BACHELOR OF SCIENCE IN MATHEMATICS
Affiliated to Thiruvalluvar University

PROGRAMME HAND BOOK

CURRICULUM & SYLLABUS UNDER CBCS
WITH EFFECT FROM 2022-23

DON BOSCO COLLEGE (CO-ED)
GUEZOU NAGAR, YELAGIRI HILLS
TIRUPATTUR DT 635853
www.dbcyelagiri.edu.in : principal@dbcyelagiri.edu.in
hod-ma@dbcyelagiri.edu.in

Table of Contents

BACHELOR OF SCIENCE-MATHEMATICS

(B.SC-MATHEMATICS)

CURRICULUM AND SYLLABUS UNDER CBCS

WITH EFFECT FROM 2022-23

- **PROGRAM OVERVIEW**

B.Sc., Mathematics is a three-year undergraduate program that aims to develop students' analytical, logical and interpretive skills necessary for a career in Mathematics. The program focuses on solving both concrete and abstract problems through critical observation.

It covers various subjects such as Algebra, Trigonometry, Calculus, Graph Theory, Differential Geometry, Complex Analysis, Real Analysis and Differential Equations. Practical sessions provide hands-on training, deepening students 'understanding of mathematical principles. Additionally, students gain exposure to computer science and English, which prepare them for success in diverse fields.

The curriculum is designed to enhance students' software computing, mathematical, experimental, and communication skills, enabling them to pursue advanced studies or careers in academia, research, or professions like M.Sc., Mathematics, MAC, M.S.W, MBA and more. Computer Science knowledge is particularly valuable in today's technological landscape, where mathematical modelling and computational techniques are widely used. Strong communication skills in English are essential for effective presentation and dissemination of mathematical ideas and findings. This curriculum is designed to improve students' software computing knowledge.

Don Bosco College's Department of Mathematics was established in 2012, making it one of the early departments at the institution. The B.Sc., Mathematics program was introduced in the academic year 2015-16.

- **OBJECTIVES:**

1. Students should acquire the knowledge of basic mathematical concepts and the ability to communicate mathematical ideas with clarity and coherence.

2. Students should have the ability to solve problems in Mathematics independently by applying logical reasoning, abstraction, and critical analysis, and they have to know how to apply relevant mathematical techniques.

3. Competence in using computational tools and software such as Excel, Graphics, algorithms, and programs.

4. Students should possess a basic fundamental knowledge in Mathematics which is required for higher studies in pure, applied Mathematics and other professional courses.

5. To develop the attitude and ability to apply mathematical methods and ideas in other sciences and engineering programmes.

- **ACTIVITIES**

   Bosco out Reach, Youth Clubs, Association Events, Mentoring

- **VOCATIONAL EDUCATION AND VALUE-ADDED PROGRAMMES**

1. Mathematics for Competitive Examinations.
2. Road to UPSC.
3. General Mathematics for TNPSC.
4. Mastering in Excel.
5. Craft Work.

- **STUDENT SUPPORT & PROGRESSION**

1. **Placement**
   - Campus Drives for Final Year Students
   - Career Guidance Programs
   - Soft Skills Programs

2. **Scholarships**
   - SC/ST Scholarship
   - Minority Scholarship

- Merit Scholarship
- Francisca Scholarship

- **PROGRAMME OUTCOMES (PO)**
1. **Proficiency in mathematical knowledge and techniques:** Graduates will demonstrate a solid understanding of fundamental mathematical concepts, theories, and techniques across various branches of mathematics.

2. **Problem-solving and critical thinking skills:** Graduates will be able to apply mathematical principles and analytical reasoning to identify, formulate, and solve problems encountered in mathematics and related fields.

3. **Computational and technological proficiency:** Graduates will possess proficiency in using mathematical software, computational tools, and programming languages to perform calculations, analyse data, and simulate mathematical models.

4. **Effective communication of mathematical ideas:** Graduates will be able to effectively communicate mathematical ideas, results, and solutions through clear and concise written and oral presentations, demonstrating their ability to convey complex mathematical concepts to both technical and non-technical audiences.

5. **Interdisciplinary application of mathematics:** Graduates will be able to apply mathematical principles and techniques to solve problems in interdisciplinary contexts, such as physics, engineering, economics, computer science, and data analysis, facilitating collaboration with professionals from various fields.

6. **Lifelong learning and professional development:** Graduates will possess a commitment to lifelong learning, demonstrating the ability to engage in independent study, stay updated with advancements in mathematics, and adapt to evolving mathematical theories and techniques. They will also recognize the importance of professional development and continue to expand their knowledge and skills in their chosen careers.

- **PROGRAMME SPECIFIC OUTCOMES (PSO)**
7. **Mathematical modelling and problem-solving:** Graduates will be able to apply mathematical modelling techniques and problem-solving strategies to analyse and solve real-world problems in diverse areas, such as physics, engineering, economics, and finance.

8. **Advanced mathematical knowledge and specialization:** Graduates will have a deeper understanding of advanced mathematical topics within their chosen specialization, such

as algebra, analysis, geometry, or applied mathematics, allowing them to pursue further studies or careers in specialized fields.

9. **Proficiency in mathematical software and programming:** Graduates will be proficient in using mathematical software, numerical methods, and programming languages to implement algorithms, simulate mathematical models, and analyse data, enabling them to tackle complex computational problems.

10. **Mathematical proof and reasoning:** Graduates will demonstrate the ability to construct rigorous mathematical proofs and logical arguments, understanding the principles of mathematical reasoning and the foundations of mathematical theory.

11. **Research and independent study skills:** Graduates will have developed research skills and the ability to conduct independent studies, including formulating research questions, designing experiments or investigations, collecting and analysing data, and drawing valid conclusions. They will be prepared to contribute to mathematical research or pursue advanced studies in mathematics.

- **PROGRAMME EDUCATIONAL OBJECTIVES (PEO)**

OB1: EDUCATION- Graduates gain basic knowledge and skills in mathematics to pursue higher studies in mathematics.

OB2: COMPETENCY-Graduates develop confidence to appear for Banking, Civil Services and related competitive exams and qualify in the same.

OB3: -**EMPLOYABILITY** Graduates can identify a career of their choice be it teaching, research, administration or engineering and pursue the same.

OB4: ETHICAL AND PROFESSIONAL- Graduates develop positive attitude and skills which form them as multi- facet personality shining in any chosen field and be an agent of positive transformation in the society.

Programme Outcomes:

1. Logical thinking, critical analysis, and reasoning skills will be highly improved.

 2. Express mathematical ideas clearly and concisely to others.

3. Ability to apply suitable mathematical techniques to handle problems in physical and related sciences.

4. To demonstrate conceptual understanding of basic definitions, and theorems in Mathematics and should be able to describe elaborately with examples.

5. Ability to solve mathematical problems by applying the skills such as critical thinking, logical reasoning, and abstraction.

6. Select appropriate mathematical models and tools to solve the problems including those in real-life contexts.

7. Mathematics has its own universal language of symbols and notations. Students are expected to apply the Mathematics language appropriately while expressing mathematical ideas in both oral and written form.

8. Problem-solving techniques in mathematics will enhance the knowledge of students to formulate and solve any real-world problems independently.

9. Develop the knowledge of abstract mathematical concepts.

10. Enhance the employability skills in both public and private sector jobs

- **MAPPING OF INSTITUTION OBJECTIVES WITH PEOs**

COLLEGE / PROGRAMME	EDUCATION	COMPETENCY	EMPLOYABILITY	ETHICAL AND PROFESSIONAL
OB1 : EDUCATION	√			
OB2 : RESEARCH		√		
OB3 : EMPLOYABILITY		√	√	
OB4 : COMM.SERVICE				√

- **MAPPING PEOs WITH POs / PSOs**

PEO	PO1	PO2	PO3	PO4	PO5	PO6	PSO 7	PSO8	PSO9	PSO 10	PSO 11
1 : EDUCATION	√	√	√			√	√	√	√	√	√
2 : COMPETENCY	√	√		√		√		√			√
3 : TEACHING SKILL	√					√	√		√		√
4 : ETHICAL AND PROFESSIONAL		√		√	√	√				√	

- **MAPPING COURSE OUTCOMES WITH POs / PSOs**

SEM	COURSE CODE	COURSE	PO1	PO2	PO3	PO4	PO5	PO6	PSO7	PSO8	PSO 9	PSO 10	PSO 11
	CLT10	Tamil-I			√	√							

1	FLE10	Communicative English I			√	√						
	FMA11	Algebra	√						√			
	FMA12	Trigonometry	√						√			
	FAMA13A	Numerical Methods I	√						√	√		√
	FES10	Environmental Studies					√	√				
	FPE10	Professional English for Physical Sciences I										
2	FLT20	Tamil II			√	√						
	FLE20	Communicative English II			√	√						
	FMA21	Calculus	√									
	FMA22	Analytical Geometry of three dimensions	√						√	√		
	FAMA23A	Numerical Methods II	√						√	√		√
	FPMA24	Practical: Numerical Methods								√		
	FGA20	Value Education		√			√	√				
	FSS20	Soft Skill			√							
	FPE20	Professional English for Physical Sciences II			√	√						

REGULATIONS FOR UNDER GRADUATE DEGREE COURSES
CBCS PATTERN With effect from 2020-2021

DEFINITIONS

Programme	"Programme" means a course of study leading to the award of a degree in a discipline.
Course	"Course" refers to a paper / practical / subject offered under the degree programme.
	Each Course is to be designed variously under lectures / tutorials /
	Laboratory or field work / seminar / practical training / Assignments / Term paper or Report writing etc., to meet effective teaching and learning needs.

PROGRAM DURATION

It shall extend over a period of **three years comprising** of six semesters with two semesters in one academic year.

CREDITS

The weightage given to each course of study (subject) by the experts of the Board of Studies concerned. The total minimum credits, required for completing a UG program is 140.

CHOICE BASED

All Undergraduate Programmes offered by Thiruvalluvar University are under Choice Based Credit System. This is to enhance the quality and mobility of the students within and between the Universities in the country and abroad.

ELIGIBILITY FOR ADMISSION

Candidate seeking admission to the first year of the UG Degree Course should have passed the Higher Secondary Course Examination (Academic or Vocational) Conducted by the Govt. of Tamil Nadu with Mathematics as a subject or any other Examination accepted as equivalent thereto by the Syndicate subject to such other conditions as may be prescribed.

COURSE OF STUDY:

The course of study for the UG degree courses of all branches shall consists of the following:

PART-I: Tamil or any one of the following modern/classical languages i.e. Telugu, Kannada, Malayalam, Hindi, Sanskrit, French, German, Arabic & Urdu. The subject shall be offered during the first four semesters with one examination at the end of each semester (4 courses: 4x4=16 credits).

PART-II : Communicative English and English Language The Communicative English subject shall be offered each in I and II Semester with one examination at the end of each semester (2 courses: 2x4= 8 credits) and English Language subject shall be offered each in III and IV semester with one examination at the end of each semester (2 courses: 2x4= 8 credits).

PART-III

    (i)   **Core subject:** Core papers including practical's wherever applicable are offered as prescribed in the scheme of examination, by the Boards of studies of different subjects. There are 14 core papers, 4 allied papers, 2 allied practical papers and 3 electives consisting 80 credits for theory and 22 for practical papers.

(ii) **Allied Subjects:** Allied papers including practical wherever applicable are offered as prescribed in the scheme of Examination by the Boards of Studies of different subjects. There shall be 4 papers, one each in I, II, III and IV semester, for all UG Courses except for Science courses with practical. For all UG courses with / without practical, for Odd semesters (1st & 3rd) there shall be 2 theory papers for a total of (2x3) = 6 credits only. For all UG courses without practical, for Even semesters (2nd & 4th) there shall be 2 theory papers for a total of (2x5) = 10 credits only.

(iii) **Electives Courses:** Three elective courses with (3x3=) 9 credits are to be offered one in the V Semester and two in the VI Semester. Elective subjects are to the selected from the list of electives prescribed by the Board of Studies concerned. Colleges can choose any one of the papers, as elective for a particular semester whether 5th semester or 6th semester. Elective paper for a particular semester once chosen by a particular college, should not be changed without getting prior permission and approval of the University.

(iv) **Professional English Courses:** Two Professional English Courses with (3x2=) 6 credits are to be offered each in I and II Semester for which examination shall be conducted at the end of the respective semesters.

(v) **Individual / Group Project:** There will be an Individual / Group project work is compulsory at the end of VI Semester as prescribed by the respective boards of studies. (Group will not be exceeding five students).

PART-IV:

(i) Basic Tamil / Advanced Tamil (OR) Non-major elective

a) Those who have not studied Tamil up to XII standard and taken a non-Tamil language under Part-I shall take Tamil comprising of two courses with 2 credits each (2x2=4 credits). The course content of which shall be equivalent to that prescribed for the 6th standard by the Board of Secondary Education and they shall be offered in the third and fourth semesters. (OR)

b) Those who have studied Tamil upto XII std and taken a non-Tamil language under Part-I shall take Advanced Tamil comprising of two courses with 2 credits each (2x2=4 credits) in the third and fourth semesters. (OR)

c) Others who do not come under the above a/b categories can choose the offered non-major electives comprising of two courses with (2x2=4) credits, in the third and fourth semesters.

(ii) Skill Based Subjects: All the UG programmes shall offer four courses of skill based subjects one each in III, IV, V & VI semester with 2 credits each (4x2= 8 credits) for which examination shall be conducted at the end of the respective semesters.

(iii) Foundation Courses:

There are 3 Foundation Courses offered.

a) Environmental Studies - offered in 1st Semester, under Part IV of the programme.

b) Value Education - offered in 2nd Semester under Part IV of the programme.

c) Soft Skill - offered in 2nd Semester under Part IV of the programme

PART V:

EXTENSION ACTIVITIES:

Proper relevant records shall be maintained by the respective departments and if necessary it may be verified by the university authority at any time. The extension activities shall be conducted outside the regular working hours of the college. The mark sheet shall carry the gradation relevant to the marks awarded to the candidates. This grading shall be incorporated in the mark sheet to be issued at the end of the semester for which students shall pay fee for one theory paper.

Marks to be awarded as follows:

o 20% of marks for Regularity of attendance.
o 60% of marks for Active Participation in classes/camps/games/special Camps/programmes in the college/ District / State/ University activities.
o 10% of marks for Exemplary awards/Certificates/Prizes.
o 10% of marks for Other Social components such as Blood Donations, Fine Arts, etc.

PASSING MINIMUM

1. A candidate shall be declared to have passed the whole examination, if the candidate passes in all the theory papers and practical wherever prescribed as per the scheme of examinations by earning 140 credits in Part I, II, III, IV and V. He / She shall also fulfill the extension activity prescribed by earning 1 credit to qualify for the degree.

2. A candidate should get not less than 40% in the University (external) Examination, compulsorily, in any course of Part I, II, and III& IV papers. Also the candidate who secures not less than 40% marks in the external as well as internal (CIA) examinations put together in any course of Part I, II, III& IV shall be declared to have successfully passed the examination in the subject in theory as well as Practical.

DISTRIBUTION

Table - 1(A): The following are the distribution of marks for external and internal for University (external) examination and continuous internal assessment and passing minimum marks for **theory papers of UG Programmes**.

UNI. EXAM TOTAL (ESE)	PASSING MINIMUM FOR UNI.EXAM	CIA TOTAL	PASSING MINIMUM FOR CIA	TOTAL MARKS ALLOTTED	PASSING MINIMUM (UNI.EXAM+CIA)
75	30	25	0	100	40

Note: ESE - End Semester Examination

Table - 1(B): The following are the Distribution of marks for Continuous Internal Assessment in the theory papers of UG Programmes.

S No	For Theory - UG courses	Distribution of Marks	
		Assignments	Tests
1.	Assignment-1 (First 2 Units of the Syllabus)	10	-
2.	Test-1 (First 2 Units of the Syllabus for 1 Hour duration)	-	50
3.	Assignment-2 (3rd & 4th Units of the Syllabus)	10	
4.	Test-2 (First 4 Units of the Syllabus for 2 Hours duration)	-	50
5.	Assignment-3 (5th Unit of the Syllabus)	10	-
6.	Test-3 (Entire Syllabus for 3 Hours duration)	-	100
	Total Marks	30	200

Marks to be converted to	5	20	
Total Maximum Marks for CIA	25		

Table – 2(A): The following are the distribution of marks for University (external) examinations and continuous internal assessments and passing minimum marks for the practical courses of UG Programmes

UNI. EXAM TOTAL (ESE)	PASSING MINIMUM FOR UNI.EXAM	CIA TOTAL	PASSING MINIMUM FOR CIA	TOTAL MARKS ALLOTTED	PASSING MINIMUM (UNI.EXAM+CIA)
75	30	25	0	100	40

Table – 2(B): The following are the distribution of marks for the Continuous Internal Assessment in UG practical courses.

S. No.	For Practical - UG courses	Distribution of Marks	
		Assignments	**Tests**
1.	Regular maintenance of the Observation note book-1 (Up to the end of I-Semester)	10	-
2.	Test-1 (Up to the end of I-Semester for 2 Hours duration)	-	25
3.	Regular maintenance of the Observation note book-2 (Up to the end of II-Semester)	10	
4.	Test-2 (Up to the end of II-Semester for 2 Hours duration)	-	25
5.	Regular maintenance & proper completion of the Record note book	10	-
6.	Test-3 (Entire Syllabus following University examination pattern)	-	25
	Total Marks	30	75
	Marks to be converted to	10	15
	Total Maximum Marks for CIA	25	

QUESTION PAPER PATTERN

The following question paper patterns shall be followed for CBCS pattern syllabi for the candidates admitted from the academic year 2017-2018 onwards.

External Maximum 75 Marks – wherever applicable (Ext.75 + Int.25 = Total. 100)

Section A	Very short answer questions	10X 2=20	10 questions – 2 from each unit

Section B	Short answer questions of either / or type (like 1a (or) 1b)	5X5=25	5 questions – 1 from each unit
Section C	Essay-type questions / Problem (Answer any 3 out of 5)	3X10=30	5 questions – 1 from each unit

NOTE: In Section "C" one of the questions shall be application oriented or a problem, wherever applicable.

GRADING

Once the marks of the CIA and end-semester examinations for each of the course are available, they shall be added. The mark thus obtained shall then be converted to the relevant letter grade, grade point as per the details given below:

Conversion of Marks to Grade Points and Letter Grade (Performance in a Course/Paper)

RANGE OF MARKS	GRADE POINTS	LETTER GRADE	DESCRIPTION
90-100	9.0-10.0	O	Outstanding
80-89	8.0-8.9	D+	Distinction
75-79	7.5-7.9	D	
70-74	7.0-7.4	A+	First Class
60-69	6.0-6.9	A	
50-59	5.0-5.9	B	Second Class
40-49	4.0-4.9	C	Third Class
00-39	0.0	U	Re-appear
Absent	0.0	AAA	Absent

PROGRAMME STRUCTURE

	Semester I								
S. No	**Part**	**Hrs**	**Cr**	**Type**	**code**	**Title**	**INT**	**EXT**	**TOT**
1	I	6	4	Language	FLT10	Tamil-I	25	75	100
2	II	6	4	English	FLE10	English I	25	75	100
3	III	5	3	Core	FMA11	Algebra	25	75	100
4	III	4	3	Core	FMA12	Trigonometry	25	75	100
5	III	7	3	Allied -I	FAMA13A	Numerical Methods I	25	75	100

6	IV	2	2	EVS	FES10	Environmental Studies	25	75	100
7	III	6	3	PE	FPE 10	Professional English I	25	75	100
TT		**36**	**23**				**175**	**525**	**700**

<table>
<tr><td colspan="10" align="center">Semester II</td></tr>
<tr><td>8</td><td>I</td><td>6</td><td>4</td><td>Language</td><td>FLT20</td><td>Tamil II</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>9</td><td>II</td><td>4</td><td>4</td><td>English</td><td>FLE20</td><td>English II</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>10</td><td>III</td><td>5</td><td>3</td><td>Core</td><td>FMA21</td><td>Calculus</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>11</td><td>III</td><td>4</td><td>3</td><td>Core</td><td>FMA22</td><td>Analytical Geometry of three dimensions</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>12</td><td>III</td><td>4</td><td>4</td><td>Allied-I</td><td>FAMA23A</td><td>Numerical Methods II</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>13</td><td>III</td><td>3</td><td>2</td><td>Allied- I (Practical)</td><td>FPMA24</td><td>Numerical Methods</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>14</td><td>IV</td><td>2</td><td>2</td><td>Value Education</td><td>FGA20</td><td>Value Education</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>15</td><td>IV</td><td>2</td><td>1</td><td>Soft Skill</td><td>FSS20</td><td>Soft Skill</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>16</td><td>III</td><td>6</td><td>3</td><td>PE</td><td>FPE 20</td><td>Professional English II</td><td>25</td><td>75</td><td>100</td></tr>
<tr><td>TT</td><td></td><td>36</td><td>26</td><td></td><td></td><td></td><td>225</td><td>675</td><td>900</td></tr>
</table>

Part	**Subject**	**Papers**	**CRD**	**TT CRD**	**Marks**	**Total marks**
Part I	Languages	4	4	16	100	400
Part II	English	4	4	16	100	400
Part III	Allied (Odd Sem)	2	4	8	100	200
	Allied (Even Sem)	2	4	8	100	200
	Allied –Prac (Even Sem)	2	2	4	100	200
	Electives	3	3	9	100	300
	Core	15	(3-7)	57	100	1500
Part IV	Env. Science	1	2	2	100	100
	Soft skill)	1	1	1	100	100
	Value Education	1	2	2	100	100
	Lang. & Others/NME	2	2	4	100	200

	Skill Based	4	3	12	100	400
Part V	Extension	1	1	1	100	100
	Total	**42**		**140**		**4200**

*** NON-MAJOR ELECTIVES (Semesters 3 & 4)

SEM	PART	CODE	TITLE	TYPE	HRS	CRD
3	**IV**	CNBA37	Management Concepts	T		
		CNCP37	Elements of Accountancy	T	**2**	**2**
		CNCA34	Introduction to information Technology	T		
		CNEN35	Language Skills and Communication I	T		
4	**IV**	CNCP46	Advertising and Salesmanship	T		
		CNCA44	Internet and its Applications	T		
		CNEN45	Language Skills and Communication II	T		
		CNBA47	Training and Development	T		

LIST OF ELECTIVE PAPERS

Semester 5 - Paper 1		
A	**CEMA56A**	Graph Theory
B	**CEMA56B**	Astronomy
Semester 6 - Paper 2		
A	**CEMA65A**	Special function
B	**CEMA65B**	Fuzzy Mathematics
Semester 6 - Paper 3		
A	**CEMA66A**	Operations Research
B	**CEMA66B**	Calculus of finite differences & Numerical Methods

DETAILED SYLLABI

FLT10	TAMIL I	Lecture	Practical	Credit
	SEM I - LANGUAGE	**6**	**0**	**4**

Nehf;fq;fs;
jkpopd; GJf;ftpijfs; cs;slf;fpagilg;gpyf;fpaq;fis ,g;ghlk; mwpKfk; nra;fpwwJ. jkpo;
,yf;fpaj;jpy; Njh;njLf;fg;gl;l kpfKf;fpakhd nra;Al;fs;> ftpijfs;> fijfs;. Ciueil
Mfpatw;iwf; nfhz;L ,g;ghlk; fl;likf;fg;gl;Ls;sJ. khzhf;fhpd; ,yf;fpaj; Njliy
cUthf;FtJk;> jw;rhh;Gila mwpitNkk;gLj;JtJk; ,g;ghlj;jpd; Nehf;fkhFk;.

SYLLABUS
myF1:fTpij khzth;fspilNa ftpij gbf;Fk; Mh;tk; ftpij vOJk; jpwid tsh;;j;jy;.
myF2:Ciueilkhzth;fSf;FfUj;Jf;fisvspppy; nrhy;Ytjw;Nfw;wvOj;JtbtNkciueilahFk;.
myF3:ehlfk; kdjpd; ntspg;ghL ,ay; MfTk; nkhopapd; ,dpik ,irahfTk; nka;apd;
mofpanraw;ghLehlfkhfTk; kyUk; fhz;NghiunghpJk; fth;tJehlffiy.
myF4:rpWfij kdpjDila tho;tpd; rpW gFjpia fUthff; nfhz;L Vw;WtJjhd; rpWfij.
myF5:nkhopj;jpwd; nkhopj;jpwdpd; %yk; khzth;fs; mfuthpipapy; vOjTk;
gpioapy;yhky; vOjTk; nrhw;fSf;F nghUs;fis czuTk; nkhopj;jpwd; gapw;rppcjTfpwwJ.

rpwwg;G Nehf;fk;
CO1: kuGtopahdftpijNghf;Fk; GJtifapyhdNehf;Fk; fye;j ,r;#oy; ftpij
,yf;fpaj;jpw;FxUjpUg;Ug;GKidahfmike;jJ.
CO2: khzth;fs; vspppy; NeNunghUisczh;e;Jf;nfhs;Sjy; ,jd; %yk; khzth;fs; gbf;Fk;
Mw;wiytsh;j;Jf;nfhs;fpwhh;fs;.
CO3: khzth;fs; ehlfk; gbg;gjpd; thapyhfjq;fspd; jdpj;jpwikntspg;gLj;Jtw;FVJthf
,g;ghlg;gFjpmikfpwwJ.
CO4: khzth;fs; rpWfijiagbg;gjpd; thapyhfjq;fspd;
jdpj;jpwidiantspg;gLj;Jtjw;FVJthfrpWfijvOJk; Mw;wiyngWfpwwhh;fs;.
CO5: khzth;fs; nkhopj;jpwidmwptjpd; tpisthfjha nkhopiagpioapd;wpNgrTk;
gpioapd;wpvOjTk; ,yf;fzKiwikAld; vOjw;Wf;nfhs;fpwwhh;fs;.

REFERENCES:NIL

FLE10	ENGLISH I	Lecture	Practical	Credit
SEM I - LANGUAGE		6	0	4

LEARNING OBJECTIVES

1. To write, read, and understand any text
2. To understand English better and to attain competency in both written and spoken skills.

SYLLABUS

UNIT 1 - PROSE 1. My greatest Olympic Prize - JesseOwens 2. The Tree Speaks –Rajagopalachari C 3. Snake in the Garden – R.K.Narayan 4. Futurology - Aldous Huxley

UNIT 2 - POETRY 1. The River – Parthasarathy 2.Ode to Nightingale – John Keats 3. "O Captain, My Captain Walt Whitman 4. Paper Boat – Rabindranath Tagore

UNIT 3 - SHORT STORY AND ONE ACT PLAY 1. A Day's Wait – Ernest Miller Hemingway2. Little Girls Wiser Than Men – Tolstoy – One act play 3. The Bishop's Candlesticks – MormanMckinnel

UNIT 4 - GRAMMAR AND COMPOSITION 1. Correct usage of Words 2. Vocabulary – Synonyms & Antonyms 3.Abbreviations 4.English for Excellence – Parts of Speech -Modern Avenue 5. Functional English: Creative Writing - College Grammar Letter of Application

UNIT 5 - COMMUNICATION SKILLS 1. Listening Conversation – (i) Agreeing and Disagreeing. (ii) Seeking and giving permission (iii) Greetings (iv) Introducing Oneself to other

LEARNING OUTCOMES

The students will be able to

CO1: Learn new words and their meanings within the context of literary texts.

CO2: Understand the basic elements of poetry

CO3: Learn about the storytelling skills

CO4: Identify the elements of a One-Act Play

CO5: Learn to form new words, antonyms and synonyms using prefixes and suffixes, to make new dialogues, letters (formal & informal) and to write short paragraphs.

REFERENCES

NIL

FMA11	ALGEBRA	Lecture	Practical	Credit
SEM I – CORE THEORY		**6**	**0**	**4**

LEARNING OBJECTIVES

- In this Course students are exposed to topics like Theory of Equations, Summation of Series, Matrices, Continued Fractions and Elementary Number Theory.
- The stress is on the development of problem solving skills.

SYLLABUS:
UNIT-I: THEORY OF EQUATIONS
Polynomial Equations - Symmetric Functions of roots in terms of Coefficients - Reciprocal Equations - Transformation of Equations.
UNIT-II: THEORY OF EQUATIONS (Contd...)
Descartes Rule of Signs - Approximate Solutions of Polynomials by Horner's method - Newton - Raphson method of Solution of a Cubic Polynomial.
UNIT-III: SUMMATION OF SERIES
Summation of series using Binomial - Exponential and Logarithmic series (Theorems without proofs) - Approximation using Binomial & Exponential series and logarithmic series simple problems.
UNIT-IV: MATRICES
Symmetric - Skew symmetric, - Hermitian - C - Orthogonal and Unitary Matrices - Cayley-Hamilton Theorem (without proof) - Eigen Values - Eigen Vectors–Similar Matrices - Diagonalisation of a Matrix.
UNIT-V: ELEMENTARY NUMBER THEORY
Prime Number - Composite Number - Decomposition of a Composite Number as a Product of Primes uniquely (without proof) - Divisors of a Positive Integer - Congruence Modulo n - Euler Function (without Proof) - Highest Power of a Prime Number p contained in $n!$**-** Fermat's and Wilson's Theorems (statements only) - simple problems.
LEARNING OUTCOMES
The students will be able to
CO1: Describe the concepts of Polynomial Equations, Reciprocal Equations and Transformation of Equations.
CO2: Recognize Descartes Rule of Signs, Horner's method and Newton -Raphson method.
CO3: Differentiate the series and find the summations of such series.

CO4: Identify Symmetric, Skew symmetric, Hermitian and Skew Hermitian matrices and also using Cayley-Hamilton theorem can solve sums.
CO5: Distinguish Fermat's and Wilson's theorems and also can do simple sums using the above.
Recommended Texts
T.K.ManicavachagomPillay, T.Natarajan and K.S.Ganapathy.(2004) *Algebra, Volume I & II* S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai.
Reference Books
1. P.Kandasamy, K.Thilagavathy (2004), Mathematics for B.Sc. Vol-I, II, III & IV, S.Chand& Company Ltd., New Delhi-55.
2. S.Arumugam (2003) *Algebra*. New Gamma Publishing House, Palayamkottai.
3. A.Singaravelu (2003) *Algebra and Trigonometry*, Vol.-I & II Meenakshi Agency, Chennai.

FMA12	Trigonometry	Lecture	Practical	Credit
SEM I – CORE THEORY		**4**	**0**	**3**

LEARNING OBJECTIVES
- This course is a fundamental one for many courses of this Degree Programme.
- This covers topics on the expansions of trigonometric functions, hyperbolic functions, inverse circular, inverse hyperbolic functions. It aims to develop computational skills.

Syllabus:
UNIT-I: Trigonometric Functions
Expansions of $\cos n\theta$, $\sin n\theta$ - Expansion of $\tan n\theta$ in terms of $\tan \theta$ - Expansion of $\tan(A+B+C+\dots)$ - Formation of Equations. Chapter III section 1 to 3
UNIT-II
Powers of sines and cosines of θ in terms of functions of multiples of θ - expansions of $\sin \theta$ and $\cos \theta$ in a series of ascending powers of θ - Expansion of Inverse Circular Functions. Chapter III section 4 and 5
UNIT-III: Hyperbolic Functions
Definition – Relation between Hyperbolic Functions - Inverse Hyperbolic Functions. Chapter IV sections 1 to 2.3
UNIT-IV
Resolution into Factors - simple problems only - DeMoivre's Property on the Circle and Cote's Property on the Circle.Logarithm of complex quantities. Chapter V sections 2 and 3(Problems only) Chapter V sections 4, 4.1, 4.2, 5, 5.1, 5.2...

UNIT-V

Summation of Trigonometric Series: When the angles are in A.P, C+iS method of summation - Method of Differences - Gregory Series - Euler Series.

Chapter VI section 1, 2 ,3 ,3.1, 3.2.

LEARNING OUTCOMES

The students will be able to

CO1: Expand cos nθ , sin nθ and tan nθ in terms of tan θ and also form the equations of the trigonometric roots.

CO2: Determine the powers of sines and cosines of θ in terms of functions of multiples of θ and expansions of sin θ and cos θ in a series of ascending powers of θ.

CO3: Differentiate hyperbolic and circular functions and also analyse the relation between Hyperbolic Functions and circular functions.

CO4: Analyse DeMoivre's Property on the Circle and Cote's Property on the Circle and can apply to the problems. Students can find Logarithm of complex quantities.

CO5: Evaluate the summation of trigonometric series using C+i S method, A. P method, Gregory Series and Euler's Series.

Recommended Text

1. S.Narayanan and T.K.ManicavachagomPillay (2004)

Trigonometry.S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai.

Reference Books

1. P.Kandasamy, K.Thilagavathy (2004), Mathematic for B.Sc. Vol.-I, II, III & IV, S.Chand& Company Ltd., New Delhi-55.

2. S.Duraipandian and LaxmiDuraipandian (1984) *Trigonometry*. Emerald Publishers, Chennai.

3. B.S.Grewal. (2002) *Higher Engineering Mathematics*.Khanna Publishers. New Delhi.

4. S.L.Loney. (1982) *Plane Trigonometry,* Part II*,* Cambridge University Press, London*.*

5. A.Singaravelu (2003) *Algebra and Trigonometry*, Vol.-I Meenakshi Agency, Chennai.

6. P.R.Vittal. (2004) *Trigonometry*, Margham Publications, Chennai.

FAMA 13A	Numerical Methods I	Lecture	Practical	Credit
SEM I – ALLIED I		7	0	3

LEARNING OBJECTIVES
- This course will cover basic methods for finding the Finite differences, Central differences, Inverse interpolation, Summation of series.
- Interpolation for equal & unequal intervals, Solutions of simultaneous equations, important principles, Method and Processes to get numerical results, Reliability of numerical result.

SYLLABUS:

UNIT-I: Finite Differences
First and higher order differences-forward differences and Backward differences-Properties of operators-Differences of a Polynomial-Factorial Polynomials-Operator E, Relation between ▲,▼and E–Interpolation - Newton - Gregory forward & backward formulae for interpolation.

UNIT-II: Central Differences
Central difference Operators-Central differences formulae: Gauss Forward and Backward formulae-Sterling's formula-Bessel's formula.

UNIT-III: Interpolation for Unequal Intervals
Divided differences-Newton's divided differences formula and Lagrange's-Estimating the Missing terms (With one or more missing values).

UNIT-IV: Inverse Interpolation
Lagrange's method and Reversion of series method (Using Newton's forward formula only).
Summation of series: Sum to n term of the series whose general term is the first difference of a function-summation by parts.

UNIT-V: Solutions of Simultaneous Linear Equations
Gauss elimination method-matrix inversion method-Gauss-Jordan Method, Gauss-Seidal method (Three unknowns only).

LEARNING OUTCOMES
The students will be able to
CO1: Understand a different approach in interpolation and also to learn Finite differences and Central difference operators.
CO2: Explain the mathematics concepts underlying the numerical methods.
CO3: Construct a polynomial like Newton Gregory method and Lagrange method.
CO4: Apply solve an algebraic equation using an appropriate numerical method.
CO5: Solve a linear system of equations using an appropriate numerical methods like Gauss Elimination methods and Gauss Seidal method

Recommended Text
1. B.D. Gupta.(2001) *Numerical Analysis.*Konark Pub. Ltd., Delhi
2. M.K. Venkataraman. (1992) *Numerical methods for Science and Engineering*
National Publishing Company, Chennai.
Reference Books
1. S. Arumugham. (2003) *Numerical Methods*, New Gamma Publishing,
Palamkottai.
2. H.C. Saxena. (1991) *Finite differences and Numerical analysis* S.Chand& Co.,
Delhi
3. A.Singaravelu (2004). *Numerical Methods*Meenakshi Agency, Chennai
4**.** P.Kandasamy, K.Thilagavathy (2003) Calculus of Finite difference &
Numerical Analysis, S. Chand & Company Ltd., New Delhi-55.

FES10	ENVIRONMENTAL STUDIES	Lecture	Practical	Credit
SEM I - ENVIRONMENTAL STUDIES		**2**	**0**	**2**

LEARNING OBJECTIVES
- Acquire knowledge on natural resources and the impact of man-made fertilizers on the environment.
- Understand the Ecosystem, Biodiversity and its Conservation.

SYLLABUS
UNIT-I: INTRODUCTION TO ENVIRONMENTAL SCIENCES:
NATURAL RESOURCES:
Environmental Sciences - Relevance - Significance - Public awareness – Forest resources - Water resources - Mineral resources - Food resources – conflicts over resource sharing - Exploitation - Land use pattern - Environmental impact - fertilizer - Pesticide Problems - case studies.
UNIT-II: ECOSYSTEM, BIODIVERSITY AND ITS CONSERVATION:
Ecosystem - concept - structure and function - producers, consumers and decomposers - Food chain - Food web - Ecological pyramids - Energy flow - Forest, Grassland, desert and aquatic ecosystem.
Biodiversity - Definition - genetic, species and ecosystem diversity - Values and uses of biodiversity - biodiversity at global, national (India) and local levels - Hotspots, threats to biodiversity - conservation of biodiversity - Insitu&Exsitu.
UNIT-III: ENVIRONMENTAL POLLUTION AND MANAGEMENT
Environmental Pollution - Causes - Effects and control measures of Air, Water, Marine, soil, solid waste, Thermal, Nuclear pollution and Disaster Management -

Floods, Earthquake, Cyclone and Landslides.Role of individuals in prevention of pollution - pollution case studies.

UNIT-IV: SOCIAL ISSUES - HUMAN POPULATION

Urban issues - Energy - water conservation - Environmental Ethics – Global warming - Resettlement and Rehabilitation issues - Environmental legislations - Environmental Production Act. 1986 - Air, Water, Wildlife and forest conservation Act - Population growth and Explosion - Human rights and Value Education - Environmental Health - HIV/AIDS - Role of IT in Environment and Human Health - Women and child welfare - Public awareness – Case studies.

UNIT-V: FIELD WORK

Visit to a local area / local polluted site / local simple ecosystem – Report submission

LEARNING OUTCOMES

The students will be able to

CO1: Explain the various natural resources and the impact of man-made fertilizers on the environment.

CO2: Describe the Ecosystem, Biodiversity and its Conservation.

CO3: Explain the Environmental Pollution and Management

CO4: Analyse the Social Issues and Human Population.

CO5: Do a study on the local ecosystem and prepare a FIELD WORK Report.

REFERENCES

1. Kumarasamy, K., A.Alagappa Moses AndM.Vasanthy, 2004. Environmental Studies, Bharathidsan University Pub, 1, Trichy
2. Rajamannar, 2004, Environemntal Studies, Evr College Pub, Trichy
3. Kalavathy,S. (Ed.) 2004, Environmental Studies, Bishop Heber College Pub., Trichy

FLT20	TAMIL II	Lecture	Practical	Credit
SEM II - LANGUAGE		6	0	4

Nehf;fq;fs;
khzth;fs; tho;f;ifapy; mwnewpAld; tho;tjw;Fk; kdijxUKfgLj;Jtjw;Fk; gf;jp ,yf;fpaq;fSk; rpw;wpyf;fpaq;fSk; khzth;fSf;Fgad;gLfpwJ.
gf;jp ,yf;fpaj;jpd; thapyhfGuhzq;fspd; Kf;fpaj;Jtj;ijAk; nja;tq;fspd; ngUikfisAk; khzth;fs; mwpe;Jf;nfhs;fpwhh;fs;.
flTsh;fisAk; murh;fisAk; Nguhpyf;fpaq;fs; Ngrpafhyq;fspy; rpw;wpyf;fpaq;fs; vspakf;fspd; tho;f;ifKiwiagw;wpNgRfpwJvd;gijkhzth;fs; mwpe;Jf;nfhs;fpwhh;fs;.

SYLLABUS
myF 1 :khzth;fs; irtj;jpUKiwfs; gd;dpuzu;LFwpj;Jmwpe;Jf;nfhshhs;fs;

myF 2 :ehyhapujpt;agpuge;jj;jpy; Mo;thh;fspd;
tho;f;iftuyhw;iwmwpe;Jf;nfhs;fpwhh;fs;.
myF 3 :rq;f ,yf;fpaq;fspd; jdpg;ghly;fshftUfpd;wrpw;wpyf;fpaq;fiskhzth;fs;
mwpe;Jf;nfhs;fpwhh;fs;.
myF 4 :khzth;fs; rka ,yf;fpaq;fs; Fwpj;Jmwpe;Jf;nfhs;fpwhh;fs;.
myF5 :khzth;fs; fbjk; vOjTk; Neh;fhziyg; gw;wpAk; njhpe;Jf;nfhs;Sjy;.

rpwg;G Nehf;fk;;
CO1: khzth;fs; ehad;khh;fs;>rpj;jh;fspd; tho;f;iftuyhw;iwAk; mth;fs;
ghbaghly;fisAk; mwpe;Jf;nfhs;fpwhh;fs;.
CO2: khzth;fs; Mo;th;fspd; tho;f;ifKiwiaAk; jpUkhypd; ngUikfisAk;
mwpe;Jf;nfhs;fpwhh;fs;
CO3: khzth;fs; J}J>cyh>NfhitMfparpw;wpyf;fpatiffismwpe;Jf;nfhs;fpwhh;fs;
CO4: khzth;fs; rkak; Fwpj;jk; fpwpj;Jtk;> ,];yhkpak; Mfparka E}yfspy; $Wk;
tuyhw;Wr; nra;jpfismwpe;Jf;nfhs;fpwhh;fs;
CO5: khzth;fs; nghJf;fl;LiuvOJjy;>Neh;fhzy; nra;jy; vd;gjid ,g;ghlg;gFjpapd;
thapyhfmwpe;Jf;nfhs;fpwhh;fs;

REFERENCES
NIL

FLE20	ENGLISH II	Lecture	Practical	Credit
SEM II - ENGLISH		**4**	**0**	**4**

LEARNING OBJECTIVES

To understand English better and to improve communication both verbal and written in English language.

SYLLABUS
UNIT - 1 PROSE 1.Ant and Grasshopper - Somerset Maugham 2.Early Influences - A.P.J. Abdul Kalam 3. Forgetting – Robert Lynd 4. The Unity of Indian Culture – HumayunKabir
UNIT - 2 POETRY 1. The Soul's Prayer.-Sarojini Naidu 2. The Lotus - Toru Dutt 3. Nutting – William Wordsworth 4. Ozymandias - P.B.Shelley
UNIT - 3 SHORT STORY AND ONE ACT PLAY 4. The Doll's House - Katherine Mansfield 5.Karma - Kushwant Singh One Act Play 6. Hijack -Charles Wills
UNIT - 4 Vocabulary 6. Functional Grammar 7. Functional English
UNIT - 5 COMMUNICATION SKILLS 8. Making Request 9.Offering Help 10.Inviting Someone 11. Asking Permission

LEARNING OUTCOMES

The students will be able to

CO1: Learn new words and new meanings and gain an introductory knowledge of the issues explored in influential works.

CO2: Understand the basic terminology and practical elements of poetry.

CO3: Learn essential short story elements.

CO4: Learn to form new words, antonyms and synonyms using prefixes and suffixes to master the essential rules of spelling and grammar and to read and comprehend a short prose passage

CO5: Learn new dialogues, letters (formal & informal) and to write short paragraphs.

REFERENCES

NIL

FMA21	Calculus	Lecture	Practical	Credit
SEM II – CORE THORY		**5**	**0**	**3**

LEARNING OBJECTIVES

- The course introduces students to the fundamental principles, concepts and knowledge in the areas of Differential and Integral Calculus.
- This prepares the students to apply these fundamental concepts and working knowledge to other courses.

SYLLABUS

UNIT-I

Differential Calculus: nth derivative - Leibnitz's theorem (Without proof) and its application - Jacobians - Total differential - maxima and minima functions of 2 & 3 independent variable,

Lagrange's method (without proof), problems on these concepts.

UNIT-II: Differential Calculus (Contd…)

Polar coordinates – Angle between radius vector and tangent – Angle between two curves, Curvature, Radius of Curvature in Cartesian and Polar coordinates, p-r equation, Evolutes.

UNIT-III: Differential Calculus (Contd…)

Asymptotes: Methods (without proof) of finding asymptotes of rational algebraic curves with special cases.(First 5 sections only)

UNIT-IV: Integral Calculus

nnmxcosnx dx , Beta and Gamma Functions - Properties and Problems.

UNIT-V: Integral Calculus (Contd…)

Double Integrals - Change of order of Integration - Triple Integrals - Applications to Area, Surface Area and Volume.

LEARNING OUTCOMES
The students will be able to
CO1: Determine nth derivative of the functions by Leibnitz's theorem.
CO2: Evaluate the angle between curves and evolutes.
CO3: Compute asymptotes of rational algebraic curves with special cases.
CO4: Define Beta and Gamma Functions and solve problems.
CO5: Solve Double Integrals and Triple Integrals and Identify areas in mathematics and other fields where Calculus is useful.

Recommended Text
S.Narayanan and T.K.ManicavachagomPillay (2004) *Calculus.*S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai.

Reference Books
1. P.Kandasamy, K.Thilagavathy (2004), Mathematic for B.Sc. Vol.-I, II, III & IV, S.Chand& Company Ltd., New Delhi-55.
2. Shanti Narayan (2001) *Differential Calculus.*Shyamlal Charitable Trust, New Delhi.
3. Shanti Narayan (2001) *Integral Calculus.*S.Chand& Co. New Delhi.
4. S.Sudha (1998) *Calculus.* Emerald Publishers, Chennai.

FMA22	Analytical Geometry of Three Dimensions	Lecture	Practical	Credit
SEM II - CORE THEORY		4	0	3

LEARNING OBJECTIVES
- To expand the knowledge of the students in various concepts of Analytical Solid Geometry.

SYLLABUS
Unit I: Plane
General equation of a plane – Equation of a plane in the normal form – Angle between planes – Plane through three given points – Equation of a plane through the line of intersection of two planes.
UNIT II: Straight Line
Symmetrical form of a straight line – Image of a point with respect to a plane – Image of a line with respect to a plane – Length and equation of the shortest distance between two skew lines - Coplanar lines.

UNIT III: Sphere

Equation of the sphere – Length of the tangent – Tangent plane – Section of a sphere by a plane – Orthogonal spheres – Equation of a sphere through a given circle.

UNIT IV: Cone

- Equation of a cone with its vertex at the origin - Condition for the general equation of the second degree to represent a cone - Right circular cone – Enveloping cone - Tangency of a plane to a cone.

UNIT V: Cylinder

Equation of a cylinder with a given generator and a given guiding curve - Right circular cylinder - Enveloping cylinder – Enveloping cylinder as a limiting form of an enveloping cone.

LEARNING OUTCOMES

The students will be able to

CO1: Express equation of the plane that passes through a point and perpendicular to the line given.

CO2: Analyze equation of the line a point and direction and Describe equation of the line two points.

CO3: Calculate the length and equation of the sphere

CO4: Solve the Equation of a cone with a given vertex and guiding curves.

CO5: Explain Equation of a cylinder with a given generators cylinder with a given generator and a given guiding curve - Right circular cylinder - Enveloping cylinder – Enveloping cylinder as a limiting form of an enveloping cone.

Recommended Text

T.K.ManickavachagomPillay& others. (2004) *Analytical Geometry*(Three Dimensions)
S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai.

Reference Books

1. P.Duraipandian and LaxmiDuraipandian (1965) *Analytical Geometry-2D,* Asia Publishing company, Bombay
2. P.Duraipandian and LaxmiDuriapandian (1975) *Analytical Geometry-3 D*, Emerald Publishers, Chennai.
3. G.B.Thomas and R.L.Finney.(1998) *Calculus and Analytic Geometr*y, Addison Wesley (9thEdn.), Mass. (Indian Print).
4. P.R.Vittal (2003) *Coordinate Geometry.*Margham Publishers, Chennai

FMA23A	Numerical Methods II	Lecture	Practical	Credit
SEM II - ALLIED II		**4**	**0**	**4**

LEARNING OBJECTIVES

This course covers the techniques of Numerical Differentiation and Numerical Integration.

It also deals with solution of difference equations, Algebraic and Transcendental equations and Numerical solution of Ordinary differential equations of first order.

SYLLABUS:

UNIT-I: Numerical Differentiation

Newton's forward and backward differences to compute derivatives-derivative using divided differences formula-maxima and minima using the above formulae.

UNIT-II: Numerical Integration

General Quadrature formula-Trapezoidal rule-Simpson's one third rule- Simpson's three-eight rule, Weddle's rule- Euler-Maclaurin Summation Formula

UNIT-III: Difference Equations

Linear differences equations-Linear homogeneous difference equation with constant co-efficient-Particular integrals for ax, Xmsinax, cosaxand axfx.

UNIT-IV: Solution of Algebraic and Transcendental Equations

Bisection method-Iteration method-Regula-falsi method (False Position Method)-Newton-Rapson Method.

UNIT-V: Numerical Solution of Ordinary Differential Equations (First order only)

Euler's method- Euler's modified method-Picard's method - Taylor's methods-Runge-Kutta method (Fourth order only).

LEARNING OUTCOMES:

The students will be able to

CO1: Define Newton's forward and backward differences and Divided differences formula.

CO2. Explain about Numerical Integration on few topics.

CO3. Express equation of the linear differences equations-Linear homogeneous difference.

CO4. Use knowledge about the Solution of Algebraic and Transcendental Equations.

CO5. Solve Numerical Solution of Ordinary Differential Equations.

Recommended Text

1. B.D. Gupta. (2001) *Numerical Analysis.*Konark Pub. Ltd., Delhi

2. M.K.Venkataraman. (1992) *Numerical methods for Science and Engineering*
National Publishing Company, Chennai.
Reference Books
1. Gupta-Malik, Calculus of finite differences and numerical Analysis,
KrishbaPrakashanMandir, Meerut Seveenth Edition.
2. S.C.Saxena, Calculus of finite differences and Numerical Analysis, S.Chand&
Co., New Delhi. IX Edition.
3. A.Singaravelu, Numerical methods, Meenakshi Publications-First Edition 1992.

FPMA 26	Numerical Methods	Lecture	Practical	Credit
SEM II - Allied Practical (1)		**0**	**3**	**2**

LEARNING OBJECTIVES:

      To acquire the practical knowledge on numerical analysis using the effective methods of numerical analysis.

SYLLABUS:
LIST OF PROBLEMS
1. Derivatives by Newton's method
2. Gauss elimination method.
3. Gauss-Jacobi method.
4. Gauss-Siedel method.
5. Power method (eigenvalue).
6. Newton's forward and backward interpolation.
7. Lagrange interpolation.
8. Trapezoidal and Simpson one-third rules.
9. Euler's method.
10. Picard's method
11. Runge-Kutta's method.
12. Predictor-corrector method.

LEARNING OUTCOMES:
The students will be able to

CO1: Compare Newton's forward and backward differences and divided differences formula.

CO2: Reduce the error using Trapezoidal, Simpson one-third rules and Euler's method.
CO3: Calculate Eigen values using power method.
CO4: Solve matrices by Gauss elimination method, Gauss-Jacobi method and Gauss-Siedel method.
CO5: Evaluate solutions by Runge-Kutta's method.

FGA20	VALUE EDUCATION	Lecture	Practical	Crecit
SEM II - VALUE EDUCATION		2	0	2

LEARNING OBJECTIVES
- The values and attitudes we live by affect how we relate to other people and to all our activities in the environment.
- A major influence on our prospects for achieving a sustainable future.

SYLLABUS
UNIT-I Value Education - Definition - relevance to present day - Concept of Human Values - self   introspection - Self-esteem.
UNIT-II Family values - Components, structure and responsibilities of family – Neutralization   of   anger   -Adjustability-Threatsoffamilylife-Statusofwomeninfamilyandsociety-Caring for needy and elderly - Time allotment for sharing ideas and concerns.
UNIT-III Ethical values - Professional ethics - Mass media ethics - Advertising ethics – Influence of ethics on family life - psychology of children and youth - Leadership qualities - Personality   development.
UNIT-IV Social values - Faith, service and secularism - Social sense and commitment – Students and Politics - Social awareness, Consumer awareness, Consumer rights and responsibilities Redressal mechanisms.
UNIT-V Effect of international affairs on values of life/ Issue of Globalization – Modern warfare Terrorism. Environmental issues - mutual respect of different cultures, religions and their   beliefs.

LEARNING OUTCOMES
The students will be able to.
CO1: Define an understanding of values education strategies.
CO2: Explain the relation between values and personal behaviour affecting the achievement of sustainable futures.
CO3: Describe on your futures awareness, commitment and actions
CO4: Recognize skills for using values clarification and values analysis in teaching.

CO5: Construct international affairs on values of life and mutual respect of different cultures, religions and their beliefs.

REFERENCES
1. T. Anchukandam and J. Kuttainimathathil (Ed) Grow Free Live Free, KrisituJyoti Publications, Bangalore (1995)
2. Mani Jacob (Ed) Resource Book for Value Education, Institute for Value Education, New Delhi 2002.
3. DBNI, NCERT, SCERT, Dharma Bharti National Institute of Peace and Value Education, Secunderabad, 2002.]

FSS20	SOFT SKILLS	Lecture	Practical	Credit
SEM II – SOFT SKILLS		2	0	2

LEARNING OBJECTIVES
- Learn to listen, write, read and understand communication
- Acquire knowledge to read and respond to the instructions and the interpretation and the skill to transpose information

SYLLABUS
UNIT I 1.Skills in Listening and Writing 1.2. Skills in Reading and Understanding

UNIT II 1.Skills to Read and Respond to Instructions 2.2. Skills of Interpretation and Transcoding Information

UNIT III 1.Skills in Seeking and Responding to Information 3.2. Skills of Day-to-Day communication

UNIT IV 1.Grammatical skills and Spelling rules 4.2. Career skills

UNIT V 1.Skills of formal and in-formal rules 5.2. Skills of non-verbal communication

LEARNING OUTCOMES
The students will be able to
CO1: Demonstrate the skill for listening, writing, reading and writing
CO2: Exhibit the skill to read and respond to instruction
CO3: Demonstrate skill in seeking, responding to information in day to day life

CO4: Explain the grammatical, spelling and career skills
CO5: Describe the skills for formal, in-formal and non-verbal communication

REFERENCES
NIL