

G.T.N. ARTS COLLEGE (Autonomous)

Dindigul

(Affiliated to Madurai Kamaraj University)

(Accredited with 'B' Grade by NAAC)



DEPARTMENT OF MATHEMATICS

SYLLABUS

(With effect from the academic year 2017 – 2020)

PRINCIPAL

**Dr. N.Krishnamoorthy, M.Com., M.B.A., M.Sc., M.Phil., M.Ed., PGDCA., PGDFM.,
Ph.D.,**

DEPARTMENT OF PHYSICS

- | | |
|--|---------------------------------------|
| 1. Tmt. S. Sakunthala, M.Sc., M.Phil., B.Ed., PGDCA., | - Associate Professor and Head |
| 2. Dr. S. Ramachandran, M.Sc., M.Phil., Ph.D., | - Assistant Professor |
| 3. Dr. C. Subramani, M.Sc., M.Phil., Ph.D., | - Assistant Professor |
| 4. Dr. J. Kaligarani, M.Sc., M.Phil., Ph.D., | - Assistant Professor |
| 5. Dr. P. Pandiammal, M.Sc., M.Phil., Ph.D., | - Assistant Professor |

G.T.N. ARTS COLLEGE, (Autonomous) DINDIGUL
SYLLABUS FOR B.Sc., (Mathematics) UNDER CBCS
(With effect from the academic year 2017 – 2020)

1. OBJECTIVES:

The Syllabus for B.Sc., Mathematics degree under semester system has been designed on the basis of Choice Based Credit System (CBCS), which would focus on job oriented programmes and value added education. It will effect from June 2017 onwards.

2. ELIGIBILITY:

A pass in +2 examination conducted by the Board of Higher Secondary Education, Government of Tamilnadu with Physics & Mathematics OR any other examination accepted by the Governing Body, as equivalents thereto are eligible to join this course.

3. DURATION OF THE COURSE:

The students who are joining the B.Sc., (Mathematics) degree shall undergo a study period of three academic years – Six semesters.

4. SUBJECTS OF STUDY AND SCHEME OF EXAMINATION :

The subjects offered in major Physics for six semesters and the scheme of examination are given .

5. QUESTION PAPER PATTERN:

The Internal and External marks is 25 : 75

EXTERNAL:

The pattern of Question Paper will be as follows:

Time: 3 Hours

Max Marks: 75

SECTION – A [10 x 1 = 10 marks]

Question No: 1 to 10

1. Two questions from each unit

2. Four choices in each question

3. No 'none of these' choice

SECTION – B [5 x 7 = 35 marks]

Question No: 11 to 15

1. Answer all questions choosing either (a) or (b)
2. Answers not exceeding two pages
3. One question from each unit

SECTION – C [3 x 10 = 30 marks]

Question No: 16 to 20

1. Answers not exceeding four pages
2. Answer any three out of five questions
3. One question from each unit

Note: There must be at least one problem in Section B and Section C

INTERNAL:

The pattern for internal valuation may be

1. Two tests – 15 marks each: average 15 marks
2. Group Discussion / Seminar / Quiz – 5 marks
3. Two Assignments – 5 marks each: average 5 marks
4. Third test may be allowed for absentees of anyone of the two tests
5. For Quiz, two quizzes should be conducted

Blue Print of the Question Paper (External) – Core Subjects

Maximum Marks: 75

Sections	Types of questions	No. of questions	No. of questions to be answered	Marks for each question	Total Marks
A	Multiple Choice : Two questions from each unit	10	10	1	10
B	Not exceeding two pages (either or type) : One question from each unit *	5	5	7	35
C	Not exceeding four pages (any three out of five) : one question from each unit	5	3	10	30

- There must be at least one problem in Section – B and Section – C

6. There will be ONE Allied subjects to fulfill the course during three years.

Subject	Maximum Marks	Year of Study
Physics	600	I and II

The syllabus for the Allied subjects can be got from the Allied Department of Physics.

7. ELIGIBILITY FOR THE DEGREE:

1. A candidate will be eligible for the B.Sc., (Mathematics) degree by completing three years (six semesters) and passing all the prescribed examinations.
2. A candidate shall be declared as passed the course, if he / she scored a minimum of 40 % marks in each paper of all the subjects.

Papers studied by B.Sc., Mathematics students:

(Mathematics students study Physics as Allied I)

B.Sc., Mathematics – Semester – I

Part	Study Component	Paper Code	Credit	Hours	Internal Marks	External Marks	Total Marks
I	Tamil / Other Languages	17UTAL11	3	6	25	75	100
II	English	17UENL11	3	6	25	75	100
III	Core Paper – I Calculus	17UMAC11	5	6	25	75	100
	Allied Paper – I Mechanics, Properties of matter & Sound	17UPHA11	4	6	25	75	100
IV	Skill Based Paper – I Arithmetic Ability	17UMAS11	2	2	25	75	100
	Skill Based Paper –II Sequences and series	17UMAS12	2	2	25	75	100
	(NME) Fundamentals of Mathematics 1	17UMAN11	2	2	25	75	100
V	Physical Education	17UPEV2P	1				
	Total		21	30			

B.Sc., Mathematics – Semester – II

Part	Study Component	Paper Code	Credit	Hours	Internal Marks	External Marks	Total Marks
I	Tamil/Other Languages	17UTAL21	3	6	25	75	100
II	English	17UENL21	3	6	25	75	100
III	Core Paper - II Theory of Equations and Trigonometry	17UMAC21	5	6	25	75	100
	Allied Paper - I Thermal Physics	17UPHA21	4	4	25	75	100
	Allied Practical - I Allied Physics Practical's 1	17UPHA2P	1	2	25	75	100

IV	Skill Based Paper -III Practical in Office Automation	17UMAS2P	2	2	25	75	100
	Skill Based Paper -IV Number Theory and Inequalities (NME)	17UMAS21	2	2	25	75	100
	Fundamentals of Mathematics 2	17UMAN21	2	2	25	75	100
V	Physical Education	17UPEV2P	1		25	75	100
Total			23	30			

B.Sc., Mathematics – Semester – III

Part	Study Component	Paper Code	Credit	Hours	Internal Marks	External Marks	Total Marks
I	Tamil/Other Languages	17UTAL31	3	6	25	75	100
II	English	17UENL31	3	6	25	75	100
III	Core Paper - III Mechanics	17UMAC31	5	6	25	75	100
	Allied Paper I Electricity and Electronics	17UPHA31	4	6	25	75	100
	Allied Paper II Programming in C	17UMAA31	4	6	25	75	100
Total			19	30			

B.Sc., Mathematics – Semester – IV

Part	Study Component	Paper Code	Credit	Hours	Internal Marks	External Marks	Total Marks
I	Tamil/Other Languages	17UTAL41	3	6	25	75	100
II	English	17UENL41	3	6	25	75	100
III	Core Paper - IV	17UMAC41	5	6	25	75	100

	Analytical geometry(3D) and Vector calculus						
	Allied Paper - I Optics spectroscopy and modern physics	17UPHA41	4	4	25	75	100
	Allied Practical - I Allied Physics Practical II	17UPHA4P	1	2	25	75	100
	Allied Paper I I Programming in C++	17UMAA41	4	4	25	75	100
	Allied Practicals –II Programming in C and C++ Practical	17UMAA4P	2	2	40	60	100
V	Extension Activities	17UXRR41	1				100
	Total		23	30			

B.Sc., Mathematics – Semester – V

Part	Study Component	Paper Code	Credit	Hours	Internal Marks	External Marks	Total Marks
III	Core Paper - V Real Analysis	17UMAC51	5	5	25	75	100
	Core Paper - VI Differential Equations	17UMAC52	5	5	25	75	100
	Core Paper - VII Modern Algebra	17UMAC53	5	6	25	75	100
	Allied Paper I Statistics - I	17UMAA51	4	5	25	75	100
	Elective Paper Fuzzy Sets (OR) Graph Theory	17UMAE51 (OR) 17UMAE52	4	5	25	75	100
IV	Skill Based Paper – I Laplace transforms and Fourier series	17UMAS51	2	2	25	75	100
	Environmental Studies	17UESV51	2	2	25	75	100
	Total		27	30			

B.Sc., Mathematics – Semester – VI

Part	Study Component	Paper Code	Credit	Hours	Internal Marks	External Marks	Total Marks
III	Core Paper - VIII Complex Analysis	17UMAC61	5	5	25	75	100
	Core Paper - IX Operations Research	17UMAC62	5	5	25	75	100
	Core Paper - X Linear Algebra	17UMAC63	5	6	25	75	100
	Allied Paper I Statistics - II	17UMAA61	4	5	25	75	100
	Elective Paper Numerical Methods (or) Combinatorics	17UMAE61 (OR) 17UMAE62	4	5	25	75	100
IV	Skill Based Paper – I Boolean Algebra and Logic	17UMAS52	2	2	25	75	100
	Value Education	17UVEV61	2	2	25	75	100
	Total		27	30			

Summary of credits and marks

Part	Study Component	Total Credits	Total Marks
I	Tamil/Other Languages	12	400
II	English	12	400
III	Core Papers , Elective Paper & Allied Papers	94	2300
IV	Skill Based Papers,NME,EVS&Value Education	20	900
V	Physical Education & Extension Activities	2	200
Grand Total		140	4200

Papers provided by the Department

(Mathematics and Chemistry students study Physics as Allied I and Allied II respectively)

Semester -I

Part	Study Component	Paper Code	Credit	Hours	Internal Marks	External Marks	Total Marks
III	Core Paper – I Calculus	17UMAC11	5	6	25	75	100
	Allied Paper – I - 1* Allied Mathematics 1	17UMAA11	5	6	25	75	100
IV	Skill Based Paper – I Arithmetic Ability	17UMAS11	2	2	25	75	100
	Skill Based Paper –II Sequences and series	17UMAS12	2	2	25	75	100
	(NME) # Fundamentals of Mathematics 1	17UMAN11	2	2	25	75	100
	Total		16	18			

*for First year B.Sc., Physics and Chemistry students

for other major students

Semester II

Part	Study Component	Paper Code	Credit	Hours	Internal Marks	External Marks	Total Marks
III	Core Paper - II Theory of Equations and Trigonometry	17UMAC21	5	6	25	75	100
	Allied Paper I- * Allied Mathematics 2	17UMAA21	2	3	25	75	100
	Allied Paper II - * Allied Mathematics 3	17UMAA23	2	3	25	75	100
IV	Skill Based Paper -III Practical in Office Automation	17UMAS2P	2	2	25	75	100
	Skill Based Paper -IV Number Theory and Inequalities	17UMAS21	2	2	25	75	100
	(NME) - II # Fundamentals of	17UMAN21	2	2	25	75	100

	Mathematics 2						
	Total		15	18			

* for First year B.Sc., Physics and Chemistry students

for other major students

Semester III

Part	Study Component	Paper Code	Credit	Hours	Internal Marks	External Marks	Total Marks
III	Core Paper - III Mechanics	17UMAC31	5	6	25	75	100
	Allied Paper I \$ Programming in C	17UMAA31	4	6	25	75	100
	Allied Paper II * Allied Mathematics 4	17UMAA32	5	4	25	75	100
	Total		12	16			

* for Second year B.Sc., Physics and Chemistry students

\$ for Second year B.Sc., Mathematics Students

Semester IV

Part	Study Component	Paper Code	Credit	Hours	Internal Marks	External Marks	Total Marks
III	Core Paper - IV Analytical geometry(3D) and Vector calculus	17UMAC41	5	6	25	75	100
	Allied Paper I \$ Programming in C++	17UMAA41	4	4	25	75	100
	Allied Paper II * Allied Mathematics 5	17UMAA42	2	3	25	75	100
	Allied Paper III * Allied Mathematics 6	17UMAA43	2	3	25	75	100
	Allied Practical's-I \$	17UMAA4P	2	2	40	60	100

	Programming in C and C++ Practical						
	Total		15	18			

* for Second year B.Sc., Physics and Chemistry students

\$ for Second year B.Sc., Chemistry students

Semester V

Part	Study Component	Paper Code	Credit	Hours	Internal Marks	External Marks	Total Marks
III	Core Paper - V Real Analysis	17UMAC51	5	5	25	75	100
	Core Paper - VI Differential Equations	17UMAC52	5	5	25	75	100
	Core Paper - VII Modern Algebra	17UMAC53	5	6	25	75	100
	Allied Paper I Statistics - I	17UMAA51	4	5	25	75	100
	Elective Paper Fuzzy Sets (OR) Graph Theory	17UMAE51 (OR) 17UMAE52	4	5	25	75	100
IV	Skill Based Paper – I Laplace transforms and Fourier series	17UMAS51	2	2	25	75	100
	Environmental Studies	17UESV51	2	2	25	75	100
	Total		27	30			

Semester VI

Part	Study Component	Paper Code	Credit	Hours	Internal Marks	External Marks	Total Marks
III	Core Paper - VIII Complex Analysis	17UMAC61	5	5	25	75	100
	Core Paper - IX Operations Research	17UMAC62	5	5	25	75	100
	Core Paper - X Linear Algebra	17UMAC63	5	6	25	75	100
	Allied Paper I	17UMAA61	4	5	25	75	100

	Statistics - II						
	Elective Paper Numerical Methods (or) Combinatorics	17UMAE61 (OR) 17UMAE62	4	5	25	75	100
IV	Skill Based Paper – I Boolean Algebra and Logic	17UMAS52	2	2	25	75	100
	Value Education	17UVEV61	2	2	25	75	100
	Total		27	30			

G.T.N. ARTS COLLEGE, (Autonomous) DINDIGUL
SYLLABUS FOR B.Sc., (Mathematics) UNDER CBCS

(With effect from the academic year 2017 – 2018)

Course Title: ,f;fhy ,yf;fpaKk; GidfjAk;

Semester : 1

Course Code : 17UTAL11

Part : I

Contact Hours /Week : 6

Credits : 3

Nehf;fk;

,f;fhyf; ftpij> rpWfij> Gjpd tiffis mwpKfk; nra;jy;> ,f;fhy ,yf;fpaq;fspd; topg; GydhFk; fUj;Jf;fisg; ngwr; nra;jy;>gad;ghl;Lj; jkpo; ,yf;fzj;ij mwpar; nra;jy;.

gad;

ftpjij> rpWfij gilf;Fk; Mw;wy; ngWjy;> r%f czHT+l;Lk; gilg;Gfis mwpe;J fw;wy;.

\$W : 1 kuGf;ftpjijfs;

ghujpahH fz;zd; vd; Nrtfd; - ghujpjhrd; njhopyhsH tpz;zg;gk; - ftpkzp ciuf;f Ntz;Lk; - gl;Lf;Nfhl;il fy;ahz Re;juk; kdpjdhf tho;e;jpl Ntz;Lk; - fz;zjhrd; xU ghidapd; fij - Kbaurd; ahH ftpQd;.

\$W : 2 Gjf;ftpjijfs;

e.gpr;r%Hj;jp Mj;J}ud; %l;il – eh.fhkuhrd; fhfpjg;G+f;fs; – K.Nkj;jh vd;Dila tpLKiw ehs; – mg;jy; uFkhd; Mwhj mwpT – ituKj;J le;J nghpj MW rpwpj – kPuh neQ;Nr! epy;! epy;! – ghyh thdk; trg;gLk; – ney;iy n[ae;jh njhg;Gs; nfhb – ckh kNf];thp Rak; – i`f;\$ ftpjijfs;.

\$W : 3 rpWfijfs;

Gjikg;gpj;jd; rhg tpNkhrdk; – F.g.uh[Nfhghyd; cz;ikf;fij –F.mofphprhkp uh[h te;jpUf;fpwhH – fy;fp fbjKk; fz;zPUk; – n[afhe;jd; Af re;jp – mz;zh nrt;thio – fp.uh[ehuhazd fjT.

\$W : 4 ,yf;fzk;

KjnyOj;Jf;fs; – rhHngOj;Jf;fs; – nkhop Kjy; vOj;Jf;fs; – nkhop ,Wjp vOj;Jf;fs;
– ty;nyOj;J kpFk; ,lq;fs; – ty;nyOj;J kpfh ,lq;fs;.

\$W : 5 ,yf;fpa tuyhWk; gad;ghl;Lj;jkpOk;

20 Mk; Ew;whz;,,,,,;by; kuGf;ftpijapd;; tsHr;rp – GJf;ftpijapd; Njhw;wKk;
tsHr;rpAk; – rpWfijapd; Njhw;wKk; tsHr;rpAk; – kuGg;gpio ePf;Fjy; –
gpwnkhopr; nrhw;fis ePf;Fjy; – XnuOj;J xU nkhopfs; – xyp NtWghLfSk; nghUs;
NtWghLfSk;

ghIE}y;

R[hjh .rh (njh.M).> 2017> ,f;fhy ,yf;fpaKk; GidfijAk;> epA+ nrQ;Rhp Gf;
`T]; (gp) ypl;.> nrd;id.

ghh;it E}y;fs;

1. rptj;jk;gp.fh.> 1978> jkpopy; rpWfijapd; Njhw;wKk; tsHr;rpAk;> jkpo;g;
Gj;jfhyak;> nrd;id.
2. Rg;Gnul;bahu;.e.> 1982> fz;zd; ghl;Lj;jpwd;> rHNthja ,yf;fpag; gz;iz>
kjiu
3. jz;lghzp NjrpFH>r.> 2008> ed;D}y; tpUj;jpAiu> rhujh gjpg;gfk;> nrd;id.
4. ty;ypf;fz;zd;.> 2011> GJf;ftpijapd; Njhw;wKk; tsHr;rpAk;> rPijg;
gjpg;gfk;> nrd;id.

Course Title: English for Enrichment - I

Semester : 1

Course Code : 17UENL11 Part : II

Contact Hours /Week : 6

Credits : 3

OBJECTIVES

- ❖ To teach language through Literature
- ❖ To enable students to learn and imbibe good values of life gained from Literature

Unit-I - Poetry

1. D.H.Lawrence -Snake
2. Wole Soyinka -Telephone Conversation
3. John Milton -On His Blindness
4. Shelley - Ozymandias

Unit-II - Prose

1. Abraham Lincoln - Letter to his son's Headmaster
2. Stephen Leacock -With the Photographer
3. W.R. Inge -Spoon Feeding
4. Martin Luther king - I have a Dream

Unit-III - Short Stories

1. Rev. G.W.Cox - Orpheus and Eurydice
2. Flora Annie Steele -Valiant Vicky
3. Guy De Maupassant -The Wedding Gift
4. R. K. Narayan - Engine Trouble

Unit-IV-Grammar

1. Noun, Pronoun, Verb, Adjective

2. Adverb, Preposition, Conjunction, Interjection

3. Transitive & Intransitive Verb

4. Articles

Unit-V-Composition

1. Letter Writing

2. Precis Writing

3. Reading Comprehension

4. Advertisement

Text Book(s)

Sudha, A.D and R. Kavitha (Eds.). English for Enrichment I. Chennai: New Century Book House, 2018

Reference Book(s)

Radhakrishna Pillai, G .Emerald English Grammar and Composition. Chennai: Emerald Publication, 1990.

Course Title: Calculus

Semester : 1

Course Code : 17UMAC11

Part : III

Contact Hours /Week : 6

Credits : 5

OBJECTIVES:

To impart knowledge on the fundamental principles, concepts in the areas of Differential and Integral calculus and to prepare the student to apply these fundamental concepts and working knowledge to other courses.

Unit: I

Successive Differentiation - Leibnitz Formula - Maxima and Minima of functions of two variables.

Unit: II

Envelopes–Curvatures-Circles, radius and centre of curvature-Evolutes.

Unit: III

Polar Co-ordinates- Radius of curvature in polar co ordinates – p-r equation – Pedal equation of curves-Definite integrals and their properties.

Unit: IV

Reduction formulae for $\sin^n x$, $\cos^n x$, $\tan^n x$, $\cot^n x$, $\operatorname{cosec}^n x$, $\sec^n x$, $\sin^m x \cos^n x$ - Bernoulli's formula-Double and triple integrals and their properties.

Unit: V

Change of order of integration, Beta and Gamma functions, Jacobians.

Text Books:

1. Manickavasagam Pillai .T.K.&S.Narayanan , (2011), Calculus, Volumes I & II.Publishers: S.Viswanathan, Chennai

Reference Books:

1. Dr. Arumugam, & Mr. Thanga Pandi Isaac, (2011), Calculus. New Gamma Publishing House, Chennai,

2. Veerarajan.T, (2012) , Engineering Mathematics for I year ,Tata McGraw-Hill Publishing company Limited, New Delhi,.
3. Dr. Grewal.B.S, (2012), Higher Engineering Mathematics. Khanna PublishersEdition, New Delhi.

Course Title: Mechanics, Properties of matter & Sound

Semester: 1

Course Code: 17UPHA11

Part: III

Contact Hours /Week : 6

Credits : 5

OBJECTIVES:

To enable the learners to understand

- Newton's laws of motion , Types of collisions and loss of Kinetic energy
- Basic concepts of Moment of Inertia and to derive expressions for moment of inertia of various objects
- About satellites and their different functions, expressions for orbital and escape velocities
- General theory of relativity, Basic concepts of variation of time, length and mass with velocity
- Experimental set up of Michelson interferometer and discussion about the result

Unit: I

Newton's laws of motion - Linear Momentum - Law of Conservation of Linear Momentum – Impulse of a force - Collision - Elastic and Inelastic collisions – Fundamental principles of impact -Newton's law of impact. Coefficient of restitution – Oblique Impact of a smooth sphere on a fixed smooth plane - Direct impact of two smooth spheres - Loss of Kinetic energy due to direct impact of two smooth spheres - Oblique impact of two smooth spheres-Loss of kinetic energy due to oblique impact of two smooth spheres.

Unit: II

Moment of Inertia – Physical significance of M.I – Perpendicular axes theorem, Parallel axes theorem- Moment of inertia of circular disc (a) About an axis passing through its center and perpendicular to its Plane (b) About a diameter (c) About a tangent in its Plane - Moment of inertia of a solid sphere (a) About a diameter (b) About a Tangent - torque and Angular

momentum - Relation between torque and Angular momentum - Kinetic energy of rotation - Expression for the acceleration of a body rolling down on an inclined plane.

Unit: III

Escape velocity - Satellites - Orbital velocity - Stationary satellite - Rocket – Principle - theory of Rocket - Velocity of rocket at any instant - Rocket propulsion systems - specific impulse - multistage rocket - Shape of the rocket.

Unit: IV

Frames of reference - Inertial frames of reference - Galilean transformation - Michelson Morley Experiment - Significance of negative result- Newtonian relativity.

Unit: V

Postulates of special theory of relativity - Lorentz transformation - Lorentz Fitzgerald contraction - Time dilation - Relativistic addition of velocities - Simultaneity –Variation of mass with velocity-Einstein’s mass energy relation - Relation between total energy, rest mass energy and momentum.

Text Books:

1. Muregeshan .R, Mechanics & Relativity, Santha Publications (2006).

Reference Books:

1. Mathur.D.S., Mechanics. Sultan & Chand Publications.
2. T.K & Narayanan,(2011),“Algebra Volume I and Trigonometry”, S.Viswanathan Publications.

Course Title: Arithmetic Ability

Semester: 1

Course Code: 17UMAS11

Part : III

Contact Hours /Week : 2

Credits : 2

OBJECTIVES:

This course will enable to the students to develop their quantitative and aptitude skills that strengthen the knowledge in competitive field. This course covers the area related to Problems on numbers, Problems on ages, Ratio and Proportion, Time and Distance and Permutations and Combinations.

Unit: I

Simple equation- Problems involving linear, simultaneous, quadratic equations.

Unit: II

Puzzles involving linear, quadratic relation to find the ages in the given problem

Unit: III

Ratio- Inverse ratio- proportion- laws on proportion- problems relating to ratio and proportion

Unit: IV

Problems involving speed, time, distance, ratio of speeds, average speed

Unit: V

Factorial- Permutations- Permutations with restriction- Combinations- standard results- solving problems using permutations and combinations

Text Books:

1. Aggarwal. R.S., (2011), Quantitative Aptitude For Competitive Examinations, S. Chand & Company Ltd., New Delhi

Reference Books:

1. Priya.R.S, (2015), Quantitative Aptitude, SciTech Publications Pvt. Ltd, Chennai.
2. Abhijit Guha,(2014), Quantitative Aptitude For Competitive Examinations, McGraw - Hill Education private limited, New Delhi.
3. Abdul Mohideen.S, (2006), Quantitative Aptitude, Deen Intelligent Books.

Course Title: Sequences and Series

Semester : 1

Course Code : 17UMAS12

Part : III

Contact Hours /Week : 2

Credits : 2

OBJECTIVES:

This course aims at providing the students with rigorous treatment of fundamental ideas of real analysis. This course covers sequence and series of real numbers.

Unit: I

Sequences – Bounded sequences – Monotonic sequences – Convergent sequences – Divergent and Oscillating sequences (Definition and examples only)

Unit: II

Subsequences (Definition and examples only) – Cauchy sequences – Cauchy's general principle of convergence

Unit : III

Infinite Series – Convergent, divergent series – Alternating Series

Unit: IV

Comparison test (Statement only) – Problems

Unit: V

Test of convergence – Kummer's test - D'Alembert's ratio test (Statements only) – related problems

Text Books:

1. Dr. Arumugam. S & Mr. Thanga Pandi Isaac, (2006), Sequences and Series, New Gamma Publishing House, Palayamkottai

Reference Books:

1. Manicavachagam pillai .T.K, Natarajan .T and Ganapathy. K.S., (2008), Algebra vol –I, S.viswanathan , Pvt. Ltd., Programming in C by S. Ramasamy and P. Radhaganesan, Scitech Publications (India) Private Limited, Chennai and Hyderabad, 2006.
2. Balaji. G, (2013), Engineering Mathematics – I, G.Balaji Publishers, Chennai
3. Bali.N.P, Dr. Manish Goyal,(2005), Engineering Mathematics, University Science Press, Delhi

Course Title: English For Better Life -I

Semester : 1

Course Code : 17UENN11

Part : IV

Contact Hours /Week : 2

Credits : 2

OBJECTIVES

- ❖ To enable the students to converse freely in English and deliver public speech effectively
- ❖ To facilitate the students to be placed in suitable jobs

Unit I

Self Introduction

Questioning and Answering

Unit II

Speak for a minute

Extempore

Turn Coat

Debate

Unit III

Dialogue in Formal Situations

Narrating Stories

Unit IV

Conversation in Informal Situations

Narrating experiences

Unit V

Group Discussion

Argument

Text Book(s)

1. Anushya, K. English for Better Life I (For Private Circulation)

Reference Book(s)

1. Mohan, Krishna and N.P Singh:Speaking English Effectively. Chennai: Laxmi Publications, 2015.
2. Jones, Leo. Activities for Intermediate Students Book. London: Cambridge University Press, 1992.
3. Pillai, G.Radhakrishnan and K. Rajeevan: Spoken English for You. Chennai: Emerald Publishers, 2002.

Course Title: Socio-Religious Reform Movements in Modern India

Semester : 1

Course Code : 17UHIN11

Part : IV

Contact Hours /Week : 2

Credits : 2

OBJECTIVES

1. To provide historical background of the reform movements, missionaries and depressed class movements in modern India.
2. To enable students to understand the role played by different social groups and leaders in modern India and the different facets of the Women Liberation movement.

UNIT I

Socio and Cultural awakening in India – Brahmo Samaj- Arya Samaj – Prarthana Samaj – Ramakrishna Mission – Theosophical Society.

UNIT II

Christian Missionaries and their activities – Muslim Reform Movements – Aligarh Movement – Ahmadian Movement.

UNIT III

The Depressed Class Movement – Dr.B.R.Ambedkar – E.V.Ramasamy and Self Respect Movement- Narayana Guru and Ezhava Movement VeerasalingamBandhalu – Jyotirao Phule.

UNIT IV

Emancipation of Indian Women- Rise of Women's Organisations – Women Liberation Movements - Dr. Muthulakshmi Reddi – Abolition of Devadasi System.

UNIT V

Social injustice against Women : Dowry System –Female infanticide – Child Marriage – Widows Remarriage – Sexual Harassment.

Text Books

1. Kenneth W Jones, Socio-Religious Reform Movements in British India, Cambridge University Press,1990
2. J.N.Farquhar, Modern Religious Movements in India, Munshiram Manoharlal Publishers Pvt Ltd, 1998

Reference Books

1. Pruthi R.K., Social & Religious Reform Movements in Modern India, Commonwealth Publishers, 2014
2. Rajaraman P.,Glimpses of Social Movements in Peninsular India,Poompozhil Publishers ,2013
3. Bakshi S.R., SocialReformers in India ,Deep and Deep Publications,2002

Course Title: Business Accounting

Semester : 1

Course Code: 17UCON11

Part : IV

Contact Hours /Week : 2

Credits : 2

Objectives

To familiarize the non-commerce students about the basics of accounting concepts, principles and conventions and to make the students to know about the preparation of Journal, Ledger, Trial Balance and Balance Sheet

Unit I

Introduction – Book Keeping – Accountancy – Differences – Double Entry System – Merits and Limitations – Differences between Single Entry and Double Entry System – Classification of Accounts – Rules – Users of Accounting information.

Unit II

Books of Prime Entry – Accounting Equation – Journal – Advantages – Ruling (Simple Problems) .

Unit III

Subsidiary Books – Objectives – Advantages – Purchases Book – Sales Book – Returns Books – Cash Book – (Simple Problems) Difference between Trade Discount and Cash Discount.

Unit IV

Books of Final Entry – Ledgers – Advantages – Ruling – (Simple Problems) – Trial Balance – Advantages – Difference between Trial Balance and Balance Sheet – Preparation of Trial Balance from given Ledger Balances.

Unit V

Final Accounts of Sole Trading Concerns – Adjustments : Outstanding Expenses – Prepaid Expenses – Closing Stock – Depreciation – Bad debts – (Simple Problems) – Cost of Goods Sold.

Note:

40% Theory and 60% Problems

Text Book

1. Inbalakshmi, M, (2015) “**Business Accounting**”, Kalyani Publishers, Ludhiana.

Reference Books

1. Reddy, T.S.&, Murthy,A., (2016) “**Financial Accounting**”, Margham Publications, Chennai.
2. Tulsian, P.C., (2015) “**Financial Accounting**”, Pearson Education, Ed.7. New Delhi.
3. Jain. S.P., Narang, K.L., (2016) “**Advanced Accountancy**”, Kalyani Publishers, Ludhiana.

Course Title: Industrial Chemistry

Semester: 1

Course Code: 17UCHN11

Part : IV

Contact Hours /Week : 2

Credits : 2

Objectives

To understand various industrial process involved in the Milk and Milk Products, Agricultural, Polymer, Petrochemicals Industry and know the concepts of Nuclear power plants

Unit – I

Milk and Milk Products Industry : Composition of Milk. Physical properties of milk. Effect of heat on milk. Milk products- manufacturing process of cream, Butter, Ice cream, Milk Powder.

Unit - II

Agricultural Industry – Nutrients for plants – Major and minor nutrients – Role of NPK – Urea – Super Phosphate – Mixed fertilizers

Unit - III

Polymer Industry – Rubber - Natural and Synthetic rubber –difference and examples (Structure not necessary) – Vulcanization of rubber – Plastic - difference between Thermo and Thermosetting plastics.

Unit - IV

Petrochemical industry: Crude oil –Fractional distillation of crude oil, Gasoline –octane number, Diesel - cetane number – Natural gas – LPG - CNG

Unit - V

Nuclear Power Plants – Nuclear Power plants in India – Nuclear fuels – Concepts of Nuclear fission and energy production – Nuclear waste disposal and hazards.

Text Book:

1. Sharma.B.K.,(2016),Industrial Chemistry (Including Chemical Engineering), Goel Publishing House, Meerut

Reference Books:

1. Bagavathi Sundari.K.,(2007),Applied Chemistry,S.Chand, New Delhi
2. Jaya Shree Ghosh.,(2008), Fundamental concepts of applied chemistry, S.Chand, New Delhi

3. Jain and Jain.,(2005), Engineering chemistry, Dhanpat Rai Publications Pvt. Ltd., New Delhi.

Course Title: Basic Physics 1

Semester: 1

Course Code: 17UPHN11

Part : IV

Contact Hours /Week : 2

Credits : 2

OBJECTIVES:

To enable the learners to understand

- Basics of Units and Dimensions and uses of dimensions
- Types of matter, Change of state , Specific heat capacity and latent heat
- Different types of energy with examples and law of conservation of energy
- Renewable and nonrenewable energy sources and advantages of renewable energy sources
- Basics of law of reflection and refraction and image formation in mirror and lens

Unit: I

S.I. units - measurement of length, mass, time and other physical quantities - Dimension formula for area, volume, density and force - Uses of dimensions

Unit: II

Matter - Solid, liquid, gas and plasma - Applications of plasma - Change of state - Specific heat capacity - Specific Latent heat of ice and steam

Unit: III

Kinds of energy - Mechanical energy, Thermal energy, Optical energy, Sound energy, Electrical energy, Atomic and nuclear energy - Examples - Conservation of energy.

Unit: IV

Renewable and non - renewable energy - Fossil fuel - Coal oil - Solar - Wind - Bio mass – OTEC

Unit: V

Mirror - Laws of reflection - Image formation (Concave and Convex Mirror) - Lens - Laws of refraction - Image formation (Concave and Convex Lens) - Defects of eye and rectification.

Text Books:

1. First Year B.Sc., Physics – B.V. Narayan Rao, New Age International (P) Ltd., 1998.

Reference Books:

1. Mechanics – D.S. Mathur – S. Chand & Co., 2002
2. Properties of matter – D.S. Mathur – S. Chand & Co., 2002.
3. Properties of matter – Brijlal Subramanian – S. Chand & Co., 2006

Course Title: Human Biology

Semester : 1

Course Code : 17UZON11

Part : IV

Contact Hours /Week : 2

Credits : 2

Objectives:

To provide information regarding nutrition, their deficiency diseases, chromosomal abnormalities, human genome, physiology of vital organs, basic concepts in embryology and applied biology.

UNIT – I Health and Hygiene:

Composition of food, Digestion and absorption of food, Balanced diet, Vitamin deficiencies, Calorific value of food, Malnutrition and Obesity, protein deficiency.

UNIT – II Genetics:

Sex determination in Man -Chromosomal abnormalities (Down, Turner's, Klinefelter's syndromes) –Human Blood groups, Eugenics, Euthenics (brief account), Human genome project Objectives and application.

UNIT – III Physiology

Respiration – Structure of lungs, Inspiration and expiration; Blood: Blood Composition; Structure and function of heart, Electrocardiogram (ECG), Blood pressure, Blood urea; Structure of kidney, Nephron and Formation of urine.

UNIT -IV Embryology:

Structure of Human sperm and ovum - Menstrual cycle – Menopause – Pregnancy — Parturition–Twins.

UNIT –V Applied Biology:

Infertility, Sperm bank, IVF and types, Artificial insemination, Test tube baby, Birth control and Contraception.

TEXT BOOKS :

1. Arumugam, N. (2008) Developmenyal Biology, Saras Publications, Kottar –629002.
2. Arumugam, N., Maria Kuttikan (2013) Animal Physiology, Saras Publications, Kottar

-629002.

REFERENCE BOOKS:

1. Ambika Shanmugam (2006) Biochemistry, 10, III Cross Street, West C. I. T. Nagar, Chennai – 600 035.
2. Balinsky, B.I. (2002) An Introduction to Embryology, W.B. Saunders Co. Philadelphia.
3. Gupta.P. K. (1999) Genetics, Rastogi Pub., Meerut, ISBN81-7133-413-X.

Course Title: Introduction to Physical Education - I Semester: 1

Course Code: 17UPEN11 Part : IV Contact Hours /Week : 2 Credits : 2

Objectives:

To educate the History and Rules and regulations of Handball, Football, Volleyball, and Kabaddi.

UNIT I:

History and Development of Games – Organization of Games

UNIT II:

Handball – Measurements – Ground Marking – Major Rules of the Game

UNIT III:

Football – Measurements – Ground Marking – Major Rules of the Game

UNIT IV:

Volleyball – Measurements – Ground Marking – Major Rules of the Game

UNIT V:

Kabaddi – Measurements – Ground Marking – Major Rules of the Game

Text Book (s):

1. National Council of YMCA, 2011, Rules book of Games and Sports, KK Jacob National Council of YMCA, New Delhi

Reference Book (s):

1. American Sport Education Program, 2011, Coaching Volleyball Technical & Tactical Skills (Technical and Tactical Skills Series).

2. <http://www.kabaddiikf.com/history.htm>. Retrieved 2008-04-20, "Origin, History and Development of Kabaddi".

U.S. Soccer Federation, 2011, Official Rule Book of Soccer

Course Title: ,ilf;fhy ,yf;fpaKk; GjpdKk;; Semester : 2
Course Code: 17UTAL21 Part: I Contact Hours /Week : 6 Credits : 3

Nehf;fk;

jkpopy; cs;s gf;jp ,yf;fpa tifikfisAk; rpw;wpyf;fpa tifikfisAk; mwpKfk; nra;jy;> Gjpd ,yf;fpaq;fis khzth;fs; mwpe;Jnfhs;sr; nra;jy;> nrhy; ,yf;fzj;ij czh;j;jy;

gad;;

.gf;jp rpw;wpyf;fpaq;fshy; fhzyhFk; ftpj;Jtj;ijAk;>r%fNkk;ghl;Lf; fUj;Jf;fisAk; mwpe;Jnfhs;sr; nra;jy;> .Gjpd,yf;fpaj;ijmwpe;Jnfhs;Sjy;> gilg;ghw;wy; jpwidtsh;j;jy;

\$W 1 :gf;jp ,yf;fpaq;fs;

jpUQhdrk;ge;jh; Njthuk; ekr;rpthaj; jpUg;gjpfk; (1 – 5 ghly;fs;) – jpUehTf;furh; Njthuk; jpUtpilkUJhh; gjpfk; (Njh;e;njLf;fg;gl;l 5 ghly;fs;) – Re;juh; Njthuk; jpUr;Nrhw;Wj;Jiw gjpfk; (1 - 5 ghly;fs;) – khzpf;fthrfh; jpUr;rhoy; (1- 5 ghly;fs;) – jpUkq;ifMo;thh; nghpajpUnkhop (1 – 5 ghly;fs;) – Mz;lhs; ehr;rpahh; jpUnkhop jpUkzf;fdT (1 - 5 ghly;fs;) – jpU%yh; jpUke;jpuk; (Njh;e;njLf;fg;gl;l 5 ghly;fs; jhAkhdth; guhguf;fz;zp (1 - 5 ghly;fs;) – rptthf;fpahh; rptthf;fpahh; ghly;fs; (Njh;e;njLf;fg;gl;l 5 ghly;fs;).

\$W - 2 :rpw;wpyf;fpaq;fs;

jkpo;tpLjhj gh.vz;. 35 - 44 tiu cs;s 10 ghly;fs; – fypq;fj;Jg;guzp fhLghbaj (1 - 5 ghly;fs;) – jpUf;Fw;whyf; FwtQ;rp ehl;L tsk; \$Wjy; (1- 5 ghly;fs;) – Kf;flw; gs;S gs;spah; Vry; (gh.vz;. 162 -166 5 ghly;fs;) – kjiukPdhl;rpak;ik gps;isj; jkpo; tUifg; gUtk; (gh.vz;. 61>63 2 ghly;fs;).

\$W : 3 - Gjpdk;

R+h;afhe;jd; - G+h;tPfG+kp

\$W : 4 - ,yf;fzk;

ehd;Ftifr; nrhw;fs; - Ntw;Wikfs; - njhifepiyj; njlh; -njhfh epiyj; njlh; -
tpdhtpil tiffs;

\$W : 5 - ,yf;fpatuyhWk; gad;ghl;Lj; jkpOk;

gf;jp ,yf;fpa tuyhW - rpw;wpyf;fpatuyhW - Gjpdj;jpd; Njhw;wKk;
tsh;r;rpAk; - fbjk; tiujy;

ghl E}y;

1. rhe;jpdp .fp (njh.M).> 2017> ,ilf;fhy ,yf;fpaKk; GjpdKk; > epA+
nrQ;Rhp Gf; `T]; (gp) ypl;.> nrd;id.

ghh;itEhy;fs;

1. fjph;KUF> 2007 Kf;\$lw;gs;S> rhujhgjpg;gfk;> nrd;id.
2. R+h;apafhe;jd;> 2013 G+h;tPfG+kp> epA+nrQ;RhpGf; `T];> nrd;id.
3. f.jz;lghzpNjrpfh;> 2008 ed;Dhy; tpUj;jpAiu> rhujhgjpg;gfk;> nrd;id
4. eluhrd; gp.uh.> 2010 jpUQhdrk;ge;jh; Rthkpfs; Njthuk;>
ckhgjpg;gfk;>
nrd;id
5. tujuhrd; K.> 2007 jkpo; ,yf;fpa tuyhW> rhfpj;a mfhnjkp> Gjppy;yp.

Course Title: English for Enrichment-II

Semester: II

Course Code : 17UENL21

Part : II

Contact Hours /Week : 6

Credits : 3

OBJECTIVES

- To teach language through Literature
- To enable students to learn and imbibe good values of life gained from Literature

Unit-I - Poetry

1. D.H.Lawrence -Snake
2. Wole Soyinka -Telephone Conversation
3. John Milton -On His Blindness
4. Shelley - Ozymandias

Unit-II - Prose

1. Abraham Lincoln - Letter to his son's Headmaster
2. Stephen Leacock -With the Photographer
3. W.R. Inge -Spoon Feeding
4. Martin Luther king - I have a Dream

Unit-III - Short Stories

1. Rev. G.W.Cox - Orpheus and Eurydice
2. Flora Annie Steele -Valiant Vicky
3. Guy De Maupassant -The Wedding Gift
4. R. K. Narayan - Engine Trouble

Unit-IV-Grammar

1. Noun, Pronoun, Verb, Adjective
2. Adverb, Preposition, Conjunction, Interjection
3. Transitive & Intransitive Verb

4. Articles

Unit-V-Composition

1. Letter Writing
2. Precis Writing
3. Reading Comprehension
4. Advertisement

Text Book(s)

1. Sudha, A.D and R. Kavitha (Eds.). English for Enrichment I. Chennai: New Century Book House, 2018

Reference Book(s)

1. Radhakrishna Pillai, G .Emerald English Grammar and Composition. Chennai: Emerald Publication, 1990.

Course Title: Theory of Equations and Trigonometry

Semester: II

Course Code: 17UMAC21

Part : III

Contact Hours /Week : 6

Credits : 5

OBJECTIVE

To understand the different concepts and methods involved and to develop the analytical skill sets.

UNIT I

Theory of Equations - imaginary roots - Rational roots - Relation between the roots and coefficients - Symmetric functions of the roots-Sum of the powers of the roots of an equation-Newton's Theorem.

UNIT II

Transformations of equations - Roots multiplied by a given number - Reciprocal roots – Reciprocal equation - Standard forms. To increase or decrease the roots of a given equation by a given quantity -Removal of terms- Descartes' rule of signs.

UNIT III

Rolle's Theorem - Multiple roots- Sturm's Theorem- General solution of cubic equations-Cardan's method.

UNIT IV

Ferrari's method – Expansion of $\sin x$, $\cos x$, $\tan x$, $\sin x \cos x$.

UNIT V

Hyperbolic functions - Inverse Hyperbolic functions - Logarithm of Complex numbers-
Gregory's series.

TEXT BOOKS

- 1 Narayanan .S & Manickavasagampillai .T.K, (2011),Algebra Volume I.
S.Viswanathan Publication, Chennai
- 2 Narayanan .S &Manickavasagampillai.T.K, (2011), Trigonometry Viswanathan
Publication, Chennai,

REFERENCE BOOKS

1. Dr. Arumugam.S, and Issac. A.T., (2015), Theory of Equations and trigonometry New
Gamma Publications house, Chennai,
2. Dr. Vittal .P. R, (2013), Algebra, Analytical Geometry and Trigonometry,
Margham Publications. Chennai,
3. Dr. Venkataraman.M. K, (2013), Engineering mathematics, Volume II,
NationalPublishing company, Chennai

Course Title: Thermal Physics

Semester : II

Course Code: 17UPHA21

Part : III Contact Hours /Week : 4

Credits : 4

OBJECTIVES:

Unit: I

Expansion of crystals - determination of alpha by air wedge method - Expansion of anisotropic solids - solids of low expansivity and their uses - anomalous expansion of water - thermostats - isothermal and adiabatic changes - derivation of equation of both C_v and C_p of a gas - relation between them - experimental determination of C_v by Joly's method - Determination of C_p by Regnault's method .

Unit: II

Lee's Disc method for conductivity of bad conductor - Air and cardboard / ebonite - analogy between heat flow and electric current - Widemann - Franz law - Convection in atmosphere - Lapse rate - stability of atmosphere - Green house effect - Atmospheric pollution .

Unit: III

Radiation - Stefan's law - Determination of Stefan's constant by filament heating method - Solar constant measurement - Water flow pyrhelimeter - temperature of the Sun - Solar spectrum - Energy distribution in black body spectrum - Planck's law (No derivation) - Derivation of Wien's and Rayleigh Jeans laws from Planck's law .

Unit: IV

Kinetic theory of gases - Mean free path - transport phenomena - Diffusion , viscosity and thermal conductivity - Maxwell's law of distribution of molecular speed - Experimental verification - Degrees of freedom - Boltzmann's law of equipartition of energy - Calculation of C_p for mono atomic and diatomic gases

Unit: V

Thermodynamics - Carnot's theorem - Derivation of efficiency - Second law of thermodynamics - Entropy - Change of entropy in Carnot cycle - Change of entropy in conversion of ice into steam - Joule Kelvin effect - Simple theory of Porous plug experiment - Adiabatic - Diamagnetism - Curie's law - Giauque's method of superconductivity.

Reference Books:

1. Heat and Thermodynamics by Brijlal & N. Subramanyam – S. Chand & Co., 2004.
2. Ancillary Physics Vol. II by A. Ubald Raj & Jose Robin, Indian Publications, 2002.

Course Title: Ancillary Physics Practicals - I

Semester : II

Course Code : 17UPHA2P

Part : III

Contact Hours /Week : 2

Credits : 1

LIST OF PRACTICALS :

1. Non-Uniform Bending - Optic Lever & Telescope
2. Torsion Pendulum - Determination of M.I & G
3. Comparison of EMF's - B.G
4. Calibration of Ammeter – Potentiometer
5. Sonometer - Verification of Laws
6. Melde's String - Frequency of Fork
7. Uniform Bending - Optic Lever & Telescope
8. Compound Pendulum- determination of 'g'
9. Calibration of Voltmeter
10. Spectrometer μ of prism
11. Resistance and resistivity – Potentiometer
12. Thermal conductivity of card board – Lee's Disc method
13. Coefficient of viscosity –Stoke's method

Course Title: Practical in Office Automation

Semester : II

Course Code: 17UMAS2P

Part: IV

Contact Hours /Week: 2

Credits: 2

OBJECTIVE

The aim of this course is to provide the students with basic knowledge MS-word, Excel, PowerPoint and Access. It also provides them hands on training.

LIST OF PROGRAMS

1. Design a document using MS– Word with different font style, different font size and Header and Footer.
2. Create a daily attendance sheet of a class room for a week with heading, day, Period etc.
3. Design an invitation with two column break, use word to insert picture, design Border shading.
4. Create a yearly report in Excel work sheet, use auto fill to enter the month and to sum the column and row total, to calculate DA and others, to insert data and time function in the footer.
5. Create different types of chart for a production budget in MS-Excel.
6. Create Students Mark list for three subjects and to list the result and rank by using sting function and logical function.
7. Present your college details using blank presentation with 8 slides in MS-PowerPoint.
8. Present your college details are publishing auto content wizard.
9. Create a main document database of Address and merge them using mail-merge tools.

Course Title: Number Theory and Inequalities

Semester: II

Course Code: 17UMAS21

Part: IV

Contact Hours /Week: 2

Credits: 2

OBJECTIVE

The aim of the course is to enable the students sharpen his thinking capacity and logical ability and appreciate the beautiful results in number theory and inequality. This course deals with the basic topics in number theory like mathematical induction, congruences, triangle inequality, Arithmetic mean, Geometric mean and Harmonic mean.

UNIT I

Mathematical Induction - Equivalence relation and problems.

UNIT II

Division Algorithm - Unique factorization theorem (statement only) - Sieve of Eratosthenes –Simple problems.

UNIT III

Congruences-The Chinese remainder theorem (statement only)- - Simple problems.

UNIT IV

Triangle inequalities-The Arithmetic and Geometric mean- simple problems

UNIT V

The Harmonic mean- Cauchy-Schwarz inequality-Simple problems.

Text Book

1. Dr. Arumugam. S & Issac , (2003), “Classical Algebra”, New Gamma Publishing

House, Palayamkottai.

REFERENCE BOOKS

1. Manikavachakam Pillay. T.K., Natarajan. T. & Ganapathy. K.S., (2008), Algebra vol-II , S.Viswanathan Publications Pvt Ltd.
2. Dr. Venkartaraman. M.K., (2010), “Theory of Equations & Number Theory and Inequality”, The National Publishing Company, Chennai.
3. Dr. Venkataraman. M. K., National Publishing Company,(2013), “Engineering mathematics”, Volume II. Chennai

Course Title: English For Better Life -II

Semester: II

Course Code: 17UENN21

Part : IV

Contact Hours /Week : 2

Credits : 2

OBJECTIVES

- To make the students meet the challenges in the competitive professional world
- To make them fix themselves in jobs

Unit I

Writing application for a job

Preparing a Curriculum Vitae or a Resume

Unit II

Group Discussion

Job interview

Unit III

Business correspondence

Unit IV

Preparing the minutes of a meeting

Presenting Data in verbal and Non- verbal modes

Unit V

Body Language

Etiquettes

Stress Management

Text Book (s)

1. Anushya, K. English for Better Life I (For Private Circulation)

Reference Book(s)

1. Saraswathi, V and Maya K Mudbhatkal. English for Competitive Examination. Chennai :Emerald Publishers, 2000.

Course Title: History Of Modern Tamil Nadu From 1800 To 1947 Semester: II

Course Code : 17UHIN21 Part : IV Contact Hours /Week : 2 Credits : 2

OBJECTIVE

To provide a survey of different facets of the Modern Tamil Nadu and to bring to limelight the role of Tamil Nadu in Indian Freedom Movement.

UNIT I

The South Indian Rebellion of 1800 -801- Causes – Course and Results - Vellore Mutiny of 1806 – Results.

UNIT II

The British Land Revenue Administration – Ryotwari System - Judiciary.

UNIT III

Introduction of Western Education – Temple Entry Movement – The Rise and Fall of Justice Party.

UNIT IV

Role of Tamil Nadu in Freedom Movement - TheEarly Phase : Tamilnadu and early Congress-Extremists-Moderates-Militant Nationalists- Chidamabaram Pillai – Subramaniya Bharathi- Vanchinathan – Subramaniya Siva.

UNIT V

The Later Phase : Justice Party - Neil Statue Satyagraha - Rajaji – Individual Satyagraha - Satyamoorthy – Kamaraj.

Text Books

1. Rajayyan K., History of Tamil Nadu , Past to Present, Ratna Publications, Madurai,1995

2. Subramaniyan N., History of Tamil Nadu (1565- 1982), Koodal Publications, Madurai , 1924

Reference Books

1. Manoranjitha Mani C., - History of Tamilnadu, Create Space Independent Publishing Platform, 2015
2. Mangala Murugaesan N.K, Self-Respect Movement,Koodal Publications,Madurai., 1979
3. Sailendranath Sen, History of Freedom Movement in India, New Age International Pvt. Ltd., 2008
4. Venkatesan G., Tharkala Tamilnattu Varalaru (History of Modern Tamilnadu1600-2011),V.C.Publications,2011
5. Pandian M.S.S, - Brahmin and Non-Brahmin, Permanent Black ,2007

Course Title: Advertising and Salesmanship

Semester : II

Course Code : 17UCON21

Part : IV

Contact Hours /Week : 2

Credits : 2

Objectives

To enable the students to know the fundamentals of advertising and salesmanship and to gain an insight on the nature of advertising and salesmanship

Unit-I

Meaning of advertising – Characteristic Features of Advertising – Nature and Scope of Advertising – Benefits or Advantages of Advertising – Criticisms of Advertising – Is Advertising an Economic Waste? – Difference between Advertising and Salesmanship.

Unit-II

Advertising Media – Indoor and Outdoor Advertising – Advertising agency – Role – Importance.

Unit-III

Personal Selling – Definition – Salesmanship – Definition – Features – Objectives – Benefits – Criticisms against Salesmanship.

Unit-IV

Qualities of a successful salesman; Physical, Mental, Social and Moral Qualities – Other Requisites of a Salesman .

Unit-V

Recruitment of Salesman – Sources – Remuneration of Salesman – Methods.

Text Books

1. Inbalakshmi, M,(2014) “**Advertising and Salesmanship**”, Kalyani Publishers, Ludhiana, 2014.

Reference Books

1. Gupta, C.B, (2014) “**Advertising and Personal Selling**”, Sultan Chand & Sons, New Delhi.
2. Chunawalla, S.A., Sethis, K.C., (2017), “**Foundation of Advertising- Theory and Practice**”, Himalaya Publishing House, New Delhi.
3. Ken Kaser, (2013), “**Advertising and Sales Promotion**”, South-Western Cencgage Learning.

Course Title: Drugs and Cosmetics

Semester: II

Course Code : 17UCHN21

Part : IV

Contact Hours /Week : 2

Credits : 2

Objectives

To study the chemical principles, importance and applications of Drugs and Cosmetics.

Unit – I

Importance of Drugs: Important terminologies, their meaning – Bacteria, virus, fungi, Names of drugs.

Unit-II

Antibiotics: Definition – uses of Antibiotics. Ampicillin, streptomycin, tetracycline, Rifomycin, Erythromycin, drug actions and side effects.

Unit-III

Antipyretics and Analgesics: Antipyretics, Analgesics, and anti-inflammatory agents sulphamide – Drug actions – uses of sulpha drugs, pain balm

Unit-IV

Preparation of domestically useful products

Preparation of Washing Powder, Cleaning Powder, Phenoyls (White, Black, Yellow, Rose coloured phenoyls), liquid blue, soap oils

Unit-V

Cosmetics: Preparation of shampoo, Face powder, Soap -Manufacturing of soap (Kettle process and Hydrolyser process)

Text Books:

1. Industrial Chemistry (Including Chemical Engineering) by B.K. Sharma, 2016, Goel Publishing House, 16th Revised and Enlarged Edition.
2. A Text book of Pharmaceutical Chemistry by Jayashree Ghosh, 2010, S. Chand & company Ltd, New Delhi.
3. A Textbook of Pharmaceutical Chemistry by Dr.S. Lakshmi, 2004, S.Chand & company Ltd, New Delhi.

Course Title: Basic Physics II

Semester: II

Course Code: 17UPHN21

Part : IV

Contact Hours /Week : 2

Credits : 2

OBJECTIVES:

To enable the learners to understand

- Definition of electric current, Ohm's law and Kirchoff's laws, Combination of resistances
- Different types of cells and Working principle of D.C generator
- Alternating current, its generation by various power stations and working principle of A.C generator
- Measurement of electric power by Wattmeter , Induction coil , Wattless current , Power factor
- Simple electrical circuits , Relationship between e.m.f and current in each case , Diode and Bridge Rectifier

Unit: I

Electric current - Voltage and resistance - Ohm's law and Kirchoff's law - Resistance in series and parallel

Unit: II

D.C source - Primary cells - Lechlanche and Daniel Cell - Secondary Cells - Lead Acid Accumulator - D.C generator.

Unit: III

Alternating current generating by hydro, thermal and atomic power stations - R.M.S value - Peak value - (Quantitative) - A.C. generator (No derivation) .

Unit: IV

Measurement of electric power by Wattmeter - Simple calculations - Induction coil - Wattless current - Power factor.

Unit: V

Simple electrical circuits - Resistors, Capacitors and Inductors connected to a.c source (independently) - Relationship between e.m.f and current in each case - Diode - Bridge Rectifier.

Reference Books:

1. Electricity and Magnetism – R. Murugesan – S. Chand & Co., 2004.

Course Title: Entrepreneurial Zoology

Semester : II

Course Code : 17UZON22

Part : IV

Contact Hours /Week : 2

Credits : 2

OBJECTIVES:

To provide a comprehensive knowledge in various thrust areas to start profitable business and to develop a dynamic and successful entrepreneur skill which includes animal husbandry, poultry, aquaculture, apiculture and sericulture techniques.

UNIT – I Animal Husbandry & Dairy technology

Animal Husbandry: Introduction – Breeds of Cattle – cow and diseases – Mastitis, foot and mouth diseases – Dairy technology: Introduction – Scope of dairy farming, Pasteurization of milk, Standard composition of milk, food and nutritive value, grading of milk- Lactometer and dairy products.(Yohort, Cheese).

UNIT – II Poultry farming

Indian and Exotic breeds, construction of poultry house, Equipments - Brooder, Waterer and feeder - Rearing of broiler, layers and nutritive value of eggs - Lighting, Summer and winter management.

UNIT – III Aquaculture

Marine and freshwater fishes - Biological value of fish and Economy of ornamental fishes - Commercial values of shell fish, prawn, edible oyster, pearls, crab.

UNIT – IV Apiculture and Lac culture

Apiculture: Bees – queen, drones, worker, royal jelly, life history, hive types and nutritional value of Honey - Lac culture: Lac insect – host plant, collection and processing Lac – types– uses.

UNIT – V Sericulture

Mulberry sericulture: Silk Industry in India, Mulberry cultivation, Life history of Bombyx mori. Seed production, rearing appliances, rearing of silk worm, Silk reeling, reeling appliances and Commercial value of silk - Non mulberry sericulture: Tasar, Muga, Erisilk and commercial value.

TEXT BOOK:

1. Jayasurya R., Arumugam N, Leelavathy S., Soundara Pandian N., Murugan T., Thangamani A., Prasannakumar S., Narayanan L.M., Johnson Rajeshwar J., Nair N.C. (2013) Economic Zoology, Saras Publication, Nagercoil.

REFERENCE BOOKS:

1. Ganga G., Sulochana chetty (1977) J. An Introduction of Sericulture. Oxford, New Delhi.
2. Gnanamani R. (2003) Modern aspects of commercial poultry keeping, Giri Pub, Madurai.
3. Gupta C. B., Srinivasan N. P. (1997) Entrepreneurship development in India, Sultan Chand and Sons, Educational Publishers, New Delhi.

Course Title: Introduction to Physical Education - II

Semester : 1

Course Code : 17UPEN11

Part : IV

Contact Hours /Week : 2

Credits : 2

Objectives:

To educate the History and Rules and regulations of Basketball, Hockey, Cricket, and Kho-Kho.

UNIT I:

History and Development of Games – Organization of Games

UNIT II:

Basketball – Measurements – Ground Marking – Major Rules of the Game

UNIT III:

Hockey – Measurements – Ground Marking – Major Rules of the Game

UNIT IV:

Cricket – Measurements – Ground Marking – Major Rules of the Game

UNIT V:

Kho - Kho – Measurements – Ground Marking – Major Rules of the Game

Text Book (s):

1. National Council of YMCA, 2011, Rules book of Games and Sports, KK Jacob National Council of YMCA, New Delhi

Reference Book (s):

1. Gale Reference, 2006, Team Coaches corner.(Basketball competitions): An article from: Coach and Athletic Director.
2. "Tripura KHO-KHO Association, 2011 @ Tripura4u". <http://www.kho-kho.tripurasports.com/>.
3. Ralph Dellor, 2010 "Cricket Steps to Success" Human Kinetics Publication.
4. Elizabeth Andfers with Sue Myers, 2008, 2nd Ed "Field Hockey steps to Success". USA

Course Title: fhg;gpa ,yf;fpaKk; ehlfKk;;

Semester : III

Course Code : 17UTAL31

Part : I

Contact Hours /Week : 6

Credits : 3

Nehf;fk;

jkpopy; cs;s fhg;gpaq;fspd; rpwg;Gf;fis vLj;Jiuj;jy; - ehlf;fiyia khzth;fSf;F
czh;j;jy; - ahg;G> mzp ,yf;fzq;fis khzth;fs; mwpAk;gbr; nra;jy;.

gad;

khzth;fsplk; jk; jha; nkhopahd jkpo; nkhopapd; ,yf;fpak; ,yf;fzj; jpwid
Nkk;ghL milar; nra;jy; - ehlf;g; gilg;ghf;fg; gapw;rpia cUthf;Fjy; -fhg;gpaq;fspd;
cs;shh;e;j fUj;Jf;fis mwpe;J nfhs;Sjy;.

\$W-1: fhg;gpaq;fs;

ropy;gjpfhuk; tof;Fiu fhij (KOTjk;) – kzpNkfiy Mjpiu gpr;irapl;l fhij
(KOTjk;) - fk;guhkhazk; thyp tijg;glyk; (gh.vz;-322-365 tiu cs;s 44 ghly;fs;) -
nghpaGuhzk; mg;G+jpabfs; ehadhh; Guhzk; (KOTjk;)

\$W- 2: jw;fhy fhg;gpaq;fs;

,NaRfhtpak; kiyg;nghopT (10 ghly;fs;) - egpfs;ehaff; fhtpak;
kjPdhh;fhz;l; (11 ghly;fs;)

\$W-3: ehlfk;

,uhkRthkp K.> nusj;jpuk; goF – NrJgjp itifapy; nts;sk; tUk; - NrJgjp
nksdj;jpd; Funyhd;W - NrJgjp md;gpd; nka; - rptf;fz;zd; FUNrj;jpuq;fs;
Xa;tjpy;iy.

\$W- 4: ,yf;fzk;

gh tiffs; ntz;gh> Mrphpag;gh> tQ;rg;gh> fypg;gh – mzpfs; ctik
cUtfk;- jw;Fwpg;Ngw;wk;- Ntw;Wik- gpwpJnkhopjy;- tQ;rg;Gfo;r;rp- rpNyil

\$W-5: ,yf;fpa tuyhWk;> gad;ghl;Lj;jkpOk;

lk;ngUq;fhg;gpaq;fs; – IQ;rpWfhg;gpaq;fs; – ehlfj;jpd; Njhw;wKk;
tsh;r;rpAk; – ehlfj;jpd; tiffs; – ehlfk; gilj;jy;.

ghl E}y;

khrpyhNjtp .r (njh.M).> 2018> fhg;gpa ,yf;fpaKk; ehlfKk; > epA+
nrQ;Rhp Gf; `T]; (gp) ypl;.> nrd;id.

ghh;it E}y;fs;

- 1) ,uhkRthkp.K> nusj;jpuk; goF> epA+ nrQ;Rhp Gf; `T];> nrd;id 2015
- 2) rptf;fz;zd;.m> MW ehlfq;fs;> ghit gg;spNf\{d;];> nrd;id - 2007
- 3) Rg;gpukzpa Njrpfh; (c.M)> jz;bayq;fhuk; fof ntspaPL> jpUney;Ntyp - 1966.
- 4) NrJgjp> itifapy; nts;sk; tUk;> ghit gg;spNf\{d;];> nrd;id - 2007
- 5) tujuhrd; K.> jkpo; ,yf;fpa tuyhW> rhfpj;a mfhnjkp> GJnly;yp - 2007
- 6) Ntq;flrhkp ehl;lhh; e.K>(c.M)>ahg;ngUq;fyf;fhhpif> rhujh gjpg;gfk;>nrd;id - 2006

Course Title: English for Enrichment-III

Semester: III

Course Code : 17UENL31

Part : II

Contact Hours /Week : 6

Credits : 3

OBJECTIVES

- To teach language through Literature
- To enable students to learn and imbibe good values of life gained from Literature

UNIT I – Romantic Play

1. As you like it : Cartons of love Act IV – Scene I
2. Merchant of Venice : Trial for a pound of flesh Act IV – Scene I

UNIT II - Roman Plays

3. Antony and Cleopatra : Terrifying moments of Titanic Love Act V Scene II
4. Julius Caesar : Funeral oration Act III Scene II & III

UNIT III – Tragedy plays

5. Macbeth : He kills sleep Act I, Scene VII & Act II Scene II
6. Othello : When the moor kills so good a wife:ActV Scene II

UNIT IV – Grammar

1. Sentence Improvement
2. Sentence Arrangement
3. Sentence Completion

UNIT V – Composition

1. E-Mail & Fax
2. Filling a bank challan
3. Attending Interview

Text book(s)

1. Moorthy.N and V.Amardeep ((Eds.). English for Enrichment III. Chennai: New Century Book House, 2018.

Reference Books

1. Nesfield. J.C. Manual of English Grammar and Composition. Delhi: Surjeet Publications, 2010.
2. Shakespeare, William. Greatest Collections of William Shakespeare. Delhi: Black Rose Publications, 2005.

Course Title: Mechanics

Semester: III

Course Code : 17UMAC31

Part : III

Contact Hours /Week : 6

Credits : 5

OBJECTIVE

To learn the various mathematical concepts involved in statics and Dynamics. Understanding parallelogram law of forces like and unlike parallel forces and to study about the projectiles, central orbits.

UNIT I

Forces acting at a point – Resultant and components– Parallelogram law of forces – Triangle law of forces – Converse of triangle law of forces – Lami’s theorem. Resolution of a force – Theorems on resolved parts – Resultant of any number of coplanar forces – Condition of equilibrium.

UNIT II

Forces acting on a rigid body Parallel forces (like and unlike)- Moment of a force- Varignon’s theorem.

UNIT III

Projectiles – Path of a Projectile – Maximum height – Time taken by a particle – Time of flight – Horizontal range – simple problems. Range on an inclined plane.

UNIT IV

Impact– Laws of Impact – Impact in a fixed plane. Direct and Oblique impact.

UNIT V

Central orbits Components of velocity and Acceleration along and perpendicular to the radius vector – Differential equation of a central orbit – Pedal equation.

TEXT BOOKS

1. Venkatraman. M.K., (2010), Statics, 10th edition, AgasthiarPublication,Trichy .
2. Venkatraman.M.K., (2009), Dynamics,11th Edition,Agasthiar Publication,Trichy.

REFERENCE BOOKS

1. Durai Pandian.P, Laxmi Durai Pandian.P, Muthamizh Jayaprakash,(2014),
Mechanic,S.Chand& Company Pvt. Ltd , Chennai,
2. Venkatachalapathy.S.G, (2003), Mechanics,MarghanPublication , Chennai,.
3. Vittal.P.R & Malini.V, (2011), Statics,MarghanPublication, Chennai.

Course Title: Electricity and Electronics

Semester : III

Course Code: 17UPHA31

Part : III

Contact Hours /Week : 4

Credits : 4

OBJECTIVES:

To enable the learners to understand

- Gauss' law in electrostatics, Electric field and electric potential, Principle of Capacitor and types of capacitors
- Kirchhoff's laws in electricity, Whetstone's bridge and its application, potentiometer and its applications
- Mirror galvanometer, dead beat , ballistic galvanometer, LCR series and parallel circuits
- PN junction diode, transistor, single stage amplifier, oscillators and OP-AMP characteristics
- Number system, basic logic gates, De Morgans' theorems, Boolean algebra

Unit: I

Gauss law - proof- Applications - Field due to a charged sphere and an infinite plane sheet - Field near a charged conducting cylinder - Coloumb's theorem - Electronic potential - Relation between potential and field - Capacitors - Expression for C of parallel plate spherical (outer sphere earthed) and cylindrical capacitors - Energy of charged capacitor - Loss of energy due to sharing of charges.

Unit: II

Kirchhoff's laws'- application of Wheatstone's network - sensitiveness of bridge - Carey Foster Bridge -.Measurement of resistance and temperature Coefficient of resistance – principle of potentiometer - Calibration of ammeter and voltmeter - low and high range - measurement of resistance using potentiometer.

Unit: III

Torque on a current loop - mirror galvanometer, dead beat and ballistic - current sensitiveness - voltage sensitiveness - B.G theory - damping correction - experiments for charge sensitiveness - comparison of emfs and comparison of capacitors. Electro motive force generated in a coil rotating in a uniform magnetic field - R.M.S and mean values - L.C.R circuit -impedances - Series and Parallel resonant circuits - Power factor - Wattless current – Choke

Unit: IV

Junction diodes - Forward and Reverse bias - Diode characteristics - Types of diodes - (LED and Zener) Bridge rectifier using junction - II filter - Transistors - Characteristics (CE modes only) - Biasing and action of a single transistor (CE) amplifier - frequency response - Hartley oscillator - Modulation (qualitative study) - OP AMP and its characteristics - virtual earth - voltage amplifier in inverting mode - Op Amp as adder and Subtractor.

Unit: V

Binary number system - reason for using binary numbers - binary to decimal and decimal to binary conversions - addition and subtraction of binary numbers - Logic circuits - Boolean algebra - De Morgan's theorem - OR, AND ,NOT, NOR and NAND Gates - NOR and NAND gates as universal building blocks - Ex-OR gates.

Text Book:

1. R.Murugesan, Electricity and Electronics, Shantha Publications, Madurai, 2008

Reference Book(s):

1. Gupta S.L. and Kumar, Hand book of Electronics, Pragati Prakashan, 1973.
2. Virendra Kumar, Digital technology Principles and practices, New Age Intl. 1996.
3. John D. Ryder- Electronic, fundamentals and applications, Prentice Hall, 1971.
4. Malvino, Electronic principles, Tata McGraw Hill, Ed., 1995.

Course Title: Programming in C

Semester : III

Course Code: 17UMAA31

Part : III

Contact Hours /Week : 4

Credits : 4

OBJECTIVE

The aim of this course is to enable the student to acquire knowledge in C language and to understand the basic concept of programming. Also to emphasize the significance of programming and practice them to write the programme.

UNIT I

Overview of C: History of C- Important of C- Basic structure of C-Programming style- Constants, variables and data types-declaration of variables, storage class-defining symbolic constants-declaring a variable as constants, Volatile-Overflow and under flow of data. Operators and Expression -Evaluation of expression-precedence of arithmetic operators-Type conversion in expression-operator precedence and associativity-mathematical functions- Managing I/O operations: Reading and Writing a character- Formatted input output.

UNIT II

Decision making and branching: if statement, if...else statement, Nesting of if...else statement-else if ladder-switch statement-the scope resolution operator-goto statement-the while statement-do statement-the for statement.

UNIT III

Arrays; one dimensional array-Declaration, Initialization-two dimensional array- Multidimensional array-dynamic arrays-initializations. Strings: declaration,- initialization of string variables- reading and writing string- arithmetic operations on strings- putting strings together- comparison- string handling function.

UNIT IV

User defined functions: Elements of user defined function-definition-return values and their types-function calls, declaration, category-all types of arguments and return values-nesting of functions-recursion-passing arrays, strings to functions-scope visibility and life time of

variables. Structure members- initialization-copying and comparing-operations on individual members-arrays of structures-arrays within structures-Structures within structures-Structures and functions –union-size of structures.

UNIT V

Pointers: accessing the address of a variable-declaring, initialization of pointer variables-accessing a variable through its pointers and arrays-pointers and characters strings-simple programs. Files defining, opening, closing a file. I/O Operations on files-error handling during I/O Operations -command line arguments.

TEXT BOOK

1. Balagurusamy.E, (2007),PROGRAMMING IN ANSI C Tata McGraw Hill publishing company,Fourth Edition, New Delhi.

REFERENCE BOOKS

1. Ananthi Sheshasaayee, J.G.Sheshasaayee , (2012),PROGRAMMING LANGUAGE C WITH PRACTIALS” , Margham publications, Chennai
2. Gottfried, (2013), PROGRAMMING WITH C (Schuman’s outline series), Tata McGraw Hill Publishing company limited, New Delhi .
3. Pandiyaraja.P, , (2005),PROGRAMMING in C, viswanathan.S, printers & publishers pvt.Ltd, Chennai.

Course Title: goe;jkp;o; ,yf;fpaKk; ciueilAk;;

Semester : IV

Course Code: 17UTAL41

Part: I

Contact Hours /Week : 6

Credits : 3

Nehf;fk;

goikf;Fg; goikaha; Gjikf;Fg; Gjikaha; ,d;wsTk; nrk;khe;J epw;Fk;
rq;f ,yf;fpaj;ij mwpKfk; nra;jy;> jkpo; nkhopapd; rpwg;Gf;fis czh;j;Jk; ,yf;fpaf;
fl;Liu fis vLj;Jiu;j;jy;> goe;jkpo; kf;fspd; tho;f;ifg; ngl;lfkhd nghUs; ,yf;fzj;ij
czh;j;Jjy;.

gad;

nrt;tpay; nkhopahd jkpo;nkhopapd; njhd;ikapid mwpe;J nfhs;Sjy;>
ePjp ,yf;fpaq;fspd; top khzth;fSf;F mwf;fUj;Jf;fis czh;j;Jjy;> rq;ffhy kf;fspd;
tho;f;if Vw;wq;fSk;> cahpa gz;ghLfSk;> md;gpd; mbg;gilapy; mike;j kdpj
cwTnewpKiwfspd; topAk; khzth;fSf;Fg; goe;jkpo; gz;ghl;bd; Nkd;ikia
czur;nra;jy;> gilg;ghw;wy; jpwid tsh;j;Jjy;.

\$W – 1

FwpQ;rpg;ghl;L KOTjk; – ew;wpiz Ky;iyj;jpizg; ghly;fs; (gh.vz;. 21> 89>
99> 139> 364) – FWe;njhif kUjj;jpizg; ghly;fs; (gh.vz;. 8> 31> 46> 61>
113) lq;FWE}W jha;f;F ciuj;j gj;J (nea;jy;) mk;%tdhh; – fypj;njhif ghiyf;fyp
(gh.vz;. 9> 11) - mfehD}W (gh.vz;. 8>122) - GwehD}W (gh.vz;. 8> 86>
182> 192> 312)

\$W – 2

jpUf;Fws; xg;GwT mwpjy; (mwj;Jg;ghy;) – ehybahh; <if (mwj;Jg;ghy;) –
gonkhop ehD}W – fy;tp.

\$W – 3 ciueil (fl;Liu;j; njhFg;G)

gj;kgphpah .kh rq;f ,yf;fpaq;fspy; Rw;Wr;#oy; ghJfhg;G – Kj;ijah .M
jkpo;ehl;Lf; fhis tpisah;Lk; Nky;ehl;Lf; fhisg; NghUk; – Kj;Jf;fpUl;bd ehl;lhh;
rp. mwnewp toq;fpa mwpQh; tpj;Jthd; jkpo; – jpyftjp. ,yf;fpaj;jpy; ngz; –
=jud; vd;. mwpT mw;wq; fhf;Fk; fUtp – Kj;Jyl;Rkp tP. ,yf;fpaKk; \$j;Jk;.

\$W – 4 ,yf;fzk;

mfg;ngHUs; mfj;jpizfs; - Gwg;ngHUs; Gwj;jpizfs;

\$W – 5 ,yf;fpa tuyhWk;> gad;ghl;Lj; jkpOk;

,yf;fpa tuyhW vl;Lj;njhif -gj;Jg;ghl;L - gjpndd;fPo;fzf;F E}y;fs; -
gad;ghl;Lj; jkpo; - nghJf;fl;Liu vOJtjw;Fg; gapw;rp mspj;jy;.

ghl E}y;

1. ftpjh .tP (njh.M).> 2018> goe;jkpo; ,yf;fpaKk; ciueilAk;> epA+ nrQ;Rhp
Gf; `T]; (gp) ypl;.> nrd;id.

ghh;it E}y;fs;

1. milf;fyrhkp .vk;khh;> 2011> jkpo; ,yf;fpa tuyhW> uhrp gjpg;gfk;>
nrd;id-73.
2. NfhTpe;juhr Kjypahh; .fh.u (c.M).> 1966> ek;gpafg;ngHUs;>
jpUney;Ntypj; njd;dpe;jpa irtrpj;jhe;j E}w;gjpg;Gf;fofk; ypkpnll;>
jpUney;Ntyp-6.
3. nfskhhP];thp .v]; (njh.M).> 2017> gjpndz; fPo;fzf;F E}y;fs; %yKk;
KiwAk;> rhujh gjpg;gfk;> [p-4> rhe;jp mLf;ffk;> 3 = fpU\;zhGuk; njU>
uhag;Ngl;il> nrd;id-14.
4. rhkpehja;ah; .c.Nt (njh.M).> 1986> gj;Jg;ghl;L %yKk;
er;rpDhh;f;;fpdpaUiuAk;> jkpo; gy;fiyf;fof kWNjhd;wp mr;rfk;>
jQ;rhT+h;.

Course Title: English for Enrichment-IV

Semester : IV

Course Code: 17UENL41

Part : II

Contact Hours /Week : 6

Credits : 3

OBJECTIVES

- To teach language through Literature
- To enable students to learn and imbibe good values of life gained from Literature

Unit I

R.K. Narayan: Swami and Friends

Unit II

George Bernard Shaw: Arms and the Man

Unit III Word Power

1. Vocabulary
2. Choice of Words
3. Analogy Questions

Unit IV Art of Public speaking

1. Welcome Address
2. Presidential Address
3. Vote of Thanks

Unit V Writing Skills

1. Resume Writing
2. Group Discussion
3. Translation.

Text Book(s)

1. Narayan, R .K. Swami and Friends. Mysore: Indian Thought Publications, 2008
- Shaw, George Bernard. Arms and the Man. Delhi : UBS Publishers, 2004

For units III, IV, V: Study material would be supplied by the Department.

Course Title: Analytical geometry (3D) and Vector calculus Semester : IV

Course Code : 17UMAC41 Part : III Contact Hours /Week : 6 Credits : 5

OBJECTIVE

This course aims at providing the students with basic knowledge in three dimensional geometry and vector calculus. It enables the students to improve their analytical ability in solving geometric problems. This topics covered in this course are three dimensional coordinates, planes, straight lines, sphere, derivative of a vector concepts of gradient, divergent, curl, line integral, surface integral and volume integral.

UNIT I

The Plane - Angle between two planes - Length of the perpendicular - Bisecting plane - Distance between two planes.

UNIT II

The straight line – Symmetric form - Image of a point – Image of a line about a plane – The plane and the straight line – Angle between a plane and a straight line – Coplanar lines - Shortest distance between two lines.

UNIT III

The sphere – Equation of the sphere - Length of the tangent plane- Section of a sphere- Equation of a circle on a sphere.

UNIT IV

Vector differentiation – Gradient, divergence, Curl – Properties – Results.

UNIT V

Vector integration - Line integral - Surface integral – Volume integral Green’s theorem, Gauss theorem – Stoke’s theorem (only statement without proof) - Simple problems.

TEXT BOOK

- 1.Arumugam.S & Thangapandi Issac. A, (2011), Analytical Geometry of Three Dimensions and Vector Calculus, New Gamma Publishing House, Edition

REFERENCE BOOKS

1. Duraipandian.P, Laxmi Duraipandian.P, Muhilan.D, (2000), Analytical Geometry of Three Dimensions, Emerald Publishers Reprint.
- 2.Veerarajan.T Engineering Mathematics-II, (2014), Mc Graw Hill Publishers, New Delhi.
- 3.Manickavasagam Pillai.T.K& Narayanan.T, (2007), Analytical Geometry of Three Dimensions and Vector Calculus,Viswanathan Publishing Company, Reprint.

Course Title: Optics spectroscopy and modern physics

Semester : IV

Course Code: 17UPHA41

Part : III Contact Hours /Week : 4

Credits : 4

OBJECTIVES:

To enable the learners to understand

- Interference in thin films, Michelson's interferometer and its application, Fabry Perot interferometer and its resolution and Holography
- Theory of zone plate, comparison with convex lens and resolving power of optical instruments
- Polarisation, Huygens's explanation, wave plates and optical activity
- UV and IR Sources and Detectors and its applications, Raman effect and its applications, Doppler effect in optics and applications
- Basic ideas of types of molecular spectra and selection rules

Unit: I

Deviation produced by thin lens - Focal length of two thin lenses - In and out of contact - Cardinal points - Refraction through a thin prism - Dispersion - Dispersive power - Combination of thin prisms to produce (a) deviation without dispersion and (b) dispersion without deviation - Direct vision spectroscope - Chromatic aberration in lenses and its removal - Spherical aberration and its removal - Aplanatic surfaces - Oil immersion objective - Theory of primary and secondary rainbows .

Unit: II

Interference in thin films - Air wedge - Newton's rings (Reflected beam only) - Determination of wavelength - Jamin's interferometer , principle and use - Diffraction - theory of plane transmission grating (Normal incidence only) - Experiment to determine wavelengths .

Unit: III

Double refraction - Nicol prisms , construction ,action and uses - QWP and HWP - Optical activity (No theory) - Biot's laws - specific rotatory power - Half shade polarimeter - Determination of specific rotatory power - Fiber optics - Light propagation in fibers - Fiber optic communication system .

Unit: IV

Infra red radiations - production , properties and uses - Ultra violet radiations , sources , properties and uses - Quantum theory - Planck's quantum theory - Raman effect - Simple theory experimental study (Wood's apparatus) - Application - Photoelectricity - Laws of photoelectricity - Einstein's equation - Photocells and their uses , photoemissive , photoconductive and photovoltaic cells .

Unit: V

De Broglie's theory - Electron diffraction - G.P. Thomson's experiment - Michelson Morely's experiment - Significance of negative result - Postulates of special theory of relativity - Lorentz transformations equations (No derivation) - Length contraction - Time dilation - Variation of mass with velocity and mass - energy relation (Simple derivation)

Text Book(s) :

1. R. Murugesan, Optics and Spectroscopy, Vivekananda Press, Madurai 2004.

Reference Book(s):

1. Brijlal & N. Subramanyam, A text book of Optics, S. Chand 2002.

Course Title: Programming in C ++

Semester: IV

Course Code: 17UMAA41

Part : III

Contact Hours /Week : 4

Credits : 4

OBJECTIVE

The aim of this course is to enable the student to acquire knowledge in C++ and to understand the basic concept of programming. Also to be familiar with OOP, and to have knowledge on scope and objective of software.

UNIT I

Principle of object oriented programming-Software evolution-OOP paradigm –Basic concepts of OOP- object oriented languages-Application of OOP- Introduction to C++-Tokens-keywords-Identifiers and constants-basic data types-symbolic constants-type compatibility-Declaration-Scope resolution operator-Memory management Operator-Manipulators-type implicit conversions operators precedence and associativity-Control Structures.

UNIT II

Functions in C++-Main functions –Function Prototyping-call by reference- Return by reference-Inline function-Default arguments- Constant arguments-Function overloading-classes and objects-specifying a class-Defining member Functions-Nesting of member functions-Arrays within a class-static data members-Static Member functions-Arrays of objects-object as function arguments-Friendly functions-Returning objects.

UNIT III

Constructors-Parameterized Constructors-Multiple Constructors- Dynamic Initialization of objects-copy constructor-dynamic Constructors-Constructing two dimensional arrays-Destructors-Defining Operator overloading-Overloading Unary operators, Binary operators-Overloading operators using friends-Manipulation of strings using operators-Rules-Types conversion.

UNIT IV

Inheritance-Single Inheritance-Multilevel, multiple, Hierarchical. Inheritance-Hybrid Inheritance-Virtual Base classes-Abstract class-Constructors in Derived class- Nesting of

classes-Pointers to objects- this pointers to Derived class- Virtual functions-Pure virtual functions.

UNIT V

Managing console I/O operation –Unformatted and formatted console I/O operations-managing Output with manipulators-Working with files- classes of file stream objects-Operating and closing a file- End of file Detections-File pointers and their manipulations. Error Handling During file Operations-Command line Arguments.

TEXT BOOK

- 1.Balagurusamy.E , (2007) ,Object Oriented Programming With C++ , TataMc Graw Hill
Third Edition, New Delhi .

REFERENCE BOOKS

- 1.Ananthi Sheshasaayee, SheshasaayeeG.,Margham , (2006),OBJECT ORIENTED PROGRAMMING WITH C++, Margham Publications,Chennai.
- 2.EdwinDayanand.I,Selvakumar.R.K,(2000) ,C++ Programming, N. V. Publications, Pollachi.
3. Radha Ganesan.P , (2002),PROGRAMMING WITH C++,,SCITECH publications, Chennai.

Course Title: Ancillary Physics Practicals - II

Semester : IV

Course Code : 17UPHA4P

Part : III

Contact Hours /Week : 2

Credits : 1

LIST OF PRACTICALS:

1. LCR - Parallel Resonance Circuit
2. Junction diode characteristics
3. Hartley Oscillator
4. Determination of R - Newton's Rings
5. AND , OR , NOT - Truth Table Verification - Logic Gates - Discrete Components
6. n and λ by Normal Incidence - Spectrometer
7. Thickness of a wire - Air wedge
8. Dispersive power of prism – Spectrometer
9. π Filter - Bridge Rectifier
10. LCR – Series Resonance Circuit
11. Comparison of Capacitances - De Sauty's Bridge
12. Zener diode characteristics & break down voltage

Course Title: Programming in C and C++ Practical

Semester : II

Course Code: 17UMAA4P

Part: IV

Contact Hours /Week: 2

Credits: 2

OBJECTIVE

Computer lab course aims to provide strong logical thinking and free syntax codes writing, to the debugging techniques and to present the results in neat form in C& C++ language.

List of programs for Practical examination

The Question Paper will consist of TWO parts – Part A and Part B. Each part will consist of 2 questions from the list of Programs in C&C++. Students are asked to answer any TWO choosing at least one from each part. Each question will carry 30 marks.

C- Practical list:

1. Write a C Program to calculate Simple interest and compound interest.
2. Write a C Program to calculate Salesman's Commission problem using if ..else operator.
3. Write a C Program for finding the roots of the quadratic equation using if –else statement
4. Write a C Program for Testing a given number is a prime or not .
5. Write a C Program for finding a sine value or cosine value
6. Write a C Program for finding the sum of two matrices.
7. Write a C Program for finding the product of two matrices.
8. Write a C Program for Arranging the given numbers in ascending order.
9. Write a C Program for Arranging the given names in alphabetical order.
10. Write a C Program to Find the number of words and characters in a given text.
11. Write a C Program to check whether a given string is a palindrome or not.
12. Write a C Program to create a student file using fwrite statement.

C++ Practical test

1. Write a C++ Program to find the simple interest
2. Write a C++ Program to convert the given Temperature in Fahrenheit into Celsius.
3. Write a C++ Program to find the large number by using nesting of member function.
4. Write a C++ Program to find the variance and standard deviation for given n numbers.
5. Write a C++ Program to display the following output.

```
          1
        2   2
       3   3   3
```

6. Write a C++ Program to add two complex numbers by using operator Overloading.
7. Write a C++ Program for unary minus operator.
8. Write a C++ Program to illustrate the Friend function.
9. Write a C++ Program for creating employee details using single inheritance.
10. Write a C++ Program to print EB bill

Course Title: Real Analysis

Semester : V

Course Code: 17UMAC51

Part: III

Contact Hours /Week: 5

Credits : 5

OBJECTIVES

To give a comprehensive idea about the underlying principles of real analysis and to enable the students to have a good foundation in sequences and series.

UNIT I

Countable and uncountable sets-Holder's and Minkowski's inequalities - Metric space-Definition and examples-Open sets and closed sets (Definitions and examples only).

UNIT II

Completeness- Definitions and examples-Cantor's intersection theorem and Baire's category theorem.

UNIT III

Continuity-Definitions and examples-Homeomorphism-Uniform continuity.

UNIT IV

Connected-Definitions and examples-Connected subsets of \mathbb{R} -Connectedness and continuity-Intermediate value theorem.

UNIT V

Compactness-Definition and examples- Compact subsets of \mathbb{R} -Equivalent Characterizations of compactness.

TEXT BOOK:

1. Dr.S.Arumugam, (2005),Modern Analysis ,New Gamma publications, Palayamkottai

REFERENCE BOOKS:

1. Shanti Narayanan, (2014), Elements of Real Analysis S.Chand & CO (PVT) LTD, Delhi.
2. Richard Goldsberg ,(1964),Oxford & IBH Publishing CO .PVT. LTD, New Delhi.
- 3.Brahmanand ,B.S.Tyagi &R.L.Gupta (2000) Analysis, Shalini Prakashan Meerut

Course Title: Differential Equations	Semester : V
Course Code: 17UMAC52 Part: III Contact Hours /Week: 5	Credits : 5

OBJECTIVES

To help students to develop skills and knowledge of standard concepts in differential equations and to create an interest in problem solving.

UNIT I

Exact differential equations - differential equations of first order but of higher degree- Equations solvable for p- Equations solvable-for x- Equations solvable-for y-Clairaut's form Linear Equations with constant coefficients

UNIT II

Linear Equations with variable coefficients - Equations reducible to the linear homogeneous equations -Linear equations of the second order –Complete solution given a known integral

UNIT III

Reduction to the normal form- Change of independent variables- Variation of parameters -Simultaneous differential equations-First order and first degree .

UNIT IV

Solutions of $\frac{dx}{X} = \frac{dy}{Y} = \frac{dz}{Z}$ -Partial differential equations of the first order-Derivation of partial differential equations-Lagrange method of solving linear equations.

UNIT V

Standard forms-equations reducible to the standard forms-Charpits method.

TEXT BOOK:

1. T.K. ManickaVasagamPillai and S.Narayanan (2011),.Differential equations and its applications, S.Viswanathan Publications, Chennai

REFERENCE BOOKS

1. Dr. S.Arumugam (2008),Differential equations and Application, New Gamma Publications. Palayamkottai
2. Dr.M.B.K.Moorthy, K.Senthilvadivu,P Mahendran(2006), Engineering Mathematics ,VRB publishers pvt Ltd, Chennai.
3. Dr.A.Singaravelu,(2009), Engineering Mathematics–I, Meenakshi Agency,Chennai.

Course Title: Modern Algebra

Semester : V

Course Code: 17UMAC53

Part: III

Contact Hours /Week: 6

Credits : 5

OBJECTIVES

To have basic concept of groups, types of groups, Rings and to make the students familiar with discrete structure.

UNIT I

(Functions and Relations – Groups Basics Not for semester) - Subgroups- Definitions, Examples- Theorems on Subgroups- Permutation Groups- Cycles and Transpositions- Even Permutations- Theorems on Permutations - S_n and A_n - Cyclic Groups- Definitions, Examples, Theorems- Order of an element- Generators- Number of Generators of cyclic groups.

UNIT II

Cosets- Theorems on cosets, Lagrange's theorem, Problems using Lagrange's theorem- Euler's, Fermat's Theorems- Normal Subgroups- Theorems on Normal subgroups- Quotient group.

UNIT III

Homomorphisms- Types and examples- Theorems on Homomorphisms- Isomorphisms- Fundamental theorem of Homomorphisms- Any infinite cyclic group is isomorphic to $(\mathbb{Z}, +)$ - Any finite group is isomorphic to $(\mathbb{Z}_n, +)$ - Cayley's theorem.

UNIT IV

Rings- Definition and examples- Elementary properties- Isomorphism- Types of Rings- Integral Domains, Fields- Zero divisors- Theorems on Integral Domains and fields, Characteristic of a Ring.

UNIT-V

Subrings- Ideals- Quotient rings- maximal and prime ideals- Field of Quotient of an Integral Domain.

TEXT BOOK

1. Dr.S.Arumugam and A.T.Isacc (2008),Modern Algebra,Scitech Publications.

REFERENCE BOOKS

1. S.G.venkatachalapathy (2011),Modern Algebra,MARGHAM PUBLICATIONS,Chennai
2. Surjeet Singh (eight edition), Modern Algebra, Qazi Zameeruddin VIKAS – publishing house Pvt- Ltd.
3. Paul B. Garrett (2009) , Abstract Algebra ,Chapman &hall ICRC Taylor & Francis Group.
4. John .B. Fraleigh (2003), A first course in Abstract Algebra , Dorling Kindersely (India) Pvt. Ltd.

Course Title: Fuzzy Sets

Semester : V

Course Code: 17UMAE51

Part: III

Contact Hours /Week: 5

Credits : 4

OBJECTIVES

- On the successful completion of the course, students will be able to
- Understand the concept of uncertainty and fuzziness. Analyze fuzzy relations.
- Practice fuzzy arithmetic and construction of fuzzy sets.

UNIT – I

Fuzzy Set: Introduction- Visual basic types – basic concepts – Fuzzy sets verses crisp sets: - Additional properties of α - Cuts – Representation of Fuzzy sets – Extension Principle for fuzzy sets.

UNIT- II

Operation on Fuzzy Sets: Types of Operations – Fuzzy Complements – Fuzzy intersections – fuzzy Unions – Combination of operations.

UNIT –III

Fuzzy arithmetic – Fuzzy numbers – linguistic variables – arithmetic operations on intervals – arithmetic operations on Fuzzy numbers – lattice of Fuzzy numbers – Fuzzy equations.

UNIT – IV

Fuzzy relations – binary Fuzzy relations – binary relation on a single set –Fuzzy equivalence relation - Fuzzy ordering relation.

UNIT - V

Constructing Fuzzy sets – method of construction- direct method with one expert - direct method with multiple expert – indirect method with one expert – constructions from sample data – Lagrange interpolation – least square curve fitting.

Text Book:

1. George J. Klir and Bo Yuan, 2005, Fuzzy Sets and Fuzzy Logic Theory and Applications, Prentice - Hall of India.

References Books:

1. Ganesh .M ,2010, Introduction to Fuzzy Sets and Fuzzy Logic , Prentice - Hall of India.
2. Pundir.pundir, 2008, Fuzzy sets and their applications, pragathi edition.
3. H.J. Zimmermann, 1996, Fuzzy sets theory, Allied Publishers limited, New Delhi

Course Title: Graph Theory

Semester : V

Course Code: 17UMAE52

Part: III

Contact Hours /Week: 5

Credits : 4

OBJECTIVES

The objective of this course is to introduce the fundamentals of Graph theory and enable the students to acquire the general techniques of the subject and apply graph theory to solve real life problems.

Unit I

Graphs – Definition and Examples – Degrees – Subgraphs – Isomorphism – Ramsey Numbers – Independent Sets and Coverings – Intersection Graphs and Line Graphs –Operations on Graphs.

Unit II

Walks , Trails and Paths – Connectedness and Components – Blocks – Connectivity – Matrices associated with the graph.

Unit III

Trees –Characterisation of Trees – Centre of a Tree – Matchings – Matchings in Bipartite Graphs.

Unit IV

Eulerian Graphs – Hamiltonian Graphs – Planar graphs-Definition and Properties – Characterization of Planar Graphs.

Unit V

Chromatic Number and Chromatic Index – The five colour theorem – Four Color Problem – Chromatic Polynomials.

TEXT BOOK:

1. Arumugam.S and Ramachandran.S (2008), Invitation to Graph Theory – Scitech Publications, Chennai-17.

REFERENCE BOOKS :

1. Choudam.S.A, (1999) A First Course in Graph Theory, Macmillan India limited, New Delhi.
- 2.Kumaravelu.S, Mrs.Susila Kumaravelu,(1999),Graph Theory, SKV Publications, Nagar Koil.
3. Murugan.M, (2000),Graph Theory and Algorithms,Muthali Publishing House, Chennai.

Course Title: Statistics -I

Semester: V

Course Code: 17UMAA51

Part: III

Contact Hours /Week: 5

Credits : 4

OBJECTIVES

Be familiar with basic concepts in statistics. Be able to understand and use the basic measure of central tendency. Be exposed to Correlation, Regression, Index numbers and Curve fitting.

UNIT I

Measures of averages – Measures of dispersion – Skewness based on moments.

UNIT II

Correlation and Regression – Rank Correlation Coefficient.

UNIT III

Index numbers – Simple index number-weighted index number-aggregate method-average of price relatives method and Time series.

UNIT IV

Curve fitting – principle of least square – fitting a straight line, second degree parabola-exponential curve.

UNIT V

Theory of attributes-introduction -attributes-dichotomisation-consistency –independence and association of data

TEXT BOOK

1. Dr.S.Arumugam, (2015),Statistics, New Gamma publishing house, Palayamkottai.

REFERENCE BOOKS

1. S.C.Gupta and V.K.Kapoor (2009),Fundamentals of Mathematical Statistics Sultan Chand & sons publications, New Delhi.
2. Dr. S.P. Gupta, Dr. M.P. Gupta (2010),Business Statistics, Sultan Chand & Sons Educational Publishers, New Delhi.
3. P.R. Vittal (2002), Mathematical Statistics, Margham Publications, Chennai.

Course Title: Laplace transforms and Fourier series

Semester : V

Course Code: 17UMAS51

Part: IV

Contact Hours /Week: 2

Credits : 2

OBJECTIVES

An understanding of Fourier series and Laplace Transform to solve real world problems. To be thorough with applications of Laplace transforms, particularly solving differential equation. .

Unit I

Laplace Transforms-Theorems-Problems-Evaluation of integrals.

Unit II

Inverse Laplace Transforms-Results.

Unit III

Solving ordinary differential equation with constant coefficient and variable coefficients-simultaneous linear equations using Laplace Transforms.

Unit IV

Fourier Series- Trigonometric series- Even and odd functions.

Unit V

Half range Fourier Series – extension to intervals of length 2π .

TEXT BOOKS

1. T.K. ManickaVasagam Pillai and S.Narayanan (1996) “Differential equations and its applications” S.Viswanathan Publications, Chennai.
2. S. Arumugam & Issac (2002) “Ancillary Mathematics volume 3” New gamma publications, Palayamkottai.

REFERENCE BOOKS

1. Dr.S.Arumugam (2008) “Differential equations and its applications”,
New Gamma Publishing house, Palayamkottai.
2. Dr. Balaji (2015), “Transform and Partial Differential Equation”, Balaji
Publications, Chennai.
3. Dr. A. Singalarvelu, (2013) “Engineering Mathematics – III”, Meenakshi
Publications, Chennai.

Course Title: Complex Analysis

Semester: VI

Course Code: 17UMAC61

Part: III

Contact Hours /Week: 5

Credits: 5

OBJECTIVES

To illuminate problem solving ability at various level and to introduce the concept about the elementary transformations and contour integrations.

UNIT I

Analytic function- C.R equations- Sufficient conditions- Harmonic functions.

UNIT II

Elementary Transformation- Bilinear Transformation- Cross ratio- fixed points- Special Bilinear Transformation- Real axis to axis- Unit circle to unit circle and real axis to unit circle only.

UNIT III

Cauchy's Fundamental theorem- Cauchy's integral formulae and formulae for derivatives- Morera's theorem- Cauchy's inequality- Liouville's theorem- Fundamental theorem of algebra.

UNIT IV

Taylor's theorem, Laurent's theorem- singular points- Poles- Calculus of residues – Cauchy's residue theorem-Argument principle-. Rouché's theorem-

UNIT V

Evaluation of definite integral- Type 1: $\int_0^{2\pi} f(z) dz$, Type 2: $\int_{-\infty}^{\infty} f(x) dx$ - No poles lies on the real axis, Type 3: $\int_{-\infty}^{\infty} \frac{g(x) \cos ax}{h(x)} dx$ or $\int_{-\infty}^{\infty} \frac{g(x) \sin ax}{h(x)} dx$ No poles lies on the real axis

TEXT BOOK

1. Dr.S.Arumugam, Thangapandi Isacc and A.Somasundaram. (2003),Complex Analysis, Sci tech publications(India) Pvt. LTd., Chennai

REFERENCE BOOKS

1. Shanti Narayan,Dr.P.K.Mittal ,(2011),Theory of functions of a complex variable,S.Chand & company,New Delhi.
2. P.Duraipandian,Laxmi duraipandian ,D.Muhilan(2001),Complex Analysis Emerald Publishers, Chennai
3. T. K .Manicavachagam Pillai, Dr.S.P.Rajagopalan,Dr.R.Sattanathan,S.Viswanathan, (2007), Complex Analysis,,S.viswanathan ,Chennai

Course Title: Operations Research

Semester: VI

Course Code: 17UMAC62

Part: III

Contact Hours /Week: 5

Credits : 5

OBJECTIVES

To best on the concept of L.P.P , graphical methods and get on interest in modern concept of Operations Research.

UNIT I

Origin and development of operations research – Nature and features of operations research – Scientific method in operations research – Modeling in operations research – Advantages and limitations of models – Mathematical formulation of L.P.P – Graphical method – Simplex method.

UNIT II

Artificial variables – Big-M-method – Two-Phase method – Application of simplex method – Duality in L.P.P – Dual simplex method – Degeneracy and cycling.

UNIT III

Transportation problem- Mathematical formula of Transportation Problem – Degeneracy in Transportation problem – Mathematical formulation of Assignment problem – Solution to Assignment Problem – the travelling sales man problem.

UNIT IV

Games theory – Two person zero sum – saddle point – Game with saddle point – solution of game by using formula, graphical method, method of dominance and L.P.P. method.

UNIT V

Problem of sequences – Basic terms used in sequencing – Processing n jobs through two machines – processing n jobs through k machines – Processing 2 jobs through k machines .Replacement problem-introduction- replacement policy when value of money does not change with time

TEXT BOOK

1. Kantiswarup, P.K. Gupta and Manmohan, (2011), Operations Research, Sultan Chand & Sons Educational Publishers, New Delhi.

REFERENCE BOOKS

1. R.PaneerSelvam, (2006), Operations Research ,Prentice Hall of India Private limited,New Delhi
- 2 Dr.S.Arumugam &Mr. A.Thangapandi Issac,(2010), Topics in Operations Research Linear Programming New Gamma Publishing House ,Palayamkottai
- 3 A.M.Natarajan ,P.Balasubramani ,A.Tamilarasi ,(2006), Operations Research, Pearson, Delhi

Course Title: linear Algebra

Semester : VI

Course Code: 17UMAC63

Part: III

Contact Hours /Week: 6

Credits : 5

OBJECTIVES

This Course aims at providing the Students with basic concepts of Vector spaces, Inner products spaces , Linear transformations and to enable Students to attain skills to participate in mathematical competitions and competitive examinations.

UNIT I

Vector Spaces : Definition and examples – subspaces – Linear transformation span of a set - Linear independence – Linear dependence.

UNIT II

Basis and Dimension – Rank and Nullity – Matrix of a linear transformation

UNIT III

Inner Product Spaces : Introduction - Definition and examples – Orthogonality – Orthogonal Complements

UNIT IV

Theory of Matrices: Introduction – Algebra of matrices – Types of matrices – The Inverse of a matrix – Elementary transformations - Rank of a matrix – Simultaneous linear equations.

UNIT V

Characteristic equation and Cayley Hamilton theorem – Eigen values and Eigen vectors - Bilinear forms - Introduction – Bilinear forms – Quadratic forms

TEXT BOOK :

1.S.Arumugam & Issac (2008),Modern Algebra, Scitech PublicationChennai

REFERENCE BOOKS

1.V. Krishna Moorthy ,V.P.Manira,. Introduction to Linear Algebra, J.L Arora Affiliated East - West Press Pvt Ltd

2.Ward Cheney,David Kincaid,(2010) , Linear algebra (Theory and application) Jones & Barttet publishers India Pvt .Ltd.

3.Pramode kumar (2009),Linear algebra Dorling Kindersely (India) Pvt. Ltd.

4.Jimmie Gilbert & Linda Gilbert Elsevier (reprint 2010) , Linear Algebra & matrix theory , – a division of Read Elsevier Pvt. Ltd.

Course Title: Numerical Methods

Semester : VI

Course Code: 17UMAE61

Part: III

Contact Hours /Week: 5

Credits : 4

OBJECTIVES

The aim of this course is to enable the students to acquire basic tools in numerical methods for solving Algebraic and Transcendental Equation, system of linear equation and ordinary differential equations and includes interpolation, numerical differentiation and numerical integration

Unit I

Numerical Solution of Algebraic and Transcendental Equation – Iteration Method-Newton – Raphson Method – Method of False Position - Solution of Simultaneous Linear Equation – Gauss Iteration Method-Gauss Seidel Method

Unit II

Finite Differences-Forward Differences - Backward Differences - Operators - Relation-Properties - Finding Missing Terms - Inverse Operators- Factorial Notation

Unit III

Interpolation - Newton's Forward and Backward Formulae - Divided Differences and their properties - Newton's Divided Difference Formula - Gauss's Formula – Stirling's Formula - Bessel's Formula - Laplace – Everett's formula – Lagrange's Formula - Simple problems.

Unit IV

Numerical differentiation – Finding the first and second order derivatives - Maximum and Minimum value of a function for the given data.

Unit V

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

TEXT BOOK:

1. Arumugam.S ,Thangapandi Issac.A and Somasundaram.A (2002), Numerical Methods, Scitech Publications (India) Pvt. LTd., Chennai.

REFERENCE BOOKS:

1. Kandasamy.P, Thilagavathy.K,Gunavathy.K ,(2012), Numerical Methods, S.Chand & sons company, New Delhi
2. Jain.M.K., Iyengar. S.R.K and Jain. R.K., (2012), Numerical Methods for Science and Engineering Computations 6th edition, New Age international Publishers
3. Singaravelu.A, (2009), Numerical Methods, Meenakshi Agency, Chennai.

Course Title: Combinatorics

Semester : VI

Course Code: 17UMAE62

Part: III

Contact Hours /Week: 5

Credits : 4

OBJECTIVES

- On the successful completion of the course, students will be able to
- To Understand the important concepts of contemporary Combinatorics.
- To Find the way to count the number of ways in more than one way.
- Solve enumeration problems using combinatorial techniques.

UNIT– I

The Sum Rule and the Product Rule - The Pigeonhole Principle - Solved Problems on The Sum Rule and the Product Rule - Solved Problems on The Pigeonhole Principle.

UNIT II

Permutations and Combinations -Solved Problems on Permutations and Combinations.

UNIT– III

Generalized Permutations and Combinations - The Inclusion - Exclusion Principle - Solved Problems on Generalized Permutations and Combinations - Solved Problems on The Inclusion-Exclusion Principle - Solved Problems on Generalized Inclusion-Exclusion Principle.

UNIT– IV

Ordinary and Exponential Generating Functions - Solved Problems on Ordinary Generating Functions - Solved Problems on Exponential Generating Functions.

UNIT – V

Recurrence Relations- Solved Problems on Recurrence Relations and Associated Generating Functions.

Text book:

1. Balakrishnan. V.K., 1995, Theory and Problems of Combinatorics, Schaum's Outline Series, Mc Grow – Hil, Inc.

Reference Books:

1. V. Krishnamurthy, 2000, Combinatorics Theory and Applications, East West Press.
2. Alan Tucker, 2002, Combinatorics Wiley Publishers.
3. Rosen Kenneth, 2007, Discrete Mathematics and its Applications, 6th Edition International Edition, Mc Grow Hill.

Course Title: Statistics -II

Semester : VI

Course Code: 17UMAA61

Part: III

Contact Hours /Week: 5

Credits : 4

OBJECTIVES

Understand difference between subjective, relative frequency and classical probabilities and be able to identify which approach was used to assign a probability in a given scenario. Use the standard Normal table to find probability /proportion/percentage of observation values. Be able to identify which confidence interval would be most appropriate to apply to a given study.

UNIT I

Theory of Probability- Sample Space- Probability function - Laws of Addition -
Boole's inequality- Law of multiplication- Baye's theorem-Problems.

UNIT II

Random Variables - Distribution function – Discrete and continuous random variables -
Probability density function-Mathematical Expectation (One dimensional only)

UNIT III

Moment generating function- Cumulants - theoretical distributions – Binomial –Poisson -
Normal.

UNIT IV

Test of Significance of Large samples – Tests for proportion or percentage – Test for equality of means – Test for standard deviations – Test for correlation.

UNIT V

Test of Significance of small samples –Test of significance based on t- distribution-Test of significance based on F-test –Test based on Chi-square distribution.

TEXT BOOK

1. Dr.S.Arumugam, (2015), Statistics, New Gamma publishing house,
Palayamkottai.

REFERENCE BOOKS

- 1.S.C.Gupta and V.K.Kapoor (2009) ,Fundamentals of Mathematical Statistics
Sultan Chand & sons publications, New Delhi.
2. Dr. S.P. Gupta, Dr. M.P. Gupta (2010),Business Statistics, Sultan Chand &
Sons Educational Publishers, New Delhi.
3. P.R. Vittal (2002), Mathematical Statistics, Margham Publications, Chennai.

Course Title: Boolean Algebra and Logic

Semester : VI

Course Code: 17UMAS61

Part: IV

Contact Hours /Week: 2

Credits : 2

OBJECTIVES

To introduce skill based papers like propositional calculus Tautologies and logical equivalence and to enable the students to have a good foundation in logical reasoning and logical circuits

Unit I

Propositional Calculus Statements, Basic operations-Truth value of compound Statements-Propositions and Truth tables.

Unit II

Tautologies and contradictions-Logical equivalence-Negation-DeMorgan's Laws-Algebra of propositions-conditionals, $p \rightarrow q$.

Unit III

Biconditional $p \leftrightarrow q$. Arguments and statements-Logical Implication-Quantifiers.

Unit IV

Boolean Algebra, Logic Gates:Basic definitions and theorems-order and Boolean Algebras-Boolean Expressions, sum of-products form.

Unit V

Logic gates-Logic circuits-Minimal Boolean Expressions, Prime implicants-Karnaugh maps-Minimal AND-OR circuits.

TEXT BOOK

1.Seymour Lipschutz, Marcs Lars Lipson, Schaum's series,(2007),Discrete Mathematics, McGraw-Hill, New Delhi.

REFERENCE BOOKS

1.K. Balaji (2008) ,Discrete Mathematics, Balaji Publications, Chennai

2.Dr. A. Singaravelu (2010),Discrete Mathematics,,Meenakshi
Agency,Chennai

3.Kenneth H.Rosen (2011),Discrete Mathematics and its Applications with
Combinatorics and graph theory, Tata Mc Graw-Hill, New Delhi.