verbes peser, rejoindre, le passé récent, le présent progressif, le futur proche, Restriction-ne…que, moi aussi…

Unit-II : Enfin les vacances ! et Un autre institut　　　　**(10 heures)**
Raconter son emploi du temps quotidien, parler des projets de vacances, exprimer l'étonnement. Rassurer/consoler, s'indigner

Grammaire: Verbes pronominaux, pronom y, quelqu'un/ne…personne, quelque chose/ne…rien, ne…jamais, Déjà/ne…pas encore, chacun, adjectifs indéfinis.Pronoms relatifs, impératif, indicateurs de temps : de…a, a partir de….jusqu'a, depuis, pendant.

Unit-III : Un Indien célèbre visite la France et Qui dépense plus?
　　　　　　　　　　　　　　　　　　　　　　　　(10 heures)

Demander des informations sur quelqu'un, demander une opinion, donner son opinion. Dire à quelqu'un d'être prudent, faire des reproches à quelqu'un, se justifier.

Grammaire: Pronoms relatifs composés, pronoms compléments d'objet directs et indirectes, opposition savoir/Connaitre, connecteurs chronologiques, nombre ordinaux.Le comparatif, c'est+ nom+ qui, il reste, encore, il y a, souvent.

Unit-IV: Penser à son avenir -　　　　　　　　　　**(15 heures)**
Parler de ses projets d'avenir, exprimer l'opposition.
Grammaire : Style direct/indirect, proposition introduite par que, mots

d'enchaînement – donc, pourtant.

Unit-V: L'astrologie　　　　　　　　　　　　　**(15 heures)**
Exprimer des conditions, dire quelque chose n'a pas d'importance, proposer quelque chose.
Grammaire: Le conditionnel – la condition.

Manuel:

1. K.Madanagobalane, **Synchronie-II**, Samhitâ Publication, 2011.

Livre de référence :

1. Annie Berthet /B_atrix Sampsonis/ Catherine Hugot /V_ronnique M Kizirian / Monique Waendendries, **Alter Ego A1**, Hachette, 2006.
2. Yves Loiseau/R_gineM_rieux, Connexions 1, Didier, 2011.

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SANSKRIT-III

Course Outcomes

At the end of the course, a student should be able to demonstrate…

* Knowledge and understanding of essential Sanskrit vocabulary in a given topic
* Knowledge and understanding of the appropriateness of basic Sanskrit structures in Slokas
* Knowledge of the basic Sanskrit poetry.
* An idea on Epics and Puranas.
* The usage of – Upasargas.
* The familiarization the history of Sankrit literature Vedas – Puranas and Natakas.

Unit-I   **8 hours**

Romodantam. Balakandam. 1-15

Unit-II   **12 hours**

Romodantam. Balakandam. 15-30

Unit-III   **12 hours**

Vedas – Vedangas. vivaranam.

Unit-IV   **14 hours**

Puranas. Upanishads.

Unit-V   **14 hours**

Upasargas. Bhavishyat Kaalah

Books recommended:

1. Parameshwara, Ramodantam, LIFCO, Chaennai, 2015.
2. R.S. Vadhyar & Sons, Book-Sellers and Publishers, Kalpathi, Palghat-678003, Kerala, South India, History of Sanskrit Literature, 2015.
3. Kulapathy, K.M., Saral Sanskrit Balabodh, Bharathiya Vidya Bhavan, Munshimarg, Mumbai-400 007, 2015.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester III	Course Code 17UGF310003					Title of the Paper French-III						Hours 4	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)						Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6		
CO1	4	4	2	3	4	4	2	3	3	2	2	3.0	
CO2	3	3	3	3	4	4	2	3	4	2	3	3.1	
CO3	3	2	3	2	4	3	4	3	3	3	3	3.0	
CO4	3	3	4	3	4	2	3	3	3	4	4	3.3	
CO5	3	3	4	3	4	2	3	3	4	4	4	3.4	
CO6	3	4	3	3	3	3	3	3	4	4	4	3.4	
										Mean Overall Score		3.2	

Result: The Score for this Course is 3.2 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester III	Course Code 17UGS310003					Title of the Paper Sanskrit-III						Hours 4	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)							Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6		
CO1	5	3	5	4	4	3	3	3	3	3	4		3.1
CO2	4	3	4	4	4	4	3	3	3	4	4		3.1
CO3	4	3	3	4	4	4	4	4	3	3	4		3.1
CO4	4	3	3	4	3	4	4	4	3	4	4		3.1
CO5	4	4	4	3	4	3	3	4	3	4	4		3.1
CO6	5	4	4	4	4	3	3	3	3	4	3		3.1
Mean Overall Score													3.1

Result: The Score for this Course is 3.1 (High Relationship)

Note:

Values Scaling:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Mean Score of COs = Total of Values / Total No. of POs & PSOs

Mean Overall Score for COs = Total of Mean Scores / Total No. of COs

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GENERAL ENGLISH-III

Course Outcome

* Comprehend the local and global issues through the lessons
* Do the tasks centering on skill development and enhance their Grammar Using and Writing Skills
* Use interactive skills
* Train and develop the Listening and Reading Skills of the learners through teacher-led reading practice
* Enhance their Listening, Reading, Speaking, and Writing Skills
* Develop their Creative and Critical Thinking and Speaking Skills

Unit-I: *Suggestions to Develop Your Reading Habit

1.0 Introduction
1.1 Objectives
1.2 Listening and Reading Skills through Teacher-led Reading Practice
1.3 Glossary
1.3.1 Words
1.3.2 Phrases
1.4 Reading Comprehension
1.5 Critical Analysis
1.6 Creative Task
1.7 General Writing Skill: Letter Writing: Informal
1.8 Grammar: Simple Present Tense
1.9 **Non-Detailed Text:** Dickens, Charles. *Hard Times.*

Unit-II: *The Secret of Success: An Anecdote

2.0 Introduction
2.1 Objectives
2.2 Listening and Reading Skills through Teacher-led Reading Practice
2.3 Glossary
2.3.1 Words
2.3.2 Phrases
2.4 Reading Comprehension
2.5 Critical Analysis
2.6 Creative Task
2.7 General Writing Skills: Letter Writing: Formal

2.8   Grammar: Present Continuous Tense

2.9   **Non-Detailed Text:** Dickens, Charles. *Hard Times.*

Unit-III: ***The Impact of Liquor Consumption on the Society**

3.0   Introduction

3.1   Objectives

3.2   Listening and Reading Skills through Teacher-led Reading Practice

3.3   Glossary

3.3.1 Words

3.3.2 Phrases

3.4   Reading Comprehension

3.5   Critical Analysis

3.6   Creative Task

3.7   General Writing Skills: Letter to Newspaper

3.8   Grammar: Simple Past Tense

3.9   **Non-Detailed Text:** Dickens, Charles. *Hard Times.*

Unit-IV: * Dr. A.P.J. Abdul Kalam: A Short Biography

4.0   Introduction

4.1   Objectives

4.2   Listening and Reading Skills through Teacher-led Reading Practice

4.3   Glossary

4.3.1 Words

4.3.2 Phrases

4.4   Reading Comprehension

4.5   Critical Analysis

4.6   Creative Task

4.7   General Writing Skill: Write a letter applying for a job

4.8   Grammar: Past Continuous Tense

4.9   **Non-Detailed Text:** Dickens, Charles. *Hard Times.*

Unit-V: *Golden Rule: A Poem

5.0   Introduction

5.1   Objectives

5.2   Listening and Reading Skills through Teacher-led Reading Practice

5.3   Glossary

5.3.1 Words

5.3.2 Phrases

5.4   Reading Comprehension

5.5   Critical Analysis

5.6   Creative Task

5.7   Grammar: Simple Future Tense

5.8   General Writing Skill: Circular-Writing

5.9   **Non-Detailed Text: Dickens, Charles. *Hard Times.***

Unit-VI: *Hygiene

6.0   Introduction

6.1   Objectives

6.2   Listening and Reading Skills through Teacher-led Reading Practice

6.3   Glossary

6.3.1 Words

6.3.2 Phrases

6.4   Reading Comprehension

6.5   Critical Analysis

6.6   Creative Task

6.7   General Writing Skill: Writing an Agenda for a Meeting

6.8   Grammar: Future Continuous Tense

6.9   **Non-Detailed Text: Dickens, Charles. *Hard Times.***

Textbook

1. Jayraj, S. Joseph Arul et al. *Trend-Setter: An Interactive General English Textbook for Under Graduate Students*. New Delhi: Trinity, 2016. Print.

Non-Detailed Text:

1. Dickens, Charles. *Hard Times.* Wordsworth: Printing Press, 1854. Print.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester III	Course Code 17UGE320103	Title of the Paper General English-III		Hours 5	Credits 3

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
CO1	5	5	5	5	4	5	5	5	5	5	5	5	4	4.84
CO2	5	5	5	5	5	5	5	5	5	5	5	5	4	4.92
CO3	5	5	5	5	5	5	5	5	5	5	5	5	4	4.92
CO4	5	5	5	5	4	5	5	5	5	5	5	5	4	4.84
CO5	5	5	5	5	4	5	5	5	5	5	5	5	4	4.84
CO6	5	5	5	5	4	5	5	5	5	5	5	5	4	4.84
													Mean Overall Score	4.86

Result: The Score for this Course is 4.86 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

STATICS

Course Outcomes:
* Laws of Forces and their properties.
* Concepts of Moments and Couples.
* Equilibrium of Forces
* Friction laws and its properties
* Application to real life problems
* Catenary and its properties

Unit I
Law of parallelogram of forces - Lami's theorem - Resolution of forces.
(Chapter 2 Sections 1-4 & 6-12 pp: 9 to 16 & 17 to 51)

Unit II
Like Parallel forces-Unlike Parallel forces-Moments-Varignon's theorem of Moments-Generalized theorem of Moments-Couples-Definition-equilibrium of couples-resultant of coplanar couples. (Chapter 3 Sections 1-13; Chapter 4 Sections 1-10 pp: 52-78 & 84-97)

Unit III
Equilibrium of three forces acting on a rigid body-three coplanar forces-conditions of equilibrium-Coplanar forces-Reduction of coplanar forces-Equation to the line of action of the resultant. (Chapter 5 Sections 1-6; Chapter 6 Sections 1-9 pp: 98 to 122 &143-167)

Unit IV
Forces of Friction-Laws of Friction-Limiting Friction-Limiting equilibrium-Cone of Friction-Angle of Friction. (Chapter 7 Sections 1-13 pp: 206-234)

Unit V
Equation to Common Catenary-Tension at any point-Geometrical properties of Common Catenary. (Chapter 11 Sections1-6 pp: 375-391)

Textbook:
1. Venkataraman M.K., Statics, Agasthiar Publishers, Eleventh Edition, July 2005.

References:
1. A.V.Dharmapadham, Statics, S. Viswanathan Printers & Publishers Pvt. Ltd
2. S.Narayanan, Statics, *S*.Chand & Company Ltd, New Delhi, 1985.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester III	Course Code 17UMA330205													Title of the Paper: STATICS	Hours 6	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)										Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8			
CO1	5	4	3	4	3	5	4	3	2	4	3	2	3			3.46
CO2	5	5	3	4	4	5	5	2	3	4	3	4	3			3.85
CO3	4	4	3	4	3	4	5	3	2	5	4	3	3			3.61
CO4	5	4	3	4	4	5	5	2	3	4	3	4	4			3.85
CO5	5	5	4	4	3	4	5	2	3	4	4	2	4			3.77
CO6	4	5	3	4	5	5	4	3	4	5	4	3	4			4.07
Mean Overall Score																3.76

Result: The Score for this Course is 3.7 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = Total of Values / Total No. of POs & PSOs

Mean Overall Score for COs = Total of Mean Scores / Total No. of COs

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SEQUENCE AND SERIES

Course Outcomes:
* Getting a good foundation for classical analysis.
* Understanding the behavior of monotonic functions.
* Knowing limits and Cauchy sequences.
* Studying the behavior of convergence of series by using tests.
* Solving the problems related to sequence and series.
* Behaviour of divergent sequences

Unit-I

Sequences-Bounded sequences - Monotonic Sequences - Convergent sequences - Divergent sequences - Oscillating sequences.
(Chap-3: Sec 3.0-3.6 pg 39-55)

Unit-II

Algebra of limits –Behavior of Monotonic functions
(Chap3: Sec3.6, 3.7 pg 56-82)

Unit-III

Some theorems on limits- subsequences –limit points: Cauchy sequences.
(Chap3: Sec-3.8-3.11, pg 82-102)

Unit- IV

Series-Infinite series –Cauchy's general principle of convergence - Comparison test theorem and test of convergence using comparison test.
(Chap4: Sec (4.1& 4.2) pg 112-128.

Unit-V

Test of convergence using D' Alembert's ratio test- Cauchy's root test- Alternating Series –Absolute Convergence
(Relevant part of Chap – 4: pages 131,132,135-140,145,147-150 and Chap 5: sec 5.1&5.2 pg 157-167)

Textbook:
1. S.Arumugam, A.Thangapandi and Isaac, Sequences and Series, New Gamma Publishing House, 2002.

References:
1. Konrad Knopp,Infinite Sequences and Series, Dover Publications, 1956.
2. S.C.Malik, Savita Arora, Mathematical Analysis (4th edition) New Age International Publishers

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester III	Course Code 17UMA330206						Title of the Paper: SEQUENCES AND SERIES								Hours 5	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Hours 5	Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	4	4	3	4	4	3	5	4	3	3	4		3.8
CO2	4	5	4	5	4	4	5	3	4	4	3	4	4		4.1
CO3	5	4	3	5	4	5	4	4	4	5	4	4	3		4.2
CO4	4	5	4	4	4	4	4	4	4	5	3	3	2		4.0
CO5	5	4	4	5	3	4	5	3	4	5	4	3	2		3.9
CO6	4	4	3	4	4	5	4	3	4	4	3	3	4		3.7
														Mean Overall Score	3.9

Result: The Score for this Course is 3.9 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Allied:
PHYSICS-I

Course Outcomes

* Students learn the nomenclature, hybridization, isomerism and intermediates of organic compounds
* Students study the preparation, properties and mechanisms of alkanes and alkenes
* Students understand the chemistry of hydrogen, some boron, silicon compounds, halogens and inter-halogen compounds
* Students understand the principles of chemical kinetics
* Students understand the principles of photochemistry
* Students learn the laws of photochemistry derived by Beer, Lambert and Einstein.

Unit I: Hydrocarbons and Isomerism   **(12 Hours)**

Nomenclature of simple hydrocarbons. Hybridization – sp, sp^2, sp^3 (examples: acetylene, ethylene and methane). Bond length, bond angle, dipole moment, inductive effect, mesomeric effect and hyperconjugation effect. Solubility – protic and aprotic solvents. Isomerism – geometrical and optical isomerism, asymmetry, (R, S notation not necessary). Reactive intermediates – carbocation, carbanion and carbon free radicals (generation, structure and stability).

Unit II: Alkanes and Alkenes   **(12 Hours)**

Methods of preparation of alkanes (Wurtz method, Kolbe's method, using Grignard reagent, Using HI/P), Chemical properties of alkanes - substitution reaction only (example: only halogenation of alkanes with free radical mechanism), conformation analysis of ethane, n-butane and cyclohexane.

Methods of preparations of alkenes (Kolbe's method, Hoffman degradation, using Lindlar's catalyst, Dehydration of alcohols, Dehydrohalogenation of alkyl halides), stereochemistry of dehydrohalogenation (E_1, E_2, E_1CB mechanisms), Chemical properties of alkenes – electrophilic addition mechanism (example: only mechanisms of bromination of alkenes, hydrohalogenation of alkenes, hydration of alkenes and addition of diborane to alkenes)

Unit III: Chemistry of Hydrogen, Halogen, Silicon and metals (12 Hours)

Occurrence, extraction and chemical properties of iron, cobalt, nickel and copper. Electrochemical theory of rusting. Position of hydrogen in periodic

table, atomic hydrogen and isotopes of hydrogen. Preparation and structure of borozole, SiO_2, SiC and $SiCl_4$. General characteristics of halogens. Structures of inter halogens (XY, XY_3, XY_5, XY_7 type).

Unit IV: Chemical Kinetics   (12 Hours)

Rate of reaction, factors affecting rate of the reaction, average and instantaneous rate, order, molecularity, pseudo first order reaction. Rate expression for first order and second order reactions. Expression of rate constant and half-life period for first order, second order (two molecules of same reactant), zero order reactions. Arrhenius and collision theories – assumption, derivation, demerits – experimental determination of order of reactions.

Unit V: Photochemistry   (12 Hours)

Difference between photochemical reactions and dark reactions. Laws of photochemistry – Beer - Lambert's Law – Derivation and applications. Einstein law of photochemical equivalence - quantum yield. Kinetics of Hydrogen-chlorine reaction, Hydrogen-bromine reaction and decomposition of HI. Fluorescence, phosphorescence and chemi-luminescence.

TEXT BOOK:

1. Bahl B. R and ArunBahl. Organic Chemistry (12th edition), New Delhi, Sultan Chand & Co (1997)
2. Puri B. R.; Sharma L. R and Kalia K. K. Principles of Inorganic Chemistry, (23rd edition), New Delhi, ShobanLalNagin Chand & Co (1993)
3. Puri B. R.; Sharma L. R and Pathania M. S. Principles of Physical Chemistry, (23rd edition), New Delhi, ShobanLalNagin Chand & Co (1993)

REFERENCES:

1. Atkins P.W., Physical Chemistry, (7th edition) Oxford University Press, London (2009).
2. FinarI.L,Organic Chemistry, Vol 1&2, (6[th]edition) England, Addison WesleyLongmanLtd.(1996).
3. Lee J.D., Concise Inorganic Chemistry, UK, Black well science (2006).

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester III	Course Code 17UPH/UMA330403A						Title of the Paper Allied: PHYSICS-I								Hours 4	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)									Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	3	2	3	5	5	3	3	3	3	1	2	3	3.15	
CO2	4	3	3	2	5	4	4	3	3	4	1	2	3	3.15	
CO3	4	3	1	3	5	5	4	3	3	4	1	2	3	3.15	
CO4	5	3	2	2	5	5	5	3	3	4	1	2	3	3.31	
CO5	4	3	2	3	5	5	5	3	3	3	1	2	4	3.31	
CO6	5	3	2	3	5	4	5	4	3	4	2	2	3	3.46	
											Mean Overall Score			3.25	

Result: The Score for this Course is 3.2 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs & PSOs}}$ Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semester III Hours/Week: **6**
17UMA330403B Credits: **5**

Allied:
ACCOUNTS-I

Course Outcomes
After completing the course, the student will be able to
* Understand the basic concepts of accounting.
* Prepare final accounts and balance sheet.
* Prepare final accounts and balance sheet of non trading concerns.
* Calculate profit for concerns with single entry system through net worth method and conversion method.
* Rectify errors in the books of accounts and prepare Bank Reconciliation Statement.
* Prepare Income & Expenditure account from Receipts.

Unit-I: (18 Hours)
Accounting- Different types – Financial accounting - Book Keeping – Meaning – objectives - Principles, Concepts and Conventions – Type of accounts – Golden rules of recording – Journal Subsidiary Books (purchase book, sales book, purchase return book, sale return book & Cash book – Ledger.

Unit-II: (18 Hours)
Trial balance – Trading, Profit and Loss Accounts – Balance Sheet of a Sole Trader(closing stock, outstanding expenses, prepaid expenses, income receivable, received in advance, depreciation and provision for bad debts.

Unit-III: (18 Hours)
Accounts for Non-trading concerns- Receipts and payment account Vs Income and Expenditure account- Preparation of Income and Expenditure Account from Receipts and Payment Accounts (simple adjustments).

Unit-IV: (18 Hours)
Single Entry system- Defects of single entry system – Double entry system Vs single entry system – Calculation of profit/loss- net worth method- conversion method

Unit-V: (18 Hours)
Errors –classification- rectification- suspense account- - preparation of bank reconciliation statement.

TEXT BOOK
1. Reddy TS and Murthy A, (2016), Financial Accounting, MarghamPublications, Chennai.

BOOKS FOR REFERENCES
1. Shukla MC, Grewal TS and Gupta SC, (2016), Advanced Accounts Volume I, S.Chand and Company Ltd, New Delhi.
2. Gupta RL and Gupta VK, (2014), Financial Accounting, Sultan Chand and Sons, New Delhi.
3. Gupta RL and Radhaswamy, (2016), Advanced Accountancy, Volume I, Sultan Chand and Sons, New Delhi.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester III	Course Code 17UMA330403B	Programme Outcomes (POs)					Title of the Paper: Allied: ACCOUNTS-I Programme Specific Outcomes (PSOs)								Hours 6	Credits 5
Course Outcomes (COs)		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	Mean Score of COs
CO1		4	3	4	1	2	4	3	4	1	4	2	4	1	2.84
CO2		5	4	5	3	2	5	3	5	3	3	5	2	3	3.69
CO3		4	5	3	2	5	2	1	2	5	3	2	4	1	3.00
CO4		3	5	2	4	2	5	2	4	3	2	4	5	4	3.46
CO5		5	2	5	2	4	4	5	3	2	5	4	5	4	3.85
CO6		5	4	5	4	2	4	4	5	3	5	4	4	5	4.15
														Mean Overall Score	3.49

Result: The Score for this Course is 3.4 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = Total of Values / Total No. of POs & PSOs

Mean Overall Score for COs = Total of Mean Scores / Total No. of COs

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ENVIRONMENTAL STUDIES

Course Outcome

1. To ensure understanding the significance of environment in which we live.
2. To ensure imparting knowledge on the recent issues associated with environment.
3. To ensure educating the youth the causes and consequences of various types of pollutions.
4. To ensure sensitizing the youth the increasing threats to nature and the misery mankind faces.
5. To ensure the limitations of the available natural resources and the need to sustain them.
6. To ensure imparting the knowledge on the concept of biodiversity and its advantages.

Unit-I: Environmental Studies

Environment - Scope and Importance - Environmental Movements in India - Eco-feminism - Public Awareness.

Unit-II: Natural Resources

Food Resources - L and Resources - Forest Resources - Mineral Resources - Water Resources - Energy Resources

Unit-III: Ecosystems, Biodiversity and Conservation

General structure - Functions of ecosystem - Energy flow and ecological pyramids - Biodiversity and conservation - Hot spots of Biodiversity - Endangered and Endemic Species - Value of Biodiversity - Threats to Biodiversity - Conservation of Biodiversity

Unit-IV: Environmental Pollution

Air pollution - Water pollution - Oil pollution - Soil pollution - Marine pollution - Noise pollution - Thermal pollution – Radiation pollution

Unit-V: Environment, Human Population & Social Issues

Human population growth - Urgent steps required for sustainable development - Conserving water - Current Environmental Issues

Text Book:

1. **Environmental studies,** Department of Foundation course, St.Joseph's College, Tiruchirappalli-2, 2015.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester III	Course Code 17UFC340901	Programme Outcomes (POs)					Title of the Paper ENVIRONMENTAL STUDIES								Hours 2	Credits 2
							Programme Specific Outcomes (PSOs)								Mean Score of COs	
Course Outcomes (COs)		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1		5	5	5	5	3	5	4	4	4	4	3	4	3	4.0	
CO2		5	4	5	5	4	4	5	5	5	4	4	4	4	4.5	
CO3		5	4	5	5	3	5	4	4	5	3	3	4	2	4.0	
CO4		5	4	4	4	4	4	4	5	4	5	4	4	3	4.2	
CO5		5	5	4	5	4	3	5	5	4	4	5	3	4	4.3	
CO6		5	5	4	4	3	4	4	3	3	4	3	2	4	3.7	
														Mean Overall Score	4.1	

Result: The Score for this Course is 4.1 (Very High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = Total of Values / Total No. of POs & PSOs

Mean Overall Score for COs = Total of Mean Scores / Total No. of COs

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FORMATION OF YOUTH-II

Course Outcome

1. To ensure preparing the students to live in harmony with nature.
2. To ensure the youth the significance of public health and the related issues.
3. To ensure sensitizing the youth about addictions and their consequences.
4. To ensure educating the youth on disaster management and First-Aid.
5. To ensure enlightening on the developmental issues and challenges of youth today.
6. To ensure the value of counselling for attaining positive mental health.

Unit-I: Harmony with Nature

What is environment, Why should we think of harmony, Longing for human well-being, Principles to conserve environmental resources, Causes of disharmony, The fruits of harmony with nature, Forest resources, Water resources, Mineral resources, Food resources, Fruits of dishormony, Economic values and growth, Environmental Ethics, Guidelines to live in harmony with nature, Towards life-centered system for better quality of life

Unit-II: Public Health

Health related issues, Health Care in India vs Developed Countries, Health and Heredity, Public Health - The Indian Scenario, Objectives of public health in India, Public Health System in India, Failure on the public health front, Role of the central government, Hospitals Services in India, Health and Abortion, Health and Drug Addiction, Drug abuse

Unit-III: Disaster Management and First-Aid

Disaster Management, Types of disaster, Plans of disaster management, Technology to manage natural disasters and catastrophes, Disaster Management, Rehabilitation and Reconstruction, Human-induced disaster, First Aid, The importance of First-aid, Disaster Declaration and Response

Unit-IV: Issues Dealing with Science

What is Science, Science and Religion, Social Relevance of Science and Technology, Science and technology for social justice, Difference caused by Science and Technology, Need for indigenous technology, Science,

Technology and Innovation Policy of India, Harnessing the forces of science and technology for the future

Unit-V: Counselling for the Adolescents

High Risk Behaviours, Developmental Changes in Adolescents, Key Issues of the Adolescents, Need for Counselling, Nature of Counselling, Counselling Goals, Does helping help? The Good and the Bad news.

Text Book:

1. **Formation of Youth,** Department of Foundation course, St.Joseph's College, Tiruchirappalli-2, 2016.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV	Course Code 17UFC441004A					Title of the Paper FORMATION OF YOUTH-II									Hours 2	Credits 2
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	5	4	5	5	3	4	5	5	4	5	4	4.4	
CO2	4	4	4	4	4	5	4	3	4	4	4	5	5	4.2	
CO3	5	3	5	4	5	4	4	3	4	4	4	5	5	4.2	
CO4	3	4	5	4	4	5	4	4	4	4	4	3	4	4.0	
CO5	2	4	4	4	5	5	4	4	5	5	5	4	5	4.3	
CO6	4	3	4	4	5	3	4	5	5	4	5	5	4	4.2	
													Mean Overall Score	4.2	

Result: The Score for this Course is 4.2 (Very High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$	Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

RELIGIOUS DOCTRINE-II

Course Outcome

1. To ensure appreciation of the harmony of religion.
2. To ensure training the youth in the power of prayer.
3. To ensure the understanding of Mary's role in salvation history and Marian Dogmas.
4. To ensure enlightening the graces and invisible effects of the sacraments.
5. To ensure the youth with the promise that God forgives failings on repentance.
6. To ensure understanding the concept of salvation and the promise of eternal life.

Unit: I Harmony of Religions

Introduction - Religions of India - Buddhism - Jainism - Sikhism - Judaism - Confucianism - Christianity - Zoroastrianism - Islam

Unit: II The Christian Prayer

Prayer Defined - Reasons to pray - The Way to Pray - Types of Prayer - Obstacles for Prayer - Prayer in Old -The Lord's Prayer

Unit: III Mary, the Blessed Virgin, Mother of God

Introduction - Marian Dogmas - Mary in need of Redemption - Mary in the New Testament - Apparitions of Mary - Devotion to Mary

Unit: IV Sacraments of Initiation

Introduction - An Overview - Baptism - Confirmation - Holy Eucharist

Unit: V Sacraments of Healing & at the Service of the Community

Reconciliation - Anointing of the Sick - Holy Orders – Matrimony

Text Book:

1. **Life in the Lord,** Department of Foundation course, St. Joseph's College, Tiruchirappalli-2, 2011.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV Course Outcomes (COs)	Course Code 17UFC441004B					Title of the Paper RELIGIOUS DOCTRINE-II								Hours 2	Credits 2
	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	1	4	3	3	4	4	4	4	4	5	5	5	3.9	
CO2	4	1	4	3	3	4	4	4	5	4	5	5	5	3.9	
CO3	4	3	4	4	3	4	4	5	4	4	5	5	5	4.2	
CO4	4	1	4	3	3	4	4	4	5	5	5	5	5	3.9	
CO5	4	1	4	3	3	4	4	4	5	4	4	4	5	3.8	
CO6	4	1	4	3	3	5	5	5	5	4	5	4	4	4.0	
											Mean Overall Score			3.9	

Result: The Score for this Course is 3.9 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = Total of Values / Total No. of POs & PSOs

Mean Overall Score for COs = Total of Mean Scores / Total No. of COs

பருவம்: 4   மணி நேரம்: 4
17UGT410004   புள்ளிகள்: 3

பொதுத்தமிழ்-IV

பாடத்தின் விளைவு

- நாடகத்தின் போக்குகள், உத்திகள், பாத்திரப்படைப்பு, உரையாடல் முறை, கற்பனைத்திறம் போன்றவற்றை அறிந்துகொள்ளுதல்.
- புதிய நாடகங்களைப் படைக்கும் திறனைப் பெறுதல்.
- நாடகங்களை நடிக்கும் திறன் பெறுதல்
- கிரேக்க, ஆங்கில நாடகங்களை அடியொற்றி தமிழ்நாடகம் தோன்றிய வரலாறு அறியச் செய்தல்.
- சங்ககாலம் தொட்டு இக்காலம் வரை காதல் பற்றிய உணர்வுகளை எடுத்துரைத்தல்.
- தமிழ் வரலாற்றின் மன்னர்களின் ஆட்சியின் சிறப்புகளையும் வீழ்ச்சிகளையும் எடுத்துக்காட்டுதல்.

அலகு-1   (12 மணி நேரம்)

மனோன்மணீயம், பாயிரம், அங்கம் - 1, களம் 1 - 5 வரை.

அலகு-2   (12 மணி நேரம்)

மனோன்மணீயம், அங்கம் - 2, களம் 1 - 3 வரை.

இலக்கிய வரலாறு நான்காம் பாகம் - தமிழும் பிற துறைகளும் பக்கம் (365-387).

அலகு-3   (12 மணி நேரம்)

மனோன்மணீயம், அங்கம் - 3, களம் 1 - 4 வரை.

உரைநடை நாடகம் (கௌதம புத்தர்)

அலகு-4   (12 மணி நேரம்)

மனோன்மணீயம், அங்கம் - 4, களம் 1 - 5 வரை.

இலக்கிய வரலாறு நான்காம் பாகம் - சமயத்தவரின் தமிழ்ப்பணி (பக்கம் 391-402)

அலகு-5   (12 மணி நேரம்)

மனோன்மணீயம், அங்கம் - 5, களம் 1 - 3 வரை.

இலக்கிய வரலாறு நான்காம் பாகம் - வெளிநாடுகள் தந்த தமிழ் இலக்கியம் (பக்கம் 410-435)

பாடநூல்கள் :

1. சுந்தரனார், மனோன்மணீயம், தமிழாய்வுத்துறை (பதிப்பு), தூய வளனார் கல்லூரி, திருச்சிராப்பள்ளி-2. (அங்கம் : 3 களம் : 4 நீங்கலாக)
2. பாலசுப்பிரமணியம். கு.வெ, கௌதம புத்தர், அய்யா நிலையம், தஞ்சாவூர்
3. சமூகவியல் நோக்கில் தமிழிலக்கிய வரலாறு, தமிழாய்வுத்துறை வெளியீடு, 2014.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV	Course Code 17UGT410004						Title of the Paper பொதுத்தமிழ்-IV										Hours 4	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)									Mean Score of COs		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8				
CO1	4	3	4	5	5	5	5	5	4	4	5	5	5			4.5	
CO2	5	4	3	5	4	5	5	4	3	3	4	5	5			4.3	
CO3	4	3	3	5	4	3	3	4	3	3	4	5	5			3.7	
CO4	5	5	4	5	5	5	5	5	5	4	5	5	5			4.8	
CO5	3	4	4	5	5	4	4	4	4	4	4	4	4			4.1	
CO6	4	3	4	5	5	4	3	3	3	3	2	2	3			3.4	
												Mean Overall Score				4.1	

Result: The Score for this Course is 4.1 (Very High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semestre: IV   **Hours/Week: 4**
17UGH410004   **Credits: 3**

HINDI-IV

Course Outcomes

At the end of the course, a student should be able to demonstrate…

* the ability to empower the students with globally employable soft skills
* the ability to translate Hindi passages to English
* the ideas on human values
* the ability to instruct the moral values given by the Bhakthi Saints
* the knowledge of Indian festivals .
* the knowledge of culture and tradition

Unit-I   **8 hours**

Vidyarthi, Banking Shabda, Anuvad, Anuvad Lesson – 1, Adhikal, Premchand

Unit-II   **12 hours**

Pusthakalaya, Nemikaryalaya Tippaniyan, Anuvadak, Anuvad lesson-2, Bakthikal-Gyan Marg, Mahadevivarma

Unit-III   **12 hours**

Thyohar, Anuvad Ke Gun, Anuvad lesson – 3, Bakthi, Tippaniyaan, Prem Marg, Pant

Unit-IV   **14 hours**

Yugpuresh Gandhi, Anuvadak Ke Gun, Anuvad Lesson – 4 Bakthikal, Bakthikal – Ram Bakthi Kal - Krishna Bakthi, Dinkar

Unit-V   **14 hours**

Braman, Anuvad ek kala, Swarnayug Bakthikal, Anuvad Lesson - 5, Reetikal, Chayavad

Books Recommended

1. Kendriya Sachivalaya, Hindi Parishad New Delhi, Karyalaya Sahayika, 2016.
2. Dakshin Bharat Hindi Prachar Sabha Chennai-17, Niband Radhana, Hindi, 2016.
3. DBHP Sabha, Chennai-17, Anuvad Abyas-3, Hindi, 2016
4. Rajnath Sharma, Hindi Sahitya ka Itihas, Vinkod Pustak Mandir, Agra-2, 2016.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV	Course Code 17UGH410004												Title of the Paper Hindi-IV	Hours 4	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)									Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6				
CO1	4	4	4	3	4	3	3	4	5	4	4				3.5
CO2	3	3	2	3	3	3	5	3	4	3	3				3.1
CO3	3	3	3	3	4	3	3	3	4	3	3				3.1
CO4	3	2	2	3	2	3	3	3	3	3	3				2.7
CO5	3	3	3	3	3	3	5	3	3	4	4				3.3
CO6	4	4	4	4	3	5	3	5	4	4	3				3.9
												Mean Overall Score			3.3

Result: The Score for this Course is 3.3 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

<div align="center">FRANÇAIS-IV</div>

Course Outcomes

* Comparer la culture de l'Inde et de la France
* Familiariser l'étudiant avec le vocabulaire, la grammaire et les conversations
* Connaître les auteurs français (20 auteurs) et leurs œuvres
* Dire qu'on aime quelqu'un/ quelque chose
* Demander des informations
* Exprimer une opinion personnelle et Justifier son opinion.

Unit-I : Prières du Nouvel An   **(10 heures)**

Exprimer l'inquiétude, le regret, le souhait, l'obligation, la sympathie.

Grammaire : Le subjonctif, verbe craindre

Unit-II : Retrouvailles   **(10 heures)**

Marquer la surprise

Grammaire : Le subjonctif, pronoms possessifs.

Unit-III : C'est lui le meilleur ! (10 heures)

Dire qu'on aime quelqu'un/ quelque chose, donner son opinion, insister.

Grammaire : Le superlatif, les pronoms démonstratif.

Unit-IV Sauvons notre Terre !   **(15 heures)**

Enchaînement de cause et d'effet, demander à quelqu'un de tenir compté de quelque chose.

Grammaire : Le plus-que-parfait, il y a.

Unit-V : Le jour des élections s'approche et les auteurs français (20 auteurs) et leurs œuvres   **(15 heures)**

Demander des informations, dire qu'une action n'est pas utile, exprimer une opinion personnelle, Justifier son opinion.

Grammaire : Le participe présent – le gérondif, la voix passive.

Manuel:

1. K.Madanagobalane, **Synchronie-II**, Samhitâ Publication, 2011.

Livre de référence:

1. Annie Berthet /B_atrix Sampsonis/ Catherine Hugot /V_ronnique M Kizirian / Monique Waendendries, **Alter Ego A1**, Hachette, 2006.
2. Yves Loiseau/R_gineM_rieux, Connexions 1, Didier, 2011.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV	Course Code 17UGF410004					Title of the Paper French-IV						Hours 4	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)						Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6		
CO1	4	4	2	3	4	4	2	3	2	2	3	3.0	
CO2	3	3	3	3	4	4	2	4	3	2	3	3.1	
CO3	3	2	3	2	4	3	4	3	3	3	4	3.1	
CO4	3	3	4	3	4	1	2	2	4	3	3	2.9	
CO5	3	3	4	3	4	3	2	2	4	4	5	3.4	
CO6	3	4	3	3	3	4	4	2	4	3	4	3.4	
									Mean Overall Score			3.2	

Result: The Score for this Course is 3.2 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semester: IV **Hours/Week: 4**
17UGS410004 **Credits : 3**

SANSKRIT-IV

Course Outcomes

At the end of the course, a student should be able to demonstrate…

* knowledge and understanding of the history of Sanskrit Drama.
* knowledge and understanding of the Nataka vivaranam.
* the introduction of Functional - Sanskrit conversation Letter writing.
* the ability to apply relevant theoretical perspectives to topics within the field of study
* the competence in academic writing and oral presentation skills.
* the ability to work both independently and in groups on presentations and/or development of Projects.

Unit-I **8 hours**

Paataah – Asta, Nava Dasha, Sankhya prayogah.

Unit-II **12 hours**

Lot lakaarah. Prqayaogah. Kartari Vaakyaani

Unit-III **12 hours**

Naatakasya Itihaasah.

Unit-IV **14 hours**

Karnabhaaram. Naatakam.

Unit-V **14 hours**

Kathaapaatra Vailaksharnyam.

Books recommended:

1. R.S.Vadhyar & Sons, Book-Sellers and Publishers, Kalpathi, Palghat 678003, Kerala, South India, History of Sanskrit Literature, 2014.
2. Samskritha Bharathi, Aksharam 8th Cross, 2nd Phase, Giri Nagar, Bangalore. Vadatu Sanskritam – Samskara Binduhu, 2014.
3. R.S. Vadhyar & Sons, Book-Sellers and Publishers, Kalpathi, Palghat 678003, Kerala, Soth India. Karnabharam, 2014.
4. Kulapathy, K.M., Saral Sanskrit Balabodh, Bharathiya vidya Bhavan, Munshimarg, Mumbai 400007, 2014.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV	Course Code 17UGS410004														Hours 4	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Title of the Paper Sanskrit-IV							Mean Score of COs			
						Programme Specific Outcomes (PSOs)										
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6					
CO1	5	3	5	4	4	3	3	3	3	3	4	3.1				
CO2	4	3	4	4	4	3	3	3	3	3	3	3.1				
CO3	4	3	3	4	4	3	4	4	4	4	4	3.2				
CO4	4	3	3	4	3	3	3	4	4	4	4	3.1				
CO5	4	4	4	3	4	3	4	3	4	4	4	3.0				
CO6	5	4	4	4	4	3	3	3	3	3	4	3.2				
										Mean Overall Score		3.1				

Result: The Score for this Course is 3.1 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester: IV   **Hours/Week: 5**
17UGE420104   **Credits: 3**
GENERAL ENGLISH-IV

Course Outcome
* Comprehend the local and global issues through the lessons
* Do the tasks centering on skill development and enhance their Grammar Using and Writing Skills
* Use interactive skills
* Train and develop the Listening and Reading Skills of the learners through teacher-led reading practice
* Improve their General Writing Skills such as Note-Taking, Note-Making, Précis Writing, Paragraph Writing, and Writing Short Essays on Current Issues/General Topics
* Understanding the social background and human character of the period

Unit-VII:
*Women through the Eyes of Media
7.0   Introduction
7.1   Objectives
7.2   Listening and Reading Skills through Teacher-led Reading Practice
7.3   Glossary
7.3.1 Words
7.3.2 Phrases
7.4   Reading Comprehension
7.5   Critical Analysis
7.6   Creative Task
7.7   General Writing Skill: Writing Minutes of a Meeting
7.8   Grammar: Present Perfect Tense
7.9   **Non -Detailed Poem:** Thomas Hood (1799–1845): "Silence"

Unit-VIII:
*Effects of Tobacco Smoking
8.0   Introduction
8.1   Objectives
8.2   Listening and Reading Skills through Teacher-led Reading Practice
8.3   Glossary
8.3.1 Words
8.3.2 Phrases

8.4   Reading Comprehension
8.5   Critical Analysis
8.6   Creative Task
8.7   General Writing Skill: Note-Taking
8.8   Grammar: Present Perfect Continuous Tense
8.9   **Non -Detailed Poem:** Coventry Patmore (1823-1896): "The Toys"

Unit-IX:
* Short Message Service (SMS)
9.0   Introduction
9.1   Objectives
9.2   Listening and Reading Skills through Teacher-led Reading Practice
9.3   Glossary
9.3.1 Words
9.3.2 Phrases
9.4   Reading Comprehension
9.5   Critical Analysis
9.6   Creative Task
9.7   General Writing Skill: Note-Making
9.8   Grammar: Past Perfect Tense
9.9   **Non -Detailed Poem:** Stephen Spender (1909-1995): "Daybreak"

Unit-X:
*An Engineer Kills Self as Crow Sat on his Head: A News Paper Report
10.0   Introduction
10.1   Objectives
10.2   Listening and Reading Skills through Teacher-led Reading Practice
10.3   Glossary
10.3.1 Words
10.3.2 Phrases
10.4   Reading Comprehension
10.5.   Critical Analysis
10.6.   Creative Task
10.7   General Writing Skill: Précis Writing
10.8   Grammar: Past Perfect Continuous Tense
10.9   **Non -Detailed Poem:** Gabriel Imomotimi Okara (1921): "Once Upon a Time"

Unit-XI:

*Traffic Rules

11.0   Introduction

11.1   Objectives

11.2   Listening and Reading Skills through Teacher-led Reading Practice

11.3   Glossary

11.3.1   Words

11.3.2   Phrases

11.4   Reading Comprehension

11.5   Critical Analysis

11.6   Creative Task

11.7   General Writing Skill: Paragraph Writing

11.8   Grammar: Future Perfect Tense

11.9   **Non -Detailed Poem:** Robert Winner (1930-1986): "Opportunity"

Unit-XII:

*A Handful of Answers: A Zen Tale

12.0   Introduction

12.1   Objectives

12.2   Listening and Reading Skills through Teacher-led Reading Practice

12.3   Glossary

12.3.1   Words

12.3.2   Phrases

12.4   Reading Comprehension

12.5   Critical Analysis

12.6   Creative Task

12.7   General Writing Skill: Writing Short Essays on Current Issues/General Topics

12.8   Grammar: Future Perfect Continuous Tense

12.9   **Non -Detailed Poem:** Ted Hughes (1930–1998): "The Harvest Moon"

Textbook

1.   Jayraj, S. Joseph Arul et al. *Trend-Setter: An Interactive General English Textbook for Under Graduate Students*. New Delhi: Trinity, 2016. Print.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV	Course Code 17UGE420104					Title of the Paper General English-IV								Hours 5	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	5	5	4	4	4	5	5	5	5	5	5	4.61	
CO2	5	4	5	5	3	4	5	5	5	5	5	5	5	4.69	
CO3	4	4	5	4	4	3	4	4	5	5	4	4	5	4.23	
CO4	4	4	5	4	4	3	4	5	5	5	4	4	5	4.30	
CO5	5	4	5	4	4	4	4	4	5	4	4	4	5	4.38	
CO6	5	5	5	5	4	4	4	5	5	5	5	4	5	4.61	
Mean Overall Score														4.47	

Result: The Score for this Course is 4.47 (Very High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester IV

17UMA430207

Hours/Week: 4

Credits: 3

CLASSICALALGBRA

Course Outcomes:

* Foundations for the study of Pure Mathematics.
* Relations between the roots and coefficients of equations
* Transformations of equations
* Formation of equations.
* Important Methods in finding roots.
* Knowledge in Operative Algebra

Unit-I

Theory of equations -Introduction –Remainder theorem –Roots occurring in pairs. (Chap-6: Sec 1-10 pg282-292)

Unit-II

Relations between the roots and coefficients of equations -Sum of the rth powers of the roots –Newton's theorem on the sum of the powers of the roots. (Chap-6: Sec11- 14 pg292- 317)

Unit III

Transformations of equations – Reciprocal equations. To increase or decrease the roots of an equation by a quantity (Chap-6: Sec-15-18 pg 318-334)

Unit IV

Removal of terms – To form an equation whose roots are any power of the roots of a given equation - Transformation in general.
(Chap-6: Sec 19-23 pg 334-351)

Unit V

Descarte's rule of signs –Rolle's theorem–Sturms theorem –Newton's method of divisors. (Chap-6: Sec 24, 25 (pg 351-358) & Sec 27 – 29 (pg362- 375))
Note: Proof is not included for any theorem.

Textbook:

1. T.K.Manicavachagom Pillai, T Natarajan, K S Ganapathy, Algebra, Volume I, S.Viswanathan Printers and publishers Pvt. Ltd., 2003.

References:

1. William J Gilbert and Scott A Vanstone, Classical Algebra, Third Edition, Waterloo Mathematics Foundation, 1993.
2. P. Kandasamy and K.Thilagavathy, Mathematics Volume I, S.Chand & Co, 2004.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV Course Outcomes (COs)	Course Code 17UMA430207 Programme Outcomes (POs)					Title of the Paper: CLASSICAL ALGEBRA Programme Specific Outcomes (PSOs)								Hours 4	Credits 3 Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	3	5	4	5	5	4	3	5	4	3	3		4.1
CO2	4	5	4	4	5	4	4	4	4	4	4	3	4		4.1
CO3	4	5	4	4	4	4	5	4	4	4	3	4	3		4.0
CO4	3	5	4	5	4	4	5	3	3	5	4	3	3		3.9
CO5	4	5	3	5	4	4	5	4	4	5	4	3	3		4.1
CO6	4	5	4	4	3	5	5	3	4	3	3	3	3		3.8
											Mean Overall Score				4.0

Result: The Score for this Course is 4.0 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester IV   **Hours/Week: 5**
17UMA430208   **Credits: 3**

ALGEBRA-I

Course Outcomes:

* Acquiring knowledge of basic abstract systems of Mathematics.
* Present concepts and properties of various algebraic structures.
* Develop the ability to form and evaluate conjectures in graphs.
* Discuss the importance of cyclic groups.
* Present concepts of the relationships between subgroups and normal subgroups.
* Demonstrate understanding of the importance of homomorphism and isomorphism in groups.
   (70 percent theory and 30 percent problems)

UNIT – I

Relations – Equivalence Relations-Partial Order – Functions – BinaryOperations. (Chapter 2 Sections 2.1-2.5)

UNIT - II

Groups – Definition and Examples – Elementary Properties of a Group– Equivalent –Definitions of a Group. (Chapter 3 Sections 3.1-3.3)

UNIT - III

Permutation Groups - Subgroups - Cyclic Groups. (Chapter 3 Sections3.4-3.6)

UNIT - IV

Order of an Element – Cosets and Lagrange's Theorem – NormalSubgroups and Quotient Groups. (Chapter 3 Sections 3.7-3.9)

UNIT – V

Homomorphism and Isomorphism of Groups - Cayley's Theorem - Fundamental theorem of homomorphism. (Chapter 3 Sections 3.10, 3.11)

Textbook:

1. S Arumugam and A Thangapandi Isaac, Modern Algebra, SciTech Publications, Chennai, 2003.

References:

1. N. Herstein, Topics in Algebra,John Wiley & Sons, Student 2nd edition, 1975.
2. M.L.Santiago, Modern Algebra, Tata McGraw-Hill Publishing Co.Ltd., 2001.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV	Course Code 17UMA430208													Title of the Paper: ALGEBRA-I	Hours 5	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)										Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8			
CO1	5	4	4	4	5	5	4	4	4	5	3	4	3			4.2
CO2	4	5	5	3	4	5	4	4	4	5	4	3	3			4.1
CO3	4	5	4	3	5	4	3	4	3	5	3	3	3			3.8
CO4	5	4	3	4	5	3	4	3	5	5	4	4	3			4.0
CO5	5	4	3	3	4	5	4	4	3	4	3	3	4			3.8
CO6	4	5	3	4	5	4	5	4	3	4	3	3	3			3.8
													Mean Overall Score			3.9

Result: The Score for this Course is 3.9 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester IV
17UMA430301A
Hours/Week: 4
Credits: 4

Core Elective (WD): AUTOMATA THEORY

Course Outcomes:

* Understanding the definition of Automation.
* Introducing the different types of Grammar.
* Constructing the Regular Expressions.
* Trained to know the normal forms.
* Studying Pumping lemma for regular sets.
* Simplifying context free grammars.

UNIT – I

Definition of an Automaton - Description of Finite Automaton – Transition systems - Properties of transition functions - Acceptability of a string by a finite Automaton - Non deterministic finite automaton - The equivalence of DFA and NDFA. Chapter 2: Sections 2.1 to 2.7

UNIT – II

Formal Languages - Basic Definitions and examples - Chomsky classification of Languages - Languages and their relation - Recursive and Recursively Enumerable sets- Operations on Languages.
Chapter 3: Sections 3.1 to 3.5

UNIT – III

Regular expressions - Finite Automata and Regular expressions.
Chapter 4: Sections 4.1 and 4.2

UNIT – IV

Pumping Lemma for Regular sets - Applications of Pumping Lemma - Closure Property of Regular sets - Regular sets and Regular grammars.   Chapter 4: Sections 4.3 to 4.6

UNIT – V

Context free Languages and Derivation trees - Ambiguity in Context free grammars - Simplification of Context free grammars (examples only)   Chapter 5: Sections 5.1 to 5.3

Textbook:

1. K L P Mishra and N Chandrasekaran, Theory of Computer Science: Automata, Languagesand Computation, Third Edition, Prentice Hall of India, New Delhi, 2006.

References:

1. John E. Hopcroft and J.D. Ullman, Introduction to Automata theory, Languages and Computation, Third Edition, Prentice Hall, 2006.
2. A.V. Aho and J.D. Ullman, Principles of compiler design, Pearson Education, 2012.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Title of the Paper: Core Elective (WD): AUTOMATA THEORY

Semester IV	Course Code 17UMA430301A														Hours 4	Credits 4	Mean Score of COs
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)											
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8				
CO1	3	4	2	4	5	4	3	5	3	4	5	3	3				3.7
CO2	4	4	2	4	4	4	5	3	3	4	4	5	4				3.9
CO3	3	4	2	4	5	5	4	3	4	4	4	5	3				3.9
CO4	4	3	2	4	4	5	4	3	4	3	4	4	4				3.7
CO5	4	3	3	5	4	3	5	4	3	5	5	4	3				3.9
CO6	3	3	3	4	4	4	5	5	4	3	5	4	5				4.0
													Mean Overall Score				3.8

Result: The Score for this Course is 3.8 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semester IV
17UMA430301B
Hours/Week: 4
Credits: 4

Core Elective (WD): ASTRONOMY

Course Outcomes:

* Introducing the exciting world of astronomy to the students.
* Helping the students to study about the celestial objects.
* Understanding the effects of refractions geocentric parallax.
* Compiling solar and lunar ellipses.
* Understanding Kepler's laws of planetary motion.
* Understanding the variation in duration of day and night in various zones of earth.

UNIT I

Celestial sphere and diurnal motion – Celestial coordinates - Sidereal time. Art. 39 – 76.

UNIT II

Morning and evening stars – circumpolar stars - zones of earth - perpetual day -twilight. Art. 80 – 83, 87 – 89, 111 - 116.

UNIT III

Refraction – laws of refraction – tangent formula - horizontal refraction - geocentric parallax – horizontal parallax. Art. 117 – 128, 135 - 144.

UNIT IV

Kepler's laws - Anomalies – Kepler's equation - Calendar. Art. 146 – 149, 156 – 159, 175 – 179.

UNIT V

Moon - sidereal and synodic months – elongation – phase of moon – eclipses -umbra and penumbra – lunar and solar eclipses – maximum and minimum number of eclipses in a year. Art. 229 – 241, 256 – 263, 267, 268, 271 - 275.

Textbook:

1. S. Kumaravelu and Susheela Kumaravelu, Astronomy, SKV Publications, 2004.

References:

1. G V Ramachandran, Text Book of Astronomy, Mission Press, Palayamkottai, 1965.
2. Michael Seeds, Foundations of Astronomy, Third Edition, Wadsworth Publishing Company, California,1992.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV Course Outcomes (COs)	Course Code 17UMA430301B Programme Outcomes (POs)					Title of the Paper: Core Elective (WD): ASTRONOMY Programme Specific Outcomes (PSOs)								Hours 4	Credits 4 Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	4	2	5	4	4	4	2	3	4	1	2	4		3.23
CO2	3	3	2	4	4	4	3	2	3	3	2	1	3		2.85
CO3	3	3	2	5	3	4	4	2	2	3	2	2	4		3.00
CO4	5	4	2	3	4	3	4	3	3	5	4	2	5		3.61
CO5	5	4	1	3	4	3	3	4	3	5	4	2	5		3.54
CO6	4	4	2	3	4	3	3	4	3	4	4	2	3		3.31
													Mean Overall Score		3.25

Result: The Score for this Course is 3.2 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester IV　　　　　　　　　　　　　　Hours/Week: 4
17UPH430404A　　　　　　　　　　　　　Credit: 4

Allied:
PHYSICS-II

Course Outcomes:

* To understand the theoretical and experimental concepts of interference, diffraction and propagation of light.
* To study the structure, behavior and properties of atoms based on vibrational modes.
* To study different nuclear models, nuclear properties and its applications.
* To study the fundamental principles of relativity and quantum mechanics.
* To study the basic electronics of LED, Transistor and Oscillator.
* To study the working of logic gates for application in digital electronics.

Unit-I: PHYSICAL OPTICS　　　　　　　　　　　　　(12 Hrs)

Velocity of light – Michelson's method – Interference: colours of thin films – air wedge – determination of diameter of a thin wire by air wedge – test for optical flatness. Diffraction – Fresnel's explanation of rectilinear propagation of light – theory of diffraction and specific rotating power of transmission grating – Normal incidence – polarization – Brewster's law –double refraction,– optical activity – polarimeter.

Unit-II: ATOMIC PHYSICS　　　　　　　　　　　　　(12 Hrs)

Atom model – vector Atom model – quantum numbers associated with vector atom model – coupling schemes – Pauli's exclusive principle – magnetic dipole moment of electron due to orbital and spin motion – Bohr magneton – spatial quantisation – Stern Gerlach experiment.

Unit-III: NUCLEAR PHYSICS　　　　　　　　　　　(12 Hrs)

Nuclear model – liquid drop model – magic numbers, shell model – nuclear energy – mass defect – binding energy Radiation detectors – ionization chambers – GM counter – nuclear fission – Bohr and wheeler theory – chain reaction – atom bombs –nuclear fusion – nuclear reactor.

Unit-IV: ELEMENTS OF RELATIVITY AND QUANTUM MECHANICS
　　　　　　　　　　　　　　　　　　　　　　　　　(12 Hrs)

Frame of reference – Galilean transformation – Postulates of theory of relativity – Lorentz transformation equations – derivation – length contraction – time dilation – Michelson Morley experiment - mass energy equivalence – uncertainty principle – postulates of wave mechanics –wave nature of matter– types of operators – Schrodinger's time dependent and time independent equation

Unit-V: ELECTRONICS　　　　　　　　　　　　　　(12 Hrs)

Basic Electronics: LED – Zener diode and characteristics – voltage regulator – Transistor RC coupled amplifier – condition for oscillation – phase shift oscillator .

Digital electronics: Logic gates – Nand and NOR gates – Universal building blocks – Boolean algebra – Demorgan's theorem – verification – Half adder, full adder, Half subtractor and Full subtractor.

BOOK FOR STUDY:

1. R.Murugesan (2005), Applied Physics, First edition, S. Chand and Co., New Delhi – 110005.

BOOKS FOR REFERENCES:

1. D.Halliday, R. Resnick, J. Walker, Fundamental of Physics, 9th edition, John Wiley & Sons, 2010
2. M.E. Schaltz, Groh's Basic Electronics, McGrawhill, 11th edition, 2011.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV	Course Code 17UPH430404A					Title of the Paper ALLIED PHYSICS - II								Hours 4	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	4	2	4	4	5	3	3	4	3	1	2	2	3.23	
CO2	5	4	1	5	5	4	4	3	3	4	1	2	2	3.31	
CO3	5	4	2	4	5	5	4	3	3	4	1	2	2	3.38	
CO4	5	4	1	4	4	5	5	3	3	4	1	2	3	3.38	
CO5	5	4	1	5	4	5	5	3	3	4	1	2	3	3.46	
CO6	5	4	2	5	5	4	5	4	3	4	2	2	2	3.62	
												Mean Overall Score		**3.39**	

Result: The Score for this Course is 3.3 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs =	$\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$	Mean Overall Score for COs =	$\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

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Allied:

PHYSICS PRACTICALS

Course Outcomes:
1. Practical knowledge of instruments
2. Knowledge of correlating experimental results

Any 16 Experiments
1. Young's modulus – Non uniform bending – cantilever
2. Young's modulus – Cantilever
3. S .T. – Method of drops
4. S.T. – Capillary rise.
5. Viscosity – variable pressure head
6. Concave lens – f, R, ì.
7. Air wedge – Thickness of wire.
8. Newton' Rings R
9. Spectrometer – Solid prism
10. Spectrometer – Grating (Normal Incidence)
11. M1/M2 – Tan A and Tan B simultaneous method
12. Absolute determination of M and H.
13. P.O. Box – Temp. Coefficient
14. Potentiometer – Ammeter calibration
15. Potentiometer – R and ñ
16. Field along the axis of the coil
17. Sonometer – Frequency of turning fork
18. Junction diode characteristics
19. Zener diode characteristics.
20. Logic gates – IC's
21. Jolly's bulb

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Semester IV   **Hours/Week: 6**
17UMA430404B   **Credits: 5**
                    Allied: ACCOUNTS-II

Course Outcomes:
* Understand the basic principles of cost accounting
* Knowledge of preparing cost sheet.
* Understand cash flow from Operating, investment and financing activities
* Prepare cash flow statement as per AS3.
* Determine working capital of a business organisation.
* Apply Marginal costing principles in decision making.
* Draft different kinds of budgets for a business organization.
* Know about Cash Budget, Sales Budget and Flexible budget

Unit-I: **(18 hours)**
Cost Accounting – Components of cost – Methods and techniques of Costing -Preparation of cost sheet – various stages in cost sheet –WIP - valuation of closing stock of finished goods - tender & quotation.

Unit-II: **(18 hours)**
Cash flow Statement – meaning – cash flow from operating activities, investment activities and financing activities - preparation of cash flow statement As per AS3 (simple problems

Unit-III: **(18 hours)**
Working capital management-Working capital meaning- Types of working capital - components of working capital - Calculation of working capital

Unit-IV: **(18 hours)**
Marginal costing – Marginal cost- Contribution – PV Ratio – BEP – Margin of safety – CVP - decision making (simple problems)

Unit-V: **(18 hours)**
Budgeting control- preparation of cash budget- sales budget- production budget- production cost budget- flexible budget

TEXT BOOK:
1. Reddy TS and Murthy A, Cost Accounting (2012), Margham Publications, Chennai (Unit-I).
2. Reddy TS and Murthy A, Management Accounting (2012), Margham Publications, Chennai.(Unit-II, III, IV & V)

BOOKS FOR REFERENCES
1. S.N. Maheswari, (2007), Cost Accounting, S.Chand& Co, New Delhi.
2. Jain SP & Narang KL, (2014), Cost Accounting Principles and Practice, Kalyani Publishers, New Delhi.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV	Course Code 17UMA430404B					Title of the Paper: Allied: ACCOUNTS-II									Hours 6	Credits 5
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	3	4	2	2	4	3	4	1	4	2	4	3	3.08	
CO2	5	4	5	3	2	5	3	5	3	3	5	2	3	3.69	
CO3	4	5	3	2	5	3	1	2	5	3	2	4	3	3.23	
CO4	3	4	2	4	2	5	2	4	3	2	4	5	4	3.38	
CO5	5	2	5	2	4	4	5	5	2	5	4	5	4	3.84	
CO6	5	3	5	2	4	4	4	5	3	5	4	4	5	4.08	
CO7	3	5	3	4	3	1	1	3	5	2	3	5	4	3.23	
CO8	5	4	5	4	2	4	4	5	3	5	4	4	5	4.15	
												Mean Overall Score		3.58	

Result: The Score for this Course is 3.5 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semester IV **Hours/Week: 2**
17UFC441004A **Credits: 2**

FORMATION OF YOUTH-II

Course Outcome

1. To ensure preparing the students to live in harmony with nature.
2. To ensure the youth the significance of public health and the related issues.
3. To ensure sensitizing the youth about addictions and their consequences.
4. To ensure educating the youth on disaster management and First-Aid.
5. To ensure enlightening on the developmental issues and challenges of youth today.
6. To ensure the value of counselling for attaining positive mental health.

Unit-I: Harmony with Nature

What is environment, Why should we think of harmony, Longing for human well-being, Principles to conserve environmental resources, Causes of disharmony, The fruits of harmony with nature, Forest resources, Water resources, Mineral resources, Food resources, Fruits of dishormony, Economic values and growth, Environmental Ethics, Guidelines to live in harmony with nature, Towards life-centered system for better quality of life

Unit-II: Public Health

Health related issues, Health Care in India vs Developed Countries, Health and Heredity, Public Health - The Indian Scenario, Objectives of public health in India, Public Health System in India, Failure on the public health front, Role of the central government, Hospitals Services in India, Health and Abortion, Health and Drug Addiction, Drug abuse

Unit-III: Disaster Management and First-Aid

Disaster Management, Types of disaster, Plans of disaster management, Technology to manage natural disasters and catastrophes, Disaster Management, Rehabilitation and Reconstruction, Human-induced disaster, First Aid, The importance of First-aid, Disaster Declaration and Response

Unit-IV: Issues Dealing with Science

What is Science, Science and Religion, Social Relevance of Science and Technology, Science and technology for social justice, Difference caused by Science and Technology, Need for indigenous technology, Science, Technology and Innovation Policy of India, Harnessing the forces of science and technology for the future

Unit-V: Counselling for the Adolescents

High Risk Behaviours, Developmental Changes in Adolescents, Key Issues of the Adolescents, Need for Counselling, Nature of Counselling, Counselling Goals, Does helping help? The Good and the Bad news.

Text Book:

1. **Formation of Youth,** Department of Foundation course, St.Joseph's College, Tiruchirappalli-2, 2016.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV	Course Code 17UFC441004A						Title of the Paper FORMATION OF YOUTH-II								Hours 2	Credits 2
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	5	4	5	5	3	4	5	5	4	5	4	4.4	
CO2	4	4	4	4	4	5	4	3	4	4	4	5	5	4.2	
CO3	5	3	5	4	5	4	4	3	4	4	4	5	5	4.2	
CO4	3	4	5	4	4	5	4	4	4	4	4	3	4	4.0	
CO5	2	4	4	4	5	5	4	4	5	5	5	5	5	4.3	
CO6	4	3	4	4	5	3	4	5	5	4	5	4	4	4.2	
												Mean Overall Score		4.2	

Result: The Score for this Course is 4.2 (Very High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

RELIGIOUS DOCTRINE-II

Course Outcome

1. To ensure appreciation of the harmony of religion.
2. To ensure training the youth in the power of prayer.
3. To ensure the understanding of Mary's role in salvation history and Marian Dogmas.
4. To ensure enlightening the graces and invisible effects of the sacraments.
5. To ensure the youth with the promise that God forgives failings on repentance.
6. To ensure understanding the concept of salvation and the promise of eternal life.

Unit: I Harmony of Religions

Introduction - Religions of India - Buddhism - Jainism - Sikhism - Judaism - Confucianism - Christianity - Zoroastrianism - Islam

Unit: II The Christian Prayer

Prayer Defined - Reasons to pray - The Way to Pray - Types of Prayer - Obstacles for Prayer - Prayer in Old -The Lord's Prayer

Unit: III Mary, the Blessed Virgin, Mother of God

Introduction - Marian Dogmas - Mary in need of Redemption - Mary in the New Testament - Apparitions of Mary - Devotion to Mary

Unit: IV Sacraments of Initiation

Introduction - An Overview - Baptism - Confirmation - Holy Eucharist

Unit: V Sacraments of Healing & at the Service of the Community

Reconciliation - Anointing of the Sick - Holy Orders – Matrimony

Text Book:

1. **Life in the Lord,** Department of Foundation course, St. Joseph's College, Tiruchirappalli-2, 2011.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester IV	Course Code 17UFC441004B					Title of the Paper RELIGIOUS DOCTRINE-II								Hours 2	Credits 2
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	1	4	3	3	4	4	4	5	5	5	5	5	3.9	
CO2	4	1	4	3	3	4	4	4	5	4	5	5	5	3.9	
CO3	4	3	4	4	3	4	4	5	4	4	5	5	5	4.2	
CO4	4	1	4	3	3	4	4	4	5	4	5	5	5	3.9	
CO5	4	1	4	3	3	4	4	4	5	4	4	4	5	3.8	
CO6	4	1	4	3	3	5	5	5	5	5	4	4	4	4.0	
Mean Overall Score														3.9	

Result: The Score for this Course is 3.9 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

REALANALYSIS

Course Outcomes:
* Basic Concepts of Functions and real number system
* Concepts of Limits
* Concepts of Metric Spaces.
* Understanding of Continuous functions in Metric Spaces
* Introduction and Properties of Riemann Integral
* Derivatives and their properties

Unit I: Functions and Real Numbers

Equivalence , Countability – Real numbers – Least upper bounds-Limit superior and limit inferior – Cauchy sequences Sec 1.3-1.7, 2.9,2.10

Unit 2: Limits and Metric Spaces

Limit of a function on a real line- Metric spaces- Limits in metric spaces- Functions continuous at a point on the real line, Reformulation, Sec 4.1, 4.2 (In 4.2C examples 4 and 5 are omitted), 4.3, 5.1,5.2

Unit 3: Continuous functions on Metric Spaces

Continuous functions on a metric space, Open sets, Closed sets, Discontinuous functions on the real line Sec 5.3,5.4,5.5,5.6

Unit 4: Riemann Integration

Definition of the Riemann integral, Existence of the Riemann integral – Properties of Riemann integral Sec ,7.2,7.3,7.4

Unit 5: Derivatives

Derivatives, Rolle's theorem, Law of mean, Fundamental theorems of calculus, Taylor's theorem Sec 7.5-7.8, 8.5

Text Book
1. Methods of Real Analysis, Richard R. Goldberg, Oxford and IBH Publishing Co., 1970.

References
1. S C Malik and Savita Arora, Mathematical Analysis, New Age Science Ltd., 2009.
2. Shanti Narayan, Elements of Real Analysis, S.Chand & Company Ltd, New Delhi, 1974.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester V	Course Code 17UMA530209						Title of the Paper: REAL ANALYSIS									Hours 6	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)									Hours 6	Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	3	4	5	4	4	4	3	5	4	3	3		3.8
CO2	5	4	3	4	5	4	4	3	3	4	3	3	4		3.8
CO3	4	5	3	5	5	4	4	4	4	5	3	3	3		4.0
CO4	4	4	3	5	4	5	5	3	3	4	3	4	3		3.8
CO5	4	4	4	4	4	5	4	4	3	4	3	3	3		3.8
CO6	5	5	4	3	4	4	5	3	3	5	4	3	4		4.0
													Mean Overall Score		3.8

Result: The Score for this Course is 3.8 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semester V   **Hours/Week: 6**
17UMA530210   **Credits: 4**

DYNAMICS

Course Outcomes:

* Behavior of motion of objects.
* Applications of Projectile in practical problems.
* Behaviour of elastic bodies in real life problems.
* Simple Harmonic Motion and its Applications.
* Law of forces in central orbit.
* Laws of compound pendulum.

Unit-I

Motion in a plane without air resistance - path of a projectile - Time of flight -Horizontal range - Motion of a projectile up an inclined plane.
[Sections 6.1 to 6.10, 6.12 to 6.16]

Unit II

Fundamental laws of impact - Impact of a smooth sphere on a fixed smooth plane – Direct impact of smooth elastic spheres - oblique impact of smooth elastic spheres. [Sections 8.1 to 8.11]

Unit III

Definition - Geometrical representation of S.H.M.-Composition of S.H.M.'S of the same period and in the same line - Composition of S.H.M.'S of the same period and in two perpendicular directions. [Sections 10.1 to 10.8]

Unit IV

Radial and transverse components of velocity and acceleration – Differential equation of a central orbit- Given the orbit to find the law of force - Given the law of force to find the orbit. [Sections 11.1 to 11.13]

Unit V

Kinetic Energy – Angular momentum – Equation of motion – Conservation of angular momentum – Principle of energy – Compound pendulum – Centers of suspension and oscillation. [Sections 13.1 to 13.8]

Note: 50% of the question paper shall be book works and 50% of the questions may be problems.

Textbook:

1. Dr.M.K.Venkataraman, Dynamics, Agasthiar Publications, 12th Edition 2006. Unit 1 – Chapter 6, Unit 2 – Chapter 8, Unit 3 – Chapter 10, Unit 4 – Chapter 11, Unit 5 – Chapter 13.

References:

1. A.V.Dharmapadham, Dynamics, S. ViswanathanPrinters & Publishers Pvt Ltd 2006.
2. M.L. Khanna, Dynamics, Jai Prakash Nath And Company, 2004.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester V	Course Code 17UMA530210													Title of the Paper: DYNAMICS	Hours 6	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)										Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8			
CO1	4	4	3	5	4	5	4	2	3	4	3	3	4			3.69
CO2	4	5	3	4	4	5	5	3	4	4	3	2	3			3.77
CO3	5	5	4	5	4	5	5	3	4	4	3	4	4			4.23
CO4	4	4	3	4	5	4	4	3	4	5	4	3	3			3.84
CO5	4	4	3	5	4	4	5	2	3	4	3	3	3			3.61
CO6	5	5	3	4	4	4	5	3	3	4	3	3	4			3.84
													Mean Overall Score			3.83

Result: The Score for this Course is 3.8 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

ALGEBRA-II

Course Outcomes:
* Study of algebraic systems with two binary operations.
* All the basic concepts and definitions are motivated with concrete examples.
* Abstract ideas of Ideals-Prime Ideals and study their properties.
* Present the concept of Homomorphism of rings and their properties.
* Learn the properties of UFD and ED
* Understanding of polynomial rings over U.F.D.

UNIT-I

Rings-Definitions and Examples - Elementary properties of rings – Isomorphism - Types of rings. (Chapter 4 Sections 4.1-4.4)

UNIT-II

Characteristic of a ring – subrings – Ideals - Quotient rings - Maximal and Prime Ideals. (Chapter 4 Sections 4.5-4.9)

UNIT-III

Homomorphism of rings – Field of quotients of an integral domain . (Chapter 4 Sections 4.10, 4.11)

UNIT-IV

Uniquefactorization domain-Euclidean domain - Every P.I.D is U.F.D.
 (Chapter 4 Sections 4.13-15)

UNIT-V

Polynomial rings – Polynomial rings over U.F.D – Polynomials over Q. (Chapter 4 Sections 4.16 - 4.18)

Textbook
1. Arumugam S and Thangapandi Isaac A, Modern Algebra, SciTech Publications (India) Ltd., Chennai, Edition 2003.

References
1. I. N. Herstein, Topics in Algebra, Second Edition, John Wiley & Sons (Asia), 1975.
2. S. L. Santiago , Modern Algebra ,Tata McGraw-Hill publishing company Ltd, New Delhi, 2001.

(*70 percent theory and 30 percent problems*)

OPERATIONS RESEARCH

Course Outcomes:

* Learning Linear Programming Problems.
* Obtaining Optimal Solutions.
* Increasing the effectiveness of Management decisions
* Implementing Long Range Plans to solve problems
* Quantitative Analysis of decisions
* Learning Logical Analysis

UNIT-I

Linear programming problem - Mathematical formulation – Illustrations on Mathematical formulation on Linear Programming Problems – Graphical solution method - some exceptional cases - Canonical and standard forms of Linear Programming Problem - simplex method.

(Chapter 2 Sec 2.1 to 2.4, Chapter 3 Sec 3.1 to 3.5, Chapter 4 Sec 4.1 , 4.3)

UNIT-II

Use of Artificial Variables (Big M method - Two phase method) – Duality in Linear Programming - General primal-dual pair - Formulating a Dual problem - Primal-dual pair in matrix form -Dual simplex method.

(Chapter 4 Sec 4.4, Chapter 5 Sec 5.1 to 5.4, 5.9)

UNIT-III

Transportation problem - LP formulation of the TP - Solution of a TP - Finding an initial basic feasible solution (NWCM - LCM -VAM) – Degeneracy in TP - Transportation Algorithm (MODI Method) - Assignment problem - Solution methods of assignment problem – special cases in assignment problem.

(Chapter 10 Sec 10.1, 10.2, 10.8, 10.9, 10.12, 10.13, Chapter 11 Sec 11.1to 11.4)

UNIT-IV

Queuing theory - Queuing system - Classification of Queuing models - Poisson Queuing systems Model I (M/M/1)(¥/FIFO) only - Games and Strategies – Two person zero sum - Some basic terms - the maximin-minimax principle -Games without saddle points-Mixed strategies - graphic solution 2xn and mx2 games.

(Chapter 21 Sec 21.1, 21.2, 21.7 to 21.9, Chapter 17 Sec 17.1 to 17.6)

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester V	Course Code 17UMA530211									Title of the Paper: ALGEBRA-II				Hours 5	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)									Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	5	3	5	2	5	4	2	2	5	2	2	3		3.46
CO2	3	4	3	4	5	4	3	3	3	4	3	2	3		3.61
CO3	4	5	2	4	4	5	4	4	3	5	2	3	3		3.69
CO4	4	5	3	5	3	4	3	5	4	4	3	2	2		3.61
CO5	3	5	4	5	2	5	4	3	4	5	2	3	3		3.69
CO6	5	4	3	4	2	4	4	3	4	4	3	2	2		3.38
													Mean Overall Score		3.57

Result: The Score for this Course is 3.5 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = Total of Values / Total No. of POs & PSOs

Mean Overall Score for COs = Total of Mean Scores / Total No. of COs

UNIT-V

PERT and CPM – Basic components – logical sequencing - Rules of network construction- Critical path analysis - Probability considerations in PERT. (Chapter 25 Sec 25.1 to 25.4, 25.6, 25.7)

Textbook:

1. Kanti Swarup, P.K. Gupta and ManMohan,Operations Research, 13th edition, Sultan Chand and Sons, 2007.

References:

1. Sundaresan.V, Ganapathy Subramanian.K.S. and Ganesan.K, Resource ManagementTechniques,A.R. Publications, 2002.

2. Taha H.A., Operations Research: An introduction, 7th edition, Pearson Prentice Hall, 2002.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester	Course Code										Title of the Paper:						Hours	Credits
V	17UMA530212										OPERATIONS RESEARCH						5	4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	
CO1	5	4	3	5	4	5	5	1	4	4	4	2	3	3.7
CO2	3	5	2	5	4	5	5	1	2	4	3	1	3	3.3
CO3	5	5	2	4	5	5	4	1	3	3	2	2	3	3.3
CO4	4	5	2	5	3	5	3	1	4	4	3	2	2	3.3
CO5	4	3	1	5	3	5	5	2	3	4	3	1	2	3.1
CO6	5	4	3	4	3	5	5	1	2	4	4	1	3	3.3
												Mean Overall Score		3.3

Result: The Score for this Course is 3.3 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester V　　　　　　　　　　　　　　　　　　**Hours/Week: 4**
17UMA530302A　　　　　　　　　　　　　　　　**Credits: 4**

Core Elective (WS):
NUMBER THEORY

Course Outcomes:

*　Learning Diophantine Equation.
*　Coding through congruences.
*　Chinese Remainder theorem.
*　Properties of congruences.
*　Fermat's theorem and Wilson's theorem.
*　Mobius Inversion formula

Unit-I

Euclid's Division Lemma-Divisibility - The Linear Diophantine Equation - The Fundamental Theorem of Arithmetic.
(Sec 2.1-2.4 Pages 12-29)

Unit-II

Permutations and Combinations - Fermat's Little Theorem - Wilson's Theorem-Generating Functions.　(Sec 3.1-3.4 Pages 30-44)

Unit-III

Basic Properties of Congruences - Residue Systems. Linear Congruences-The Theorems of Fermat and Wilson Revisited.
(Sec 4.1-4.2 Pages 49-55; Sec 5.1-5.2 Pages 58-65)

Unit-IV

The Chinese Remainder Theorem-Polynomial Congruences-Combinatorial Study of $F(n)$.　(Sec 5.3-5.4 Pages 66-74, Sec 6.1 Pages 75-81)

Unit-V

Formulae for $d(n)$ and $s(n)$-Multiplicative Arithmetic Function-The Mobius Inversion Formula.　(Sec 6.2-6.3 Pages 82-92)

Textbook:

1.　George E. Andrews, Number Theory, Hindustan Publishing Corporation, 1984.

References:

1.　S.B.Malik, Basic Number Theory, Vikas Publishing House Private Limited, 1998.
2.　K.C.Chowdhury, A First Course Theory of Numbers, Asian Books Private Limited, 2007.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester V Course Outcomes (COs)	Course Code 17UMA530302A Programme Outcomes (POs)					Title of the Paper: Core Elective (WS): NUMBER THEORY Programme Specific Outcomes (PSOs)								Hours 4	Credits 4 Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	3	4	3	3	3	4	3	4	4	3	3	3		3.3
CO2	4	4	3	3	3	4	3	4	3	3	4	3	4		3.5
CO3	3	3	3	4	3	4	3	3	3	4	3	3	4		3.3
CO4	3	3	3	4	3	3	3	4	3	4	3	3	3		3.3
CO5	4	4	3	3	3	4	3	3	4	3	3	4	4		3.5
CO6	3	3	4	4	3	3	4	3	4	3	3	4	3		3.4
											Mean Overall Score				3.3

Result:　The Score for this Course is 3.3 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Semester V   Hours/Week: 4
17UMA530302B   Credits: 4
Core Elective (WS):
LOGIC AND BOOLEAN ALGEBRA

Course Outcomes:
* Basic Concepts of True and False logical statements.
* Finding Tautology statements.
* Knowledge in Theory of inferences.
* Knowledge in Lattices and its properties.
* Ideas of Partially ordered sets and lattices
* Ideas of Boolean Algebra

Unit-I: Logic

Introduction-TF-Statements-Connectives-Truth table.
(Chapter IX - Sections 1, 2, 3, 6).

Unit-II: Normal forms

Tautology-Tautological Implications and Equivalence of formulae-Normal forms. (Chapter IX - Sections 7, 8, 11).

Unit-III: Theory of Inference

Principal Normal Forms-Theory of Inference-Quantifiers.
(Chapter IX - Sections 12, 13, 15).

Unit-IV: Relations and Lattices

Relations-Equivalence Relation-Lattices-Some Properties of Lattices.
(Chapter II - Sections 2, 5) and (Chapter X - Sections 1, 2).

Unit-V: Boolean Algebra

New Lattices-Modular and Distributive Lattices- Boolean Algebras.
(Chapter X - Sections 3, 4, 5).

Text Book:

1. M. K.Venkataraman, N. Sridharan and N. Chandrasekaran, Discrete Mathematics, The National Publishing Company-2000.

Reference Book:

1. C.L.Liu, Elements of Discrete Mathematics, McGraw-Hill Book Company second edition, 1977.
2. "Discrete Mathematical Structures": Tremblay and Manohar, Tata McGraw Hill.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Title of the Paper: Core Elective (WS): LOGIC AND BOOLEAN ALGEBRA

Semester V Course Outcomes (COs)	Course Code 17UMA530302B Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Hours 4	Credits 4 Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	5	3	3	4	3	3	4	3	3	3	4	4	3		3.38
CO2	4	3	3	5	4	4	3	2	2	2	4	5	2		3.38
CO3	4	5	3	4	5	3	3	2	3	2	2	3	2		3.15
CO4	4	3	3	5	3	2	4	5	2	4	2	3	3		3.30
CO5	5	4	2	3	4	5	3	3	3	5	4	3	3		3.62
CO6	4	5	3	4	5	2	3	3	3	2	2	3	4		3.31
Mean Overall Score															**3.35**

Result: The Score for this Course is 3.3 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semester V   Hours/Week: -
17UMA530213   **Credits: 2**
Self-Paced Learning:
HISTORY OF MATHEMATICS
(On-line Partial Course)

Course Outcomes:
* Life of Newton, Gauss,Riemann and Euler..
* Acquaintance with the development of Algebra.
* Familiarity of Invention of Differential Calculus.
* The life of Eratosthenes and Dirichlet .
* The life of Henri Poincare, Emmy Noether.
* Learning the great achievements of Mathematicians

UNIT – I
Isaac (Sir) Newton 1642-1727) England- Archimedes of Syracuse (287-212 BC) Greek domain- Johann Carl Friedrich Gauss (1777-1855) Germany – Leonhard Euler (1707-1783) Switzerland- Georg Friedrich Bernhard Riemann (1826-1866) Germany- Joseph-Louis (Comte de) Lagrange (1736-1813) Italy, France – Euclid of Alexandria (ca 322-275 BC) Greece/Egypt- David Hilbert (1862-1943) Prussia, Germany- Gottfried Wilhelm von Leibniz (1646-1716) Germany

UNIT-II
Pierre de Fermat (1601-1665) France- Évariste Galois (1811-1832) France- René Descartes (1596-1650) France- Johann Peter Gustav Lejeune Dirichlet (1805-1859) Germany- Srinivasa Ramanujan Iyengar (1887-1920) India- Carl G. J. Jacobi (1804-1851) Germany- Brahmagupta 'Bhillamalacarya' (589-668) Rajasthan (India)

UNIT- III
Georg Cantor (1845-1918) Russia, Germany – Augustin-Louis Cauchy (1789-1857) France – Arthur Cayley (1821-1895) England – Pythagoras of Samos (ca 578-505 BC) Greek domain – Aryabhata (476-550) Ashmaka & Kusumapura (India) – Leonardo 'Bigollo' Pisano (Fibonacci) (ca 1170-1245) Italy – William Rowan (Sir) Hamilton (1805-1865) Ireland – Diophantus of Alexandria (ca 250) Greece, Egypt

UNIT –IV
Bháscara Áchárya (1114-1185) India – Jean-Baptiste le Rond d' Alembert (1717-1783) France – Joseph Liouville (1809-1882) France – Ferdinand Gotthold Max Eisenstein (1823-1852) Germany – Jacob Bernoulli (1654-1705) Switzerland – Johannes Kepler (1571-1630) Germany – Jacques Salomon Hadamard (1865-1963) France – Jean Baptiste Joseph Fourier (1768-1830) France

UNIT- V
Albert Einstein (1879-1955) Germany, Switzerland, U.S.A. – Galileo Galilei (1564-1642) Italy – Henri Léon Lebesgue (1875-1941) France – Johann Bernoulli (1667-1748) Switzerland – Felix Hausdorff (1868-1942) Germany – George Pólya (1887-1985) Hungary – Siméon Denis Poisson (1781-1840) France – Adrien Marie Legendre (1752-1833) France

Text Book
1. http://fabpedigree.com/james/mathmen.htm#

References
1. C.B. Boyer and U. Merzbach, History of Mathematics, John Wiley & Sons, New York, 1988.
2. E.T. Bell, Men of Mathematics, Penguin Books Ltd., Hardmondsworth, Middlesex, UK, 1953.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester V	Course Code 17UMA530213	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Hours	Credits 2
Course Outcomes (COs)		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	-	Mean Score of COs
CO1		5	4	5	5	1	5	4	3	4	4	4	2	3		3.7
CO2		5	4	5	5	1	3	5	2	4	4	3	1	3		3.3
CO3		4	5	5	4	1	5	5	2	3	3	2	2	3		3.3
CO4		5	3	5	3	1	4	5	2	4	4	3	2	2		3.3
CO5		5	3	5	5	2	4	3	1	3	4	3	1	2		3.1
CO6		4	3	5	5	1	5	4	3	4	4	4	3	3		3.3
												Mean Overall Score				3.3

Title of the Paper: **HISTORY OF MATHEMATIS**
Self-Paced Learning: (On-line Partial Course)

Result: The Score for this Course is 3.3 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

MATHEMATICS FOR COMPETITIVE EXAMINATIONS

Course Outcomes:

* Problem solving techniques for aptitude problems.
* Prepare themselves for various competitive examinations.
* Applications of simple formulae
* Acquaintance to various elementary concepts
* Acquaintance to shortcut methods
* To improve and learn basic mathematics skills.

UNIT-I

Simplification-Introduction-Solved problems-Exercise.

UNIT-II

Average – Problems on Ages-Introduction-Worked Problems-Test Problems.

UNIT-III

Percentage – Profit & Loss-Introduction-Formula-Solved Problems.

UNIT-IV

Ratio & Proportion – Partnership-Introduction-Worked Problems-Practice Problems.

UNIT-V

Simple interest –Compound interest-Introduction-Formula-Solved Problems-Test Questions.

Text Book:

1. Quantitative Aptitude For Competitive Examinations (Fully Solved), R.S. Aggarwal Chapters:4, 6, 8, 10, 11, 12, 13, 21, 22.

Reference Books:

1. Abhijit Guha, Quantitative Aptitude For Competitive Examination, Mc Graw Hill Education Series, 5th Edition.
2. Rakesh Yadav, Advanced Maths for General Competetions, KD Publication (2016)

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester V	Course Code 17UMA540601A					Title of the Paper: MATHEMATICS FOR COMPETITIVE EXAMINATIONS									Hours 2	Credits 2
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)									Hours 2	Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	4	3	4	4	4	3	4	4	4	4	4		3.77
CO2	4	4	4	5	3	4	4	3	4	4	4	4	4		3.92
CO3	4	4	4	3	5	4	3	3	4	3	3	3	3		3.38
CO4	4	4	3	3	5	3	3	4	3	4	4	4	4		3.69
CO5	4	4	4	4	5	3	3	3	3	4	4	4	4		3.77
CO6	4	4	4	4	5	3	3	3	4	4	4	4	4		3.85
												Mean Overall Score			3.73

Result: The Score for this Course is 3.73 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semester V   Hours/Week: 2

17UMA540601B   Credits: 2

MATLAB APPLICATIONS

Course Outcomes:

* The Mathematical software MATLAB for high-performance numerical computations and visualization.
* MATLAB built-in functions provided to solve all types of scientific problems.
* Knowledge and writing Program in MATLAB.
* Knowledge in Applications of MATLAB in numerical integration.
* Knowledge in graphical applications using MATLAB.
* Applications of MATLAB in Data Analysis

Unit-I:

Introduction: Basic of MATLAB- MATLAB Windows-Online help-Input-Output, Files types-Plat for Dependence-General commands.
Chapter I Section 1.6.

Unit-II:

Interactive Computation: Matrices and Vectors-Matrices and Array Operations-Character Strings-A Special note on array Operators-Command line functions-Using built in fuctions and online help-Saving and loading data-plotting Simple graphs.
Chapter III Section: 3.1-3.8.

Unit-III:

Programming in MATLAB: Scripts and functions-Script files-Function files-Language Specific features—Advanced Data objects.
Chapter IV. Section 4.1-4.4.

Unit-IV:

Applications: Linear Algebra-Curve fitting and interpolation-Data Analysis and Statistics-Numerical Integration-Ordinary Differential Equations-Non linear Algebraic Equations.
Chapter V. Section 5.1_5.6.

Unit V:

Graphics: Basic 2-D plots-Using subplot to layout multiple graphs-3-D plots-Handle graphs-Saving and Printing graphs-Errors.
Chapter VI. Section l 6.1-6.6 and 7.

Textbook:

1. Rudra Pratap, Getting started with MATLAB 7, Oxford Uni. Press, 2008.

References:

1. Brain R Hunt, Ronald L Lipsman and Jonathan M Rosenberg, A Guide to MATLAB for Beginners and Experienced Users, Cambridge University Press, 2003
2. MATLAB, An Introduction with Applications, Amos Gilat, John Wiley & Sons 2009.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester V	Course Code 17UMA540601B	Title of the Paper: MATLAB APPLICATIONS															Hours 2	Credits 2
Course Outcomes (COs)		Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)									Mean Score of COs
		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1		4	4	3	5	4	5	4	3	4	4	4	2	4		3.8
CO2		4	5	2	5	4	5	4	3	2	4	3	1	4		3.5
CO3		4	5	3	4	4	5	4	3	3	3	2	2	4		3.5
CO4		4	5	2	5	3	5	4	3	4	4	3	2	4		3.7
CO5		4	3	2	5	3	5	5	3	3	4	3	1	4		3.5
CO6		4	4	3	4	3	5	5	3	2	4	4	1	4		3.5
													Mean Overall Score			3.5

Result: The Score for this Course is 3.5 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semester V
17USS540701A

	L	P	C
	2	-	2

Inter Departmental Courses (IDC):
SOFT SKILLS

Course Outcomes

1. To augment the level of confidence in articulation oif the students in their communication.
2. To ensure that the students learn to speak and interact with one another as social beings
3. To equip them and train to present the best of themselves as job seekers.
4. To equip with conversation techniques, presentation skills and grooming
5. To prepare them write their own resume and enhance their interview skills required by employers
6. To ensure that the students learn the parameters of group dynamics a key component of conversation

Module I

Basics of Communication: Definition of communication, Barriers of Communication, Grooming, Presentations & Practicum.

Module II

Resume Writing & Interview Skills: Resume Writing: What is resume? Types of Resume - Chronological, Functional and Mixed Resume**,** Steps in preparation of Resume. **Interview Skills:** Preparation

Module III

Group Discussion: Basics of Group Discussion, Parameters of GD, Essential Points for GD preparation, and GD Topics and Practicum.

Module IV

Personal Effectiveness: Self Discovery; and Goal Setting; Questioneers & Presentations for interview, Common interview questions, Attitude, Body Language, The mock interviews and Practicum

Module V

Numerical Ability: Calendar, Average, Percentage; Profit and Loss**,** Simple Interest, Compound Interest; Time and Work, Pipes and Cisterns; Time and Distance**,** Problems on Trains**,** Boats and Streams; Ratios and Proportions.

Module VI

Test of Reasoning - Verbal Reasoning: Series Completion, Analogy; Data Sufficiency, Assertion and Reasoning; and Logical Deduction. **Non-Verbal Reasoning:** Series; and Classification

Textbook

1. JASS, 2016. *Straight from the traits: Securing the soft skills*. St.Joseph's College, Trichy

References

1. Aggarwal, R.S. 2010. *A Modern Approach to Verbal and Non Verbal Reasoning*. S.Chand, New Delhi.
2. Aggarwal, R.S. 2001. Quantitative Aptitude. S.Chand. New Delhi
3. Covey, Stephen. 2004. *7 Habits of Highly effective people,* Free Press. Egan, Gerard. (1994). *The Skilled Helper* (5th Ed). Pacific Grove, Brooks/ Cole.
4. Khera ,Shiv 2003. *You Can Win.* Macmillan Books , Revised Edition.
5. Murphy, Raymond. 1998. *Essential English Grammar*. 2nd ed., Cambridge University Press. Sankaran, K., & Kumar, M. *Group Discussion and Public Speaking*. M.I. Pub, Agra*,* 5th ed., Adams, Media.
6. Trishna's 2006. *How to do well in GDs & Interviews*, Trishna Knowledge Systems.
7. Yate, Martin. 2005. H*iring the Best: A Manager's Guide to Effective Interviewing and Recruiting*.

Evaluation Pattern

Modules	Topic	Examination Pattern	
		CIA	Online
I	Basics of Communication	15	5
II	Resume Writing & Interview Skills	15	5
III	Group Discussion	10	10
IV	Personal Effectiveness	10	10
V	Numerical Ability (Common Session)	-	10
VI	Test of Reasoning (Common Session)	-	10
	Total	50	50

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Semester V   Hours/Week: 2
17USS540701B   Credits: 2

Inter Departmental Courses (IDC):
NATIONAL CADET CORPS

Course Outcomes
1. NCC 'C' and 'B" certificates are very much useful and increase credit marks in UPSC and SSB examinations..
2. They learnt discipline punctual and leadership quality.
3. They got physical fitness for Army and Police selection.
4. They learnt general knowledge find political issue.
5. They got trained for social service and volunteers for disaster.
6. They will be the best citizens of India.

Unit-I: About NCC - Personality Developmet - Self Awareness (6 hours)
NCC Aims and objectives of NCC - Organization and training and NCC song Incentives for cadets in NCC - NCC ranks Religion, culture , traditions and customs of India.- National integration – importance and necessity - Freedom struggle and nationalist movement in India - Personality development - Introduction to personality development - Factors influencing / shaping personality – Physical , social, psychological and philosophical Self awareness – know yourself / insight . - Change your mindset.

Unit-II: Interpersonal Relationship and Communication - NDMA (6 hours)
Interpersonal relationship and communication - Communication skills Leadership traits - Types of leadership Attitude – assertiveness and negotiation - Time management - Effects of leadership with historical examples - Stress management skills - Interview skills - Conflict motives.- Importance of group – team work - Disaster Management - Civil defence organization and its duties – NDMA Types of emergencies / natural disasters- Assistance during natural / other calamities / floods / cyclone / earth quake / accident - Setting up of relief camp during disaster Management - Collection and distribution of aid material .

Unit-III: Social Awareness and Community Development - Hygiene and Sanitation (6 hours)
Social awareness and community development - Basics of social service- weaker sections of our society and their needs - Health and Hygiene Structure and functioning of the human body - Hygiene and sanitation- Physical and mental health - Infectious and contagious diseases and its prevention -

Basic of home nursing and first aid in common medical emergencies - Wounds and fractures - Introduction to yoga and exercises

Unit-IV: AIR-WING (6 hours)
Principles of flight – Elementary Mechanics – Atmosphere - Venturi effect and Bernauli's theorem - Glossary of terms; Aero engines – Aero-engine components; Aircraft components – Airframe   structure;   Metereology – Importance of Metereology in Aviation; Air Navigation – Why a pilot should study Navigation; Airmanship – Airmanship; Aeromodelling – History of Aeromodelling – Materials used in Aeromodelling – Types of Aeromodels.

Unit-V: NAVAL (6 hours)
Naval orientation - history of Indian Navy – Navy head quarters commands fleets- ships shore establishment war ships and their role - induction to Anti submarine warfare.- Types of war ships - types anchor parts of anchor - GPS RACON RADAR - types of firewater making in the ships- NBCD organization and structure - Damage flooding.

Text Book
1.   Cadet's hand book published by the Directorate General, National Cadet Corps, Ministry of Defence, R. K. Puram, New Delhi 110022, 2008.

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Semester VI
17UMA630214

Hours/Week: 7
Credits: 4

COMPLEX ANALYSIS

Course Outcomes:
* Behavior of complex-valued functions.
* Properties of Bilinear Transformations.
* Cauchy's theorem and its consequences
* Series Expansions and singularities
* Evaluation of Definite Integrals
* Foundations of Complex Analysis

UNIT-I

Continuous Functions – Differentiability – Cauchy-Riemann Equations – Analytic Functions - Harmonic Functions. (Chapter II, Sections 2.4-2.8, pp. 30-67)

UNIT-II

Conformal Mapping - Bilinear Transformations - Cross ratio – Fixed Points of Bilinear Transformations. (Chapter II, Section 2.9, Chapter III, Section 3.2 - 3.4, pp. 67-75, 82-94)

UNIT-III

Definite Integral-Cauchy's Theorem - Cauchy's Integral Formula - Higher Derivatives. (Chapter VI, Section 6.0 -6.4, pp.132-172)

UNIT-IV

Taylor's Series - Laurent's Series - Zeros of Analytic Functions - Singularities. (Chapter VII, Section 7.0-7.4, pp.173-208)

UNIT-V

Residues - Cauchy's Residue Theorem - Evaluation of Definite Integrals (poles not lying on the real axis) (Chapter VIII, Section 8.0-8.3, pp. 209-255)

Textbook:
1. S.Arumugam, A.Thangapandi Isaac and A.Somasundaram, Complex Analysis, SciTech Publications (India) Pvt.Ltd, 2002.

References:
1. S. *Narayanan* and T.K.Manickavasagam *Pillai*, Complex Analysis, S.Viswanatha printers and publishers Pvt.Ltd., 2007.
2. P.Duraipandian, Laxmi Duraipandian, D.Muhilan, Complex Analysis, Emerald Publishers, Revised Edition, 2001.
3. Murray R.Spiegel, Theory and Problems of Complex Variables, Schaum's Outline Series, McGraw Hill book Company, 1964.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester VI	Course Code 17UMA630214	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Hours 7	Credits 4
Course Outcomes (COs)		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	Mean Score of COs	
CO1		3	5	3	4	4	4	4	3	3	5	3	2	2	3.5	
CO2		4	4	3	4	4	4	4	3	2	4	3	2	2	3.3	
CO3		3	5	3	4	4	5	4	3	2	4	2	2	2	3.3	
CO4		4	4	3	5	4	4	5	2	2	4	3	2	2	3.4	
CO5		4	4	3	4	4	5	5	3	2	4	3	2	2	3.5	
CO6		5	4	3	4	4	4	4	4	3	4	3	3	2	3.6	
Mean Overall Score															3.4	

Result: The Score for this Course is 3.4 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

COMPUTER ORIENTED NUMERICAL METHODS
WITH 'C' PROGRAMMING

Course Outcomes:
* Basics of C programming and various data types and operators in C language.
* Knowledge on Decision making-branching and looping statements in C programming and the concept of arrays.
* Learn to handle character strings and the concept of user define functions.
* Concepts of curve fitting, finding solution to numerical, algebraic and transcendental equations and to solve simultaneous linear equations.
* Solution of Ordinary Differential Equations using numerical methods and gets introduced to interpolation and numerical Integration.
* Creating simple 'C' Programmes for solving problems in numerical methods,

Unit I

Structure of C programs - Constants, Variables and Data types - Operators and Expressions - Mathematical functions - Input and output operators– *Temperature conversion.* (Chapters 1-4)

Unit II

Decision making and Branching - IF statements – GOTO statement - *Solving Quadratic equations* - Decision making and looping- WHILE, DO, FOR statements - *Prime numberChecking* -Arrays- *series expansions of cos x and sin x- Fibonacci series - numbers inascending order - L.C.M. , G.C.D. - Mean and S.D. - Matrix addition, subtraction andmultiplication* (Chapters 5-7)

Unit III

Handling of character strings - Arithmetic operations on characters- *Palindrome verification* -String handling functions - *Names in alphabetical order* - User defined functions -Recursion - nC_r *and* nP_r (Chapters 8-9).

Unit IV

Curve fitting-Linear and parabolic curves by the method of least squares principle - Solving algebraic and transcendental equations - Bisection method, false position method and Newton Raphson method - Solving simultaneous algebraic equations - Gauss elimination method- Gauss seidel method. (Chapter 1 Sections 1.7,1.8,

Chapter 3 Sections 2, 4 and 5, Chapter 4 Sections 2 and 6. In Chapter 4 omit Gauss Jordan method in section 2 and omit Gauss Jacobi method in section 6).

Unit V

Interpolation - Newton's forward and backward difference formulae - Lagrange's interpolation formula – Numerical intergration using Trapezoidal and Simpson's one-third rules - Solution of ODE s - Euler method and Runge-Kutta fourth order method (Chapter 6 Sections 3,4, Chapter 8 Section 4, Chapter 9 Sections 8,10, Chapter 11 Sections 10,16)

Note:

1) For Numerical methods: Problems and Programs only.
2) For topics in italics- programs only.

Textbooks:

1. E. Balagurusamy, Programming in ANSI C, Sixth edition, Tata Mc-Graw Hill Publishing Co. Ltd., New Delhi, 2012. (For Units I, II and III).
2. M.K.Venkatraman, Numerical methods in Science and Engineering, National Publisher Company, Fifth Edition, 2001. (For Units IV and V).

References:

1. Yashavant.P.Kanetkar, Let us 'C', BPB Publications, 2002.
2. Rajaraman, Computer oriented numerical methods, Prentice-Hall of India, 1971.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester VI	Course Code 17UMA630215					Title of the Paper: COMPUTER ORIENTED NUMERICAL METHODS WITH 'C' PROGRAMMING								Hours 5	Credits 3
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	2	3	3	4	4	4	3	4	3	2	4	4	1	3.2	
CO2	2	2	2	5	3	4	4	4	4	3	5	4	2	3.4	
CO3	3	3	3	4	3	4	5	5	5	4	5	4	2	3.8	
CO4	2	2	4	3	4	2	5	5	3	3	5	2	2	3.2	
CO5	2	2	3	3	3	2	5	5	4	4	5	2	3	3.3	
CO6	3	3	4	4	4	3	5	5	5	5	5	3	3	4.0	
												Mean Overall Score		3.4	

Result: The Score for this Course is 3.4 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

COMPUTER LAB: 'C' PROGRAMMING

Course Outcomes:
* The students learn to write C programs to solve quadratic equations, generating Fibonacci series, Prime numbers checking, finding mean, S.D and median, sorting numbers, series expansion of sinx and cosx etc.,
* The students learn to write C programs for matrix manipulations, palindrome verification, computing nC_r, nP_r using function subprograms.
* The students learn to write C programs to solve numerical, algebraic and transecendental equations and to solve simultaneous linear equations using numerical methods.
* The students learn to write C programs for numerical Integration.
* The students learn to write C programs to solve Ordinary Differential Equations numerically and Interpolation.
* Learning to rectify the errors in 'C' Programming.

LIST OF PRACTICALS:
1. Finding the mean and S.D. of n values.
2. Finding Correlation coefficients.
3. Arranging n numbers in ascending order and finding the median value.
4. L.C.M. and G.C.D. of two numbers.
5. Prime number Checking.
6. nC_r and nP_r using function subprogram.
7. Fibonacci series.
8. Finding cos x and sin x from series expansions.
9. Arranging the names in alphabetical order.
10. Matrix addition, subtraction and multiplication.
11. Palindrome verification.
12. Solving quadratic equations.
13. Newton – Raphson method - Bisection method - False position method of solving equations.
14. Gauss elimination method - Gauss-Seidel method of solving simultaneous equations.
15. Trapezoidal rule and Simpson's rule of integration.
16. R.K.Fourth order method of solving differential equations.
17. Lagrange's method of interpolation.

LINEAR ALGEBRA

Course Outcomes
* Introduction to vector spaces.
* Concept of the dimension of the vector space.
* Basic Concepts of matrix theory.
* Introduction and properties of inner product spaces.
* Cayley Hamilton Theorem, Eigen values and eigen vectors.
* Concepts of Eigen Values and Eigen Vectors

Unit I:
Vector spaces:
Linear Transformation – Definition and examples – Subspaces - Span of a set.
(Chapter 5, Sec 5.1 to 5.4)

Unit II:
Basis and Dimension:
Linear Independence – Basis and Dimension – Rank and Nullity.
(Chapter 5, Sec 5.5 to 5.7)

Unit III:
Matrix and Inner product space:
Matrix of a linear transformation – Inner product space – Definition and examples – Orthogonality - Orthogonal Complement.
(Chapter 5, Sec 5.8, Chapter 6, Sec 6.1 to 6.3)

Unit IV:
Theory of Matrices:
Algebra of Matrices - Types of Matrices – The Inverse of a Matrix – Elementary Transformations – Rank of a matrix.
(Chapter 7 Sec 7.1 to 7.5)

Unit V:
Characteristic equation and bilinear forms:
Characteristic equation and Cayley Hamilton theorem – Eigen values and Eigen vectors – Bilinear forms – Quadratic forms. (Chapter 7, Sec 7.7, 7.8 Chapter 8, Sec 8.1, 8.2)

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester VI	Course Code 17UMA630216					Title of the Paper: COMPUTER LAB (C-PROGRAMMING)								Hours 2	Credits 1
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	5	5	4	3	4	4	2	3	4	2	2	3	3.4	
CO2	5	4	5	3	5	4	4	2	3	4	3	2	2	3.5	
CO3	4	3	5	4	3	4	4	2	3	4	3	2	3	3.4	
CO4	5	4	3	4	5	4	4	3	2	4	3	2	2	3.5	
CO5	3	4	5	4	4	3	4	3	3	4	3	2	2	3.4	
CO6	5	3	4	3	3	3	3	3	3	4	3	3	3	3.3	
Mean Overall Score														3.4	

Result: The Score for this Course is 3.4 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

Textbook:

1. Arumugam S and Thangapandi Isaac A, Modern Algebra, SciTech Publications (India) Ltd., Chennai, Edition 2012.

References:

1. I. N. Herstein,Topics in Algebra, Second Edition, John Wiley & Sons (Asia), 1975.

2. S.Kumaresan, Linear Algebra-A Goemetric Approach.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester VI	Course Code 17UMA630217					Title of the Paper: LINEAR ALGEBRA								Hours 6	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	3	4	3	3	4	3	3	3	3	2	3	3.2	
CO2	4	4	3	4	2	3	4	3	3	4	3	3	2	3.2	
CO3	4	4	4	4	3	4	3	3	3	4	3	2	3	3.4	
CO4	4	4	3	4	3	4	4	3	3	4	3	3	2	3.4	
CO5	3	4	3	4	3	4	4	3	2	4	3	3	2	3.2	
CO6	4	4	3	4	2	4	4	3	3	4	3	2	3	3.3	
												Mean Overall Score		**3.2**	

Result: The Score for this Course is 3.2 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semester VI **Hours/Week: 4**
17UMA630218 **Credits: 3**

GRAPH THEORY

Course Outcomes:

* Introduction to Graphs.
* Concept of Eulerian graphs
* Concept of Hamiltonian graphs
* Planar graph concept is learned.
* Applications of graph theory.
* Relation between Matrices and Graph Theory.

UNIT-I: Graphs:

Introduction - The Konigsberg Bridge Problem - Definition and Examples - Degrees - Subgraphs - Isomorphism. (Sec 1.0, 1.1, 2.0, 2.1, 2.2, 2.3, 2.4)

UNIT-II: Matrices and Eulerian graphs:

Matrices - Operations on Graphs - Walks, Trails and Paths - Connectedness and Components - Eulerian Graphs. (Sec 2.8, 2.9, 4.1, 4.2, 5.0, 5.1)

UNIT-III: Hamiltonian graphs and Trees:

Hamiltonian Graphs (Omit Chavatal Theorem) - Characterization of Trees - Centre of Tree. (Sec 5.2, 6.1, 6.2)

UNIT-IV: Planar graphs:

Introduction - Definition and Properties - Characterization of Planar Graphs. (Sec 8.0, 8.1, 8.2)

UNIT-V: Directed Graphs and Applications:

Definitions and Basic Properties - Some Applications: Connector Problem - Kruskal's algorithm - Shortest Path Problem – Dijkstra's algorithm. (Sec 10.0, 10.1, 11.1, 11.2)

Textbook:

1. S. Arumugam and S. Ramachandran, Invitation to Graph Theory, SciTech Publications (India) Pvt. Ltd., Chennai, 2006.

References:

1. Narsingh Deo, Graph Theory with applications to Engineering and Computer Science, Prentice Hall of India, 2004.
2. Gary Chartrand and Ping Zhang, Introduction to Graph Theory, Tata McGraw-Hill Edition, 2004

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester VI	Course Code 17UMA630218	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Hours 4	Credits 4
Course Outcomes (COs)		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	Mean Score of COs	
CO1		4	3	3	4	3	5	3	5	4	5	2	3	2	3.54	
CO2		4	4	2	2	4	4	4	3	2	4	2	2	3	3.08	
CO3		5	4	3	2	3	4	2	3	3	4	3	2	3	3.07	
CO4		4	4	2	4	4	3	2	3	3	4	2	2	3	3.08	
CO5		5	4	3	3	5	4	3	3	4	3	5	2	3	3.62	
CO6		5	4	2	4	4	4	4	4	4	3	4	2	5	3.77	
													Mean Overall Score		3.36	

Title of the Paper: GRAPH THEORY

Result: The Score for this Course is 3.3 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

$$\text{Mean Score of COs} = \frac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$$

$$\text{Mean Overall Score for COs} = \frac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$$

FUZZY THEORY

Course Outcomes:

* Fuzzy knowledge in decision making process.
* The concepts of Fuzzy Sets and operations on these sets.
* Knowledge of applications of Fuzzy Sets and relations to real life systems.
* Knowledge of fuzzy graphs.
* Applications of fuzzy theory in probability.
* Ranking of Fuzzy numbers and its applications.

Unit-I:

Fuzzy Set Theory: Fuzzy sets - Fuzzy set: definition - Different Types of Fuzzy sets - General Definitions and Properties of Fuzzy Sets – Other Important Operations - General Properties: Fuzzy Vs Crisp.
(Chapter 1: Sections 1.16 to 1.21)

Unit-II:

Operations on Fuzzy Sets: Introduction - Some Important Theorems - Extension Principle for Fuzzy Sets - Fuzzy Compliments – Further Operations on Fuzzy Sets. (Chapter 2: Sections 2.1 to 2.5)

Unit-III:

Fuzzy Relations and Fuzzy Graphs: Introduction - Projections and Cylindrical Fuzzy Relations - Composition - Properties of Min-Max Composition - Binary Relations on a Single Set - Compatibility Relation. (Chapter 4: Sections 4.1 to 4.6)

Unit-IV:

Possibility Theory: Introduction - Fuzzy Measures - Evidence Theory – Probability Assignment – Combined Evidence - Probability Measure - Possibility and Necessity Measures. (Chapter 5: Sec. 5.1 to 5.8)

Unit-V:

Decision Making in Fuzzy Environment: Introduction- Individual Decision Making – Multi person Decision Making – Multi criteria Decision Making - Fuzzy Ranking Method - Fuzzy Linear Programming. (Chapter 9: Sections 9.1 to 9.6)

Textbook:

1. Pundir and Pundir, Fuzzy sets and their Applications, A Pragati Edition, 2006.

References:

1. H. J. Zimmermann, Fuzzy set theory and its applications, Springer Fourth Edition, 2001.
2. Timothy J. Ross, Fuzzy logic with engineering Applications, McGraw Hill Inc. New Delhi, 2004.
3. George J. Klir and Bo Yuan, Fuzzy sets and fuzzy logic theory and Applications, PrenticeHall of India, New Delhi, 1995.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester VI	Course Code 17UMA630303A						Title of the Paper: FUZZY THEORY								Hours 4	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	3	5	2	3	4	4	4	3	2	4	3	2	4	3.30	
CO2	4	5	2	4	4	4	4	2	2	3	2	1	3	3.07	
CO3	4	4	2	5	3	4	4	2	2	4	2	2	4	3.23	
CO4	4	4	2	4	4	3	4	3	3	5	4	2	4	3.53	
CO5	3	4	1	3	4	4	4	3	2	5	3	2	4	3.23	
CO6	4	4	2	4	4	3	5	2	2	4	3	3	3	3.23	
													Mean Overall Score	3.26	

Result: The Score for this Course is 3.26 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

OPTIMIZATION TECHNIQUES

Course Outcomes

* Understanding sequencing problems and its applications.
* Studying the dynamic programming with different approaches.
* Using optimization techniques in decision making.
* Solving replacement problems of different types.
* Understanding nonlinear programming problems and its applications.
* Applications to solve real life problems

Unit-I:

SEQUENCING PROBLEMS

Introduction - Problem of Sequencing – Basic Terms Used in Sequencing – Processing n jobs through Two Machines - Processing n jobs through k Machines - Processing 2 jobs through k Machines (Chapter 12, Sections 12.1 to 12.6).

Unit-II:

DYNAMIC PROGRAMMING

Introduction – The Recursive Equation Approach –Characteristics of Dynamic Programming - Dynamic Programming Algorithm (Chapter 13, Sections 13.1 to 13.4).

Unit-III:

DECISION ANALYSIS

Introduction – Decision – making Problem - Decision – making Process - Decision – making Environment - Decision underUncertainty (Chapter 16, Sections 16.1 to 16.5).

Unit-V:

REPLACEMENT PROBLEMS

Introduction – Replacement of Equipment/Asset That Deteriorates Gradually - Replacement of Equipment That fails suddenly (Chapter 18, Sections 18.1 to 18.3).

Unit-V:

NON LINEAR PROGRAMMING PROBLEMS

Introduction – Graphical solution–Kuhn-Tucker conditions with non-negative constraints –Quadratic programming (Chapter 28, Sections 28.1 to 28.4).

Text Book:

1. Operations Research by Kanti Swarup, P.K. Gupta, Man Mohan, Sixteenth Thoroughly Revised Edition, Sultan Chand & Sons, Educational Publishers,New Delhi.

References:

1. Operation Research: An introduction by Hamely A Taha, Ninth Edition, Prentice Hall, New Delhi, 2011.

2. Resource Management Techniques, by V. Sundaresan, K.S. Subramaniyan, K. Ganesan, New Revised Edition, A.R. Publications, Sirkali, 2002.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester VI	Course Code 17UMA630303B					Title of the Paper: OPTIMIZATION TECHNIQUES								Hours 4	Credits 4
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	4	3	4	4	4	3	3	4	3	3	4	3.6	
CO2	4	4	3	4	4	4	4	4	3	5	4	4	4	3.8	
CO3	5	4	4	4	4	5	4	3	4	4	3	4	4	4.0	
CO4	4	4	3	4	4	4	4	3	4	4	4	3	4	3.6	
CO5	4	5	3	5	4	4	5	4	4	5	4	3	4	4.2	
CO6	5	4	4	4	4	5	4	4	4	5	3	3	4	4.4	
												Mean Overall Score		3.9	

Result: The Score for this Course is 3.9 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semester VI   **Hours/Week: 2**
17UMA640602A   **Credits: 2**

MATHEMATICS FOR COMPETITIVE EXAMINATIONS
(ADVANCED)

Course Outcomes:

* Problem solving techniques for aptitude problems.
* Prepare themselves for various competitive examinations.
* Applications of simple formulae
* Acquaintance to various elementary concepts
* Acquaintance to shortcut methods
* Applying the techniques in real life problems

UNIT-I

Time & work : Introduction – Solved Problems – Practice Problems.

Unit-II

Pipes & cisterns : Introduction – Worked Examples – Exercise.

UNIT-III

Time & distance : Introduction – Formula – Solved Problems – Exercises.

UNIT-IV

Problems on Trains :   Introduction – Solved Problems – Test Questions.

UNIT-V

Boats & streams : Introduction – Formula – Practice Problems.

Text Book::

1. Quantitative Aptitude For Competitive Examinations (Fully Solved), R. S. Aggarwal, Chapters: 15, 16, 17, 18, 19.

Reference Books:

1. Abhijit Guha, Quantitative Aptitude For Competitive Examination, Mc Graw Hill Education Series, 5th Edition.

2. Rakesh Yadav, Advanced Maths for General Competetions, KD Publication. (2016)

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Title of the Paper: **MATHEMATICS FOR COMPETITIVE EXAMINATIONS** (Skill-based Electives)

Semester VI Course Outcomes (COs)	Course Code 17UMA640602A Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Hours 2	Credits 2 Mean Score of COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	3	4	3	2	4	4	3	1	4	2	2	3		3
CO2	4	4	4	4	3	3	3	2	2	4	2	2	2		3
CO3	2	3	2	3	3	2	4	2	2	3	2	2	3		3
CO4	3	4	2	3	3	3	4	3	2	4	2	2	3		3
CO5	4	3	2	3	3	4	4	2	2	4	2	2	2		3
CO6	4	4	3	4	4	4	4	2	2	4	3	3	3		3
												Mean Overall Score			3

Result: The Score for this Course is 3 (Moderate Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

Semester VI **Hours/Week: 2**
17UMA640602B **Credits: 2**
LaTeX

Course Outcomes:
* Introductory Concepts of LaTeX software for documentation.
* LaTeX programming skills.
* Latex Commands
* Various Page Styles
* Designing Books and Slides
* Drawing Pictures

Unit-I:

Getting Acquainted : How to Avoid Reading This Book - How to Read This Book - The Game of the Name - Turning Typing into Typography - Why LaTeX? - Turning Ideas into Input - Trying It Out - Getting Started : Preparing an Input File - The Input - The Document - Running LaTeX - Helpful Hints

Unit-II :

Carrying On : Changing the Type Style - Symbols from Other Languages - Mathematical Formulas - Defining Commands and Environments - Figures and Other Floating Bodies Lining It Up in Columns - Simulating Typed Text

Unit-III :

Moving Information Around : The Table of Contents - Cross-References - Bibliography and Citation - Splitting Your Input - Making an Index or Glossary - Keyboard Input and Screen Output - Sending Your Document - Other Document Classes - Books - Slides - Letters

Unit-IV :

Designing It Yourself : Document and Page Styles - Line and Page Breaking - Numbering - Length, Spaces, and Boxes - Centering and Flushing - List-Making Environments - Fonts

Unit-V:

Pictures and Colors : Pictures - The picture Environment - Picture Objects - Curves - Grids - Reusing Objects - Repeated Patterns - Some Hints on Drawing Pictures - The graphics Package - Color

Textbook:

1. Leslie Lamport, LaTeX : A Document Preparation System, Addison-Wesley Publishing, Second edition, 1994.

References:

1. H. Kopka and P.W. Daly, A Guide to LaTeX, Addison-Wesley, 2003
2. Frank Mittelbach, Michel Goossens, Johannes Braams, David Carlisle, Chris Rowley, The LaTeX Companion Addison-Wesley Professional 2004.

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Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Semester VI	Course Code 17UMA640602B					Title of the Paper: LaTeX (Skill-based Electives)								Hours 2	Credits 2
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)								Mean Score of COs	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8		
CO1	4	4	2	5	4	5	4	3	4	4	4	1	4	3.7	
CO2	4	4	2	5	4	5	4	3	2	4	3	1	4	3.5	
CO3	4	4	2	4	4	5	4	3	3	3	2	1	4	3.3	
CO4	4	4	2	5	3	5	4	3	4	4	3	1	4	3.5	
CO5	4	3	2	5	3	5	5	3	3	4	3	1	4	3.5	
CO6	4	4	2	4	3	5	5	3	2	4	4	1	4	3.5	
												Mean Overall Score		3.5	

Result: The Score for this Course is 3.5 (High Relationship)

Note:

Mapping	1-20%	21-40%	41-60%	61-80%	81-100%
Scale	1	2	3	4	5
Relation	0.0-1.0	1.1-2.0	2.1-3.0	3.1-4.0	4.1-5.0
Quality	Very poor	Poor	Moderate	High	Very High

Values Scaling:

Mean Score of COs = $\dfrac{\text{Total of Values}}{\text{Total No. of POs \& PSOs}}$

Mean Overall Score for COs = $\dfrac{\text{Total of Mean Scores}}{\text{Total No. of COs}}$

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