Curriculum Framework under Choice Based Credit System (CBCS) and

Syllabus for Outcome Based Education (OBE) in

B.Sc ChemistryDegree Program

for the students admitted from the academic year 2021-2022

அறிவிலே தெளிவு
அகத்திலே அண்பு

SREE SARASWATHI THYAGARAJA COLLEGE

An Autonomous, NAACRe–Accreditedwith 'A' Grade, ISO 9001:2008 CertifiedInstitution,

AffiliatedtoBharathiarUniversity,Coimbatore,ApprovedbyAICTEforMBA/MCA and by UGCfor2(f) & 12(B)status

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Approved by Academic Council

14 JUL 2021

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SREE SARASWATHI THYAGARAJA COLLEGE [AUTONOMOUS], POLLACHI

B.Sc Chemistry Degree Program PEO, PO and PSO

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

After completion of UG degree inChemistry, the graduates will be able to

PEO1:Analyze social and environmental aspects with professional values, ethics and equity to transform the knowledge, skills and expertise to the welfareof the community.

PEO2:Involve in lifelong learning to adapt educational needs in a changing world to maintain their competency and to contribute to the knowledge enhancement in a multi-disciplinary environment.

PEO3: Succeed in obtaining employment appropriate to their interest in chemistry related fields and to possess effective skills to critically assess, analyze and solve domain related problems.

PEO4: Develop in their professional career through life-long learning, higher education in their areas of interest and cater the needs of the industry/society so as to contribute for the development of the nation.

PROGRAMME OUTCOMES (POs)

The students at the completion of the programme will be able to

PO1:Demonstrate professionally the social, cultural, ethical and environmental responsibility as an individual as wellas

in multifaceted teams with positive attitude.

PO2:Adapt to sustain in emerging era and constantly upgrade skills towards independent and lifelong learning.

PO3:Communicate complex concepts with professionalism by utilizing appropriate resources and modern tools.

PO4:Acquire firm foundation in chemical principles and higher level of understanding in each of the Chemistry sub-disciplines such as organic, inorganic, physical, industrial and analytical chemistry besides gaining the rudiments of basic mathematics and physics.

PO5:Develop the working knowledge of chemical instrumentation and laboratory techniques and be able to apply skills to design and conduct independent work.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

At the completion of the programme, the students will be able to

PSO1:Apply the knowledge gained during the course of the program to identify, formulate and solve real life problems to meet the core competency with continuous up gradation.

PSO2:Apply the knowledge of ethical and management principles required to work in a team with stewardship of the society.

PSO3: Apply the contextual knowledge of chemistry to function effectively as an individual or aleader in multidisciplinary environment.

PSO4: Synthesize, compare, evaluate, classify, interrupt and effectively apply the basic laws, principles, phenomena, processes and mechanisms involved in the domain of chemistry.

PSO5: Explicitly communicate and exchange their ideas with regard to theoretical and experimental aspects, the impacts of chemistry on environment and society to the chemists and non-chemists.

Mapping the Programme Outcomes with Programme Educational Objectives

POs/PEOs	PEO1	PEO2	PEO3	PEO4
PO1	S	S	S	S
PO2	S	S	S	S
PO3	S	S	S	S
PO4	S	S	S	S
PO5	S	S	S	S

S- Strong; L- Low; M-Medium

Mapping the Programme Specific Outcomes with Programme Educational Objectives

POs/PEOs	PEO1	PEO2	PEO3	PEO4
PSO1	S	S	S	S
PSO2	S	S	S	S
PSO3	S	S	S	S
PSO4	S	S	S	S
PSO5	S	S	S	S

S- Strong; L- Low; M-Medium

Curriculum Framework under Choice Based Credit System (CBCS) and Syllabus for Outcome Based Education (OBE) in Bachelor of Science (B.Sc) degree program for the students admitted from the academic year 2021-2022

The Choice Based Credit System (CBCS) preserves the identity, autonomy and uniqueness of every programme and reinforce their efforts to be student centric in curriculum designing and skill imparting.

Choice Based Credit System (CBCS): Choice based credit system (CBCS), provides a learning platform wherein the student has the flexibility to choose their course from a list of electives, core, allied, non-major courses, value-based courses, and skill-based courses. This is a student-centric approach for learning or acquiring higher education. The curriculum with CBCS enables the students to experience their choice of courses and credits for their horizontal mobility.

For B.Sc. Chemistry programme, a student must earn 140 credits as mentioned in the below table.

Summary of Courses Pattern and Credit Distribution in Choice Based Credit System

Part	Curriculum Structure	No. of Courses	Credits to be earned
I	Languages	04	12
II	English	04	12
III	Core (Major) Courses 12+ Practical 4	16	72
	Allied Courses	05	16
	Core Electives (Choices given within core)	03	12
IV	Non-Major Electives (NME) (Choices given within Physics/ Chemistry/ Psychology/ English/ Mathematics)	02	04
	Value Based Courses (VBC)	02	04
	Skill Based Courses (SBC)	04	08
V	Extension Activities	01	Grade
Total		**45**	**140**
Extra Credit Courses	MOOC	2	4
	Professional English -I & II	2	8
Total		4	12

Part – I: Languages: Part – I comprises of Tamil/Hindi/Malayalam/French

Part – II: English: Part – II English

Part – III: Core Courses: A set of ***major papers*** that include Theory, Practical, Allied, Core Electives, in the major field of study selected by the student. Core courses are mandatory in nature.

Part – IV: Non - Major Electives (NME): A set of non – major elective courses that are offered as choices of the students. outside of their major discipline. The courses other than the core and allied shall be opted by the students as Non – Major Elective.

Value Based Courses (VBC): Courses offered on cross-cutting issues relevant to the current pressing concerns both nationally and internationally such as gender, environment and sustainability, human values and professional ethics, development of creative and divergent competencies.

Skill Based Courses (SBC): The courses offered as skill - based courses under Part IV of the programme are aimed at imparting Advanced Skill to the students. This comprises of four courses from 3rd to 6th semesters.

Massive Open Online Courses (MOOC): According to the guidelines of UGC, the students are encouraged to avail this option of enriching by enrolling themselves in the MOOC provided by various portals such as SWAYAM, NPTEL, etc. As per University Grants Commission (UGC) notification published in the gazette of India about UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2016 on 19th July 2016, the Massive Open Online Course (MOOC) through SWAYAM platform is made compulsory. The institute is transferring the credit earned through SWAYAM on receipt of MOOC's completion certificate and it shall incorporate these marks/credits in the overall mark sheet of the student.

Part – V: Extension Activities: Students shall be actively participate in the extension activities such as National Service Scheme (NSS), YOGA, Youth Red Cross (YRC), Sports, and Red Ribbon Club (RRC). Each student should take part in at-least in any one of these activities for earning.

Part		Course Code	Name of the course	Periods/ Week			Int CA	Ext End Term	Total	Credits
				L	P	T				
		Semester – I								
I	Language 1	21TAM1L10	Part – 1 Languages	5			50	50	**100**	3
II	English	22GEN1L10	Communicative English	5			50	50	**100**	3
III	Core1	18BCH1C10	Inorganic Organic and Physical Chemistry –I	5			50	50	**100**	4
III	Core2	19BCH1C20	Industrial Chemistry	4			50	50	**100**	4
III	Allied 1	18BPHGAA1	Allied Physics-I	4			30	45	**75**	3
III	Core	18BCH2C31	Core Practical –I Inorganic Qualitative analysis of salt mixture		3					
III	Allied	18BPHGAC0	Allied lab- physics practical	2						
IV	VBC1	18DHE1V10	Environmental Sciences	2			50		50	2
IV	ECC	20GEN1Z10	Professional English for physical sciences – I	4*			50	50	100	4*
			Total for semester – I	30+4*			330	295	625+ 100*	19+4*
		Semester – II								
I	**Language 2**	**21TAM2L20**	Part – 1 Languages	5			50	50	**100**	3
II	**English**	**22GEN2L20**	Communicative English	5			50	50	**100**	3
III	**Core3**	**18BCH2C11**	Inorganic Organic and Physical Chemistry –II	4			50	50	**100**	5
III	**Core Elective 1**	**19BCH2EA0/ 19BCH2EB0**	Nano Chemistry/ Polymer Chemistry	4			50	50	**100**	4
III	**Core 4**	**18BCH2C31**	Core Practical –I Inorganic Qualitative analysis		3		50	50	**100**	3
III	**Allied 2**	**18BPHGAB1**	Allied Physics-II	3			30	45	**75**	3
III	**Allied 3**	**18BPHGAC0**	Allied lab- physics practical	2			25	25	**50**	2
IV	**VBC2**	**18DHE2V20**	Value Education & Human Rights	2			50		**50**	2

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IV	ECC	20GEN2Z10	Professional English for physical sciences – II	4*			50	50	100	3
			Total for semester – II	**30**			**405**	**370**	**775**	**28+4***
		Semester – III		**Periods/ week**			**Int**	**Ext**	**tot**	**Credits**
				L	**P**	**T**				
I	Language 3	21TAM3L30	Part – I Languages	5			50	50	**100**	3
II	English	21GEN3L30	English – III	5			50	50	**100**	3
III	Core	18BCH3C11	Inorganic Organic and Physical Chemistry-III	5			50	50	**100**	5
III	Core	18BCH4C20	Core Practical -II Volumetric analysis, organic analysis and preparation of organic compounds		6					
III	Allied 4	21BMAGAB0/ 21BMAGAA0/ 21BMAGAT0	Basic Mathematics for Science / Applied Statistics/theory of matrics and differencial equation	5			50	50	**100**	4
IV	NME 1	21TAM3N10 21TAM3N20 19BEN3N11 19BMA3N11 19BPH3N10 19BCH3N10 19BPY3N10	A) Basic Tamil –I B) Advanced Tamil – I C) Basic English for Competitive Examinations-I D) Numerical Ability-I E) Physics of Sports F) Chemistry for Everyday life -I G) Psychology Life Skills-I	2			50	-	50	2
IV	SBC1	18BCH3S10	Green Chemistry	2			30	45	75	2
			Total for Semester – III	**30**			**280**	**245**	**525**	**21**
		Semester – IV								
I	Language 4	18TAM4L40	Part – I Languages	5			50	50	**100**	3
II	English	22GEN4L40	English – IV	5			50	50	**100**	3
III	Core 6	18BCH4C11	Inorganic Organic and Physical Chemistry –IV	5			50	50	**100**	5
III	Core 7	18BCH4C20	Core Practical -II Volumetric analysis, organic analysis and preparation of organic compounds		6		50	50	**100**	4
III	Allied 5	21BMAGAD0/ 21BMAGAE0	Numerical Methods / Operations Research	5			50	50	**100**	4

IV	NME 2	21TAM4N30 21TAM4N40 19BEN4N20 19BMA4N21 19BPH4N20 19BCH4N20 19BPY4N20	A) Basic Tamil –II B) Advanced Tamil –II C)Basic English for Competitive Examinations –II D) Numerical Ability-II E) Physics of Music F) Chemistry for Everyday life -2 G) Psychology Life Skills-II	2				50	50	2
IV	SBC 2	20BCH4S10	Medicinal Chemistry	2			30	45	75	2
			Total for Semester – IV	30			280	345	625	23
			SEMESTER-V							
III	Core 8	18BCH5C11	Inorganic Chemistry	5			50	50	100	5
III	Core 9	18BCH5C21	Organic Chemistry-I	4			50	50	100	5
III	Core 10	18BCH5C31	Physical Chemistry –I	5			50	50	100	5
III	Core Elective 2	18BCH5EA1/ 19BCH5EB0	Core Elective – II (Food Chemistry/ Forensic science)	4			50	50	100	4
III	Core Elective 3	18BCH5EC1/ 18BCH5ED1	Core Elective – III (Fuels and Energy Storing devices /Novel Inorganic Solids)	4			50	50	100	4
III	Core Lab	18BCH6C41	Core Practical -III Gravimetric analysis and Physical Chemistry Lab	6						
IV	SBC 3	19BCH5S10	Basic of Pharmaceutical Sceince	2			30	45	75	2
		Total for Semester – V		30			250	250	500	22
			Semester-VI							
III	Core 11	18BCH6C11	Physical Chemistry-II	5			50	50	100	5
III	Core 12	18BCH6C20	Organic Chemistry-II	5			50	50	100	5
III	Core 13	22BCH6C30	Spectral and analytical techniques	5			50	50	100	5
III	Core 14	19BCH6C40	Dye Chemistry	5			50	50	100	5
III	Core 15	18BCH6C41	Core Practical -III Gravimetric analysis and Physical Chemistry Lab	6			50	50	100	5
III	Core 16	18BCH6C50	Core Practical-IV Dye Chemistry Laboratory	2			25	25	50	2
IV	SBC4	18BCHGSA0	Clinical Bio-Chemistry	2			30	45	75	2
		Total for Semester – VI		30		305		320	625	29
			Grand Total			**1850**		**1825**		**142**

LIST OF PART – 1 LANGUAGE COURSES (CBCS)

S.NO.	SEMESTER	COURSE CODE	COURSE NAME
1	I	21TAM1L10	Tamil - I
2	I	21HIN1L10	Hindi - I
3	I	21MAL1L10	Malayalam - I
4	I	21FRE1L10	French - I
5	II	21TAM2L20	Tamil - II
6	II	21HIN2L20	Hindi - II
7	II	21MAL2L20	Malayalam - II
8	II	21FRE2L20	French - II
9	III	21TAM3L30	Tamil - III
10	III	21HIN3L30	Hindi - III
11	III	21MAL3L30	Malayalam - III
12	III	21FRE3L30	French - III
13	IV	21TAM4L40	Tamil - IV
14	IV	21HIN4L40	Hindi - IV
15	IV	21MAL4L40	Malayalam - IV
16	IV	21FRE4L40	French - IV

List of Core Courses:

S.No.	Semester	Course Code	Course Name
1	I	18BCH1C10	Inorganic Organic and Physical Chemistry-I
2	I	19BCH1C20	Industrial Chemistry
3	II	18BCH2C11	Inorganic Organic and Physical Chemistry-II
4	II	18BCH2C31	Inorganic Qualitative Analysis
5	III	18BCH3C11	Inorganic Organic and Physical Chemistry-III
6	IV	18BCH4C12	Inorganic Organic and Physical Chemistry-IV
7	IV	18BCH4C20	Volumetric analysis, Organic analysis and Preparation of organic compounds
8	V	18BCH5C11	Inorganic Chemistry
9	V	18BCH5C21	Organic Chemistry-I
10	V	18BCH5C31	Physical Chemistry-I
11	VI	18BCH6C11	Physical Chemistry-II
12	VI	18BCH6C20	Organic Chemistry-II
13	VI	18BCH6C30	Spectral and analytical techniques
14	VI	19BCH6C40	Dye Chemistry

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15	VI	18BCH6C41	Gravimetric analysis and Physical Chemistry Lab
16	VI	18BCH6C50	Dye Chemistry Laboratory

LIST OF ALLIED COURSES

S. NO.	COURSE CODE	COURSE NAME
	Semester – I	
1	**21BMAGAB0/ 21BMAGAA0/ 21BMAGAT0**	Basic Mathematics for Science / Applied Statistics/ theory of matrics and differencial equation
	Semester – II	
2	21BMAGAD0/ 21BMAGAE0	Numerical Methods / Operations Research
	Semester –III	
3	18BPHGAA1	Allied Physics –I
*	-18BPHGAC0	Allied Physics Practical (Annual Pattern)
	Semester –IV	
4	18BPHGAB1	Allied Physics –II
5	18BPHGAC0	Allied Physics Practical (Annual Pattern)

LIST OF SKILL BASED COURSES

S. NO.	COURSE CODE	COURSE NAME
	Semester – III, IV, V, VI	
1	18BCH3S10	Green Chemistry
2	20BCH4S10	Medicinal Chemistry
3	19BCH5S10	Basics of Pharmaceutical Science
4	18BCHGSA0	Clinical Bio-Chemistry

LIST OF VALUE BASED COURSES

S. NO.	COURSE CODE	COURSE NAME
1	18DHE1V10	Environmental Science
2	18DHE2V20	Value Education &Human Rights

Students from B. Sc. Physics/ Chemistry/ Psychology/ English/ Mathematics (other than the courses offered by their department) to choose any one of the courses from the following list of Non- major courses offered from the below departments

LIST OF NON – MAJOR ELECTIVES

S. NO.	COURSE CODE	COURSE NAME
1	21TAM3N10	Basic Tamil –I
2	21TAM3N20	Advanced Tamil – I
3	21TAM4N30	Basic Tamil –II
4	21TAM4N40	Advanced Tamil –II
5	19BEN3N11	Basic English for Competitive Examinations – I
6	19BEN4N20	Basic English for Competitive Examinations -II
7	19BMA3N11	Numerical Ability-I
8	19BMA4N21	Numerical Ability-II
9	19BPH3N10	Physics of Sports (Physics Department)
10	19BPH4N20	Physics of Music ((Physics Department)

11	19BCH3N10	Chemistry for Everyday life -1 (Chemistry Department)
12	19BCH4N20	Chemistry for Everyday life -2 (Chemistry Department)
13	19BPY3N10	Psychology Life Skills-I (Psychology Department)
14	19BPY4N20	Psychology Life Skills-II (Psychology Department)

LISTOF COREELECTIVES

S. NO.	COURSE CODE	COURSE NAME
1	18BCH2EA0	Nano Chemistry
2	18BCH2EB0	Polymer Chemistry
3	18BCH5EA2	Food Chemistry
4	18BCH5EB1	Forensic Science
5	19BCH5EC2	Fuels and Energy Storing devices
6	18BCH5ED1	Novel Inorganic Solids

LIST OF EXTENSION ACTIVITIES

S. NO.	COURSE CODE	COURSE NAME
1	18ETN5X10	NSS
2	18ETN5X20	SPORTS

SEMESTER – I

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21TAM1L10	Tamil - I	Part I Tamil Paper I	60	-	-	3

Preamble: தமிழ் இலக்கியத்தில் உள்ள நேரடித்தன்மை, நிகழ்கால சமூகஅசைவுகள், மொழிநடை ஆகியவற்றை மாணவர்கள் எளிதில் விளங்கிக் கொள்ளும் வகையில் முதல் பருவத்துக்கான பாடங்கள் தெரிவு செய்யப்பட்டுள்ளன. இன்றைய இலக்கியங்கள் தரும் படைப்பனுபவத்தின் நீட்சியாகப் பொதுக்கட்டுரைகள், கடிதம், கவிதை, சிறுகதை படைப்பதற்கான பயிற்சிகளையும் தமிழ்ப்பாடம் வழங்குகிறது.

Prerequisite:

- மேனிலைப்பள்ளி முடிய கற்றவற்றைப் பகுத்து தொகுத்து ஆராயும் போக்கில்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
- மானிட மதிப்புகளை உணரும் வகையிலும், போட்டித்தேர்வுகளை எதிர்கொள்ளும் நிலையிலும் 'தமிழ்' - பகுதி - I அமைக்கப்பட்டுள்ளது.
- பிழையின்றிப் பேச, எழுத ஆராயும் முயற்சிக்குப் பயிற்சி தரப்படுகிறது.

SYLLABUS: TAMIL - I

Unit	Course contents		Instructional hours
I	அலகு I கவிதைகள்		15
	பாரதியார்	பொய்யோ மெய்யோ - நிற்பதுவே நடப்பதுவே	
	பாரதிதாசன்	மாண்டவன் மீண்டான் - ஆற்றோரம் தழைமரங்கள்	
	நாமக்கல் கவிஞர்	கண்டிலேன் - ஐயம் இல்லை தெய்வம்	
	வாணிதாசன்	மாலை – அங்கு இங்குமாய் சிதறிய	
	கண்ணதாசன்	தத்துவப்பாடல் - பரமசிவன் கழுத்திலிருந்து	
	நா..காமராசன்	சரித்திர கர்ப்பம் - அம்மா இருட்டுக்குள்	
	மேத்தா	வெளிச்சம் வெளியே இல்லை – வீட்டுக்கு வெளியே	
	அப்துல் ரகுமான்	சுயப்பிரசவம் - தெரிந்துகொள்	
	சிற்பி	பெல்ஜியம் கண்ணாடி – மரச்சட்ட தங்கரேக்குகள்	
	இளம்பிறை	அறுவடைக்காலம் - அல்லும்பகலும்	
	விஜயலட்சுமி	அற்புத ரகசியங்கள் - எந்தப்பாடலும்	
	கல்பனா	பறத்தல் அதன் சுதந்திரம் - ஓடி ஓடித் திரிந்து	
	ஹைக்கூ கவிதைகள்	கிழிந்தது சேலை – என்.டி.ராஜ்குமார் விடுமுறையேவேண்டாம் - சீனு,தமிழ்நெஞ்சன் புதுச்செருப்பு – தோழன் மஞ்சள் பூசி – புதுவை தமிழ்நெஞ்சன் ஐயனார் கை – மணிசண்முகம்	
II	அலகுII சிறுகதைகள்		15
	புதுமைப்பித்தன்	சங்குத்தேவனின் தர்மம்	
	கு.அழகிரிசாமி	பித்தளை வளையல்	
	வ.ரா.	கோட்டைவீடு	
	ஜெயகாந்தன்	இரண்டு குழந்தைகள்	
	பிரபஞ்சன்	அப்பாவின் வேட்டி	
	தனுஷ்கோடி ராமசாமி	தீம் தரிகிட	
	ஆதவன்	கனவுக்குமிழி	
	தமயந்தி	பஞ்சாயத்து	
III	அலகுIII புதினம் திலகவதி - கல்மரம்		10
IV	அலகுIV இலக்கிய வரலாறு 1. கவிதை இலக்கியத்தின் தோற்றமும் வளர்ச்சியும் 2. சிறுகதையின் தோற்றமும் வளர்ச்சியும் 3. புதினத்தின் தோற்றமும் வளர்ச்சியும்		10
V	அலகுV இலக்கணம் பயிற்சி அளித்தல் - மொழித்திறன் வளர்த்தல் 1. எழுத்து மாற்றத்தால் ஏற்படும் பிழைகள் 2. வல்லினம் மிகும், மிகா இடங்கள் 3. மெல்லெழுத்து மிகும் இடங்கள்		10

	4. வாக்கியங்களில் ஏற்படும் பிழைகள் 5. இலக்கணக் குறிப்பு 6. சரியான சொற்களைக் கண்டறிதல் கவிதை எழுதுதல், கடிதம், விண்ணப்பம் வரைதல்.	
	Total	**60**

Text Book(s): பாட நூல்கள்

1. கவிதை, சிறுகதைத் திரட்டு - தமிழ்த்துறை வெளியீடு,
ஸ்ரீ சரஸ்வதி தியாகராஜா கல்லூரி,
2021 ஜூன் பதிப்பு.

2. பன்முக நோக்கில் தமிழ் இலக்கிய வரலாறு - முனைவர் கா. வாசுதேவன்,
தேவன் பதிப்பகம்,
16,43,திருநகர்,திருவானைக்கோவில்,
திருச்சிராப்பள்ளி - 620 005
பன்னிரெண்டாம் பதிப்பு - 2017.

3. தமிழ் இலக்கிய வரலாறு - மு. வரதராசன்
சாகித்ய அகாடமி வெளியீடு,
புதுதில்லி.
மறுபதிப்பு-2012.

Reference Book(s): பார்வை நூல்கள்

1. கொங்குதேர் வாழ்க்கை - இ. இராஜமார்த்தாண்டன்
யுனைடெட் ரைட்டர்ஸ்,
67 - பீட்டர்ஸ் சாலை,
இராயப்பேட்டை, சென்னை -14.
முதல் பதிப்பு – 2003

2.சிறுகதையின் தோற்றமும் வளர்ச்சியும் - சிட்டி சிவபாத சுந்தரம்,
க்ரியா பதிப்பகம்,
சென்னை,
முதல் பதிப்பு - 1989.

3.தமிழில் சிறுகதை பிறக்கிறது - சி.சு.செல்லப்பா,
காலச்சுவடு பதிப்பகம்,
நாகர்கோவில்,
பதிப்பு-2007

4. தமிழில் தவறின்றி எழுத, பேச, கற்க! - நல்லாமூர் முனைவர் கோ.பெரியண்ணன்
முத்தமிழ் பதிப்பகம்
9 எ மேக்மில்லன் காலனி
நங்கை நல்லூர், சென்னை – 61.
பதிப்பு -2006.

5.தமிழ் நாவல் நூறாண்டு வரலாறும் வளர்ச்சியும் - பெ.கோ. சுந்தரராஜன்(சிட்டி),சோ. சிவபாத சுந்தரம்
கிறிஸ்தவ இலக்கிய சங்கம்,
அஞ்சல் பெட்டி எண். 501,
பார்க் டவுன்,
சென்னை- 600 003.

Focus of Course: இக்கால இலக்கியங்களின் வகைமைகளை எடுத்துக்காட்டும் விதத்தில் பாடத்திட்டம் அமைக்கப்பட்டுள்ளன. பிழையின்றிப் பேச, எழுதப் பயிற்சி வழங்கப்படுகிறது. கடிதம், கதை, கவிதை எழுதுவதற்குப் பயன்படும் வகையில் பயிற்சி தரப்பட்டுள்ளது.

Course Designer: **Dr. K.Ramganesh,**
Assistant Professor, Dept. of Tamil, STC

Dr. S. Rajalatha
BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level

CO1	இக்கால இலக்கியங்களின் பயன்களை அறிவித்தலின் வெளிப்பாடாக கவிதைப் பரிமாணங்கள், படைப்புகள் குறித்த அடிப்படைச் செய்திகளை உணர்ந்து கொள்ளுதல்.	K1
CO2	தமிழர்களின் பண்பாட்டுக் கூறுகளையும் பின்னணியையும் வெளிப்படுத்தும் விதமாகச் சிறுகதைகள், புதினம் சார்ந்த கருத்துகளைப் புரியவைத்தல்.	K2
CO3	நடைமுறையில் தமிழைப் பிழையின்றி எழுத உதவுதல், கவிதை, கடிதம், கதை எழுதும் திறமையை வளர்த்தல்.	K3

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	-	-	S	S	-	-	-
CO2	S	S	M	-	-	S	S	-	-	-
CO3	S	S	S	-	-	M	S	-	-	-

S- Strong; L- Low; M-Medium

SEMESTER- I

Coursecode	21MAL1L10	PARTIMALAYALAMPAPERI	L	T	P	C
Part-I		PARTI	60	-	-	3
Pre-requisite			SyllabusVersion			2020-21

COURSEOBJECTIVE:

- Improvesgrammaticalknowledge
- Willcontinue toread andlearn aboutarticles andthink aboutthem
- It is possible to read and understand short stories and understand the thoughts andlifeof thepeople of this state
- Translation knowledge and the ability to read and analyze a message are alsoavailable
- Translationknowledgeandthe abilityto readandanalyze amessageareals o

Unit	PARTI MALAYALAMPAPERI Course Content	Instructional hours
I	Novel-PathummayudeAadu-VaikamMuhammed Basheerr	15
II	Novel--PathummayudeAadu -VaikamMuhammedBasheerr	15
III	ShortStory-EntePriyappetaKadhakal –Akbar Kakkattil)	10
IV	ShortStory-EntePriyappetaKadhakal –Akbar Kakkattil)	10
V	Composition&Translation(EnglishtoMalayalam)	10
	TOTAL	60

Teachingmethods:
Lecturing, Assignment, Group Discussion, Quiz, Group Activity. PowerPoint ProjectionthroughLCD

TextBooks:
1.Novel-PathummayudeAadu-VaikamMuhammedBasheer(D.C.Books,Kottayam,Kerala)
2. Short Story -EntePriyappetaKadhakal – Akbar Kakkattil)(D.C.Books, Kottayam,Kerala)
3.Expansionofideas,General Eassayand Translation.(Asimplepassage)

ReferenceBooks:
1.MalayalaNovelSahithyaCharitram-K.M.Tharakan(N.B.S.Kottayam)
2.Cherukatha Innale Innu-M.Achuyuthan (D.C Books, Kottayam)
3.SahithyaCharitramPrasthanangalilude-Dr.K.M George,(D.C.BooksKottayam)
4.MalayalaSahithyavimarsam-SukumarAzheekode(D.C.books)

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Understandthetextstylesandgrammaticalelements	K1
CO2	Discussthe content ofareadingpassage	K1
CO3	Developaninterest intheappreciation ofshortstories	K2
CO4	Comprehendthe grammaticalstructuresandsentencemaking	K3
CO5	UnderstandthelanguageanddevelopingEnglishtoMalayalamtranslationskill	K4

MappingwithProgrammeOutcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	M	S	S	M	S
CO3	S	M	M	M	M	S	S	M	S	M
CO4	L	S	L	S	L	S	L	M	M	M
CO5	S	S	M	M	S	M	L	L	L	L

SEMESTER I

Course:French1 **Credits: 3**
CourseCode: 21FRE1L10 **Hours: 60**

CourseObjectives:
To understand,speak,readandwritesimple,standardspeechwhichisveryslowandis carefully articulated and can recognize familiar words and very basic phrasesconcerning themselves, their family and immediate concrete surroundings whenpeoplespeakslowlyandclearly

Part1 -French1		
UnitNo.	**Topics**	**Instructional hours**
1	Etape0 Etape 1(Lecons 1 -3)	15
2	Etape 2(Lecons 1 -3)	15
3	Etape3 -Leçons 1 -2	10
4	Etape3 –Leçon3 Etape4 –Leçon1	10
5	Etape4 –Leçons 2 -3	10
	Total	60
Etapes 0to4,Pages 11to62		

TextBookPrescribed:Adomania1–Methodedefrancais Authors:Céline Himber,CorinaBrillant,Sophie ErlichPublisher: HACHETTEFLE
Availableat:GOYALPublishersandDistributorsPvtLtd,NewDelhi(9810322459)

Reference:Latitudes1
Author:YvesLoiseau,RégineMerieuxPublisher:FrenchandEuropeanPublicationsInc
Availableat:GOYALpublishersanddistributorsPvtLtd,NewDelhi(9810322459)

SWAYAM:https://swayam.gov.in/nd2_cec19_lg04/previewbyProf.NirupamaRastogi(Retd)EnglishandForeignLanguagesUniversity,Hyderabad

SEMESTER- I

Coursecode	21HIN1L10	HINDIPAPER -I	L	T	P	C
Part-I		PARTI	60	-	-	3
Pre-requisite			SyllabusVersion			2020-21

	PARTIHINDI PAPER I	
UnitNo.	Course Content	Instructional hours
I	**PROSE:NUTHANGADYASANGRAH** Lesson1 – BharathiyaSanskurthi - Dr.Rajendra PrsadLesson3 –Razia -RamavikshaBenipuri Lesson4 –Makreal -Yespal Lesson5 – BahthaPani Nirmala - 'AGEYA'Lesson6–RashtrapithaMahathmaGandhi -Mukthibodh Lesson9–NindaRas -HarishankarParsayi.	15
II	**NONDETAILEDTEXTSHORTSTORIES:KAHANIKUNJ** 1. Pareksha –Premchand 2. Mamtha -JayashankarPrasad 3. Apnaparaya -Jaynendrakumar 4. Admika bachcha -Yespal 5. Bolaramkajeev -HarishankarParsayi 6. Vapasi -MannuBhandari	15
III	**GRAMMAR :SHABDHAVICHARONLY** (NOUN,PRONOUN,ADJECTIVE, VERB,TENSE, CASE ENDINGS)Theoretical &Applied.	10
IV	**TRANSLATION:English–Hindionly.** ANUVADHABHYAS –III(1-15lessonsonly)	10
V	**COMPREHENSION:** 1Passagefrom ANUVADHABHYAS–III(16-30)	10
	TOTAL	60

TextBooks:

1. Nuthangadyasangrah,2009,editor:Jayaprakash,publisher:Sumitraprakashansumitravas,16/4,hastings road, Allahabad – 211001.
2. Kahani kunj, 2011, Editor :V.P. Amithab.Publisher : Govind Prakashan Sadhar Bagaar,Mathura,UttarPradesh,–281 001

ReferenceBooks:

NAVEENHINDIVyakaran, 2002,DakshinBharatHindiPrachar Sabha,Chennai–600017

Teachingmethods:

Lecturing,Assignment,GroupDiscussion,Quiz, GroupActivity.PowerPointProjectionthrough LCD

WebLink:https://hi.wikipedia.org/wiki/https://en.wikipedia.org/wiki/Premchandhttp://hindigrammar.in/

COURSEOBJECTIVE:

- Improvesgrammaticalknowledge
- Willcontinuetoread andlearnaboutarticles andthinkaboutthem
- It is possible to read and understand short stories and understand the thoughts and lifeofthe people ofthis state
- Translation knowledge and the ability to read and analyze a message are alsoavailable

MappingwithProgrammeOutcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	M	S	S	M	S
CO3	S	M	M	M	M	S	S	M	S	M
CO4	L	S	L	S	L	S	L	M	M	M
CO5	S	S	M	M	S	M	L	L	L	L

SEMESTER - I

CourseCode	CourseName	Category	Lecture(L)	Tutorial(T)	Practical(P)	Credit
21GEN1L10	Communicative English-I	Language .	50	10	-	3
Preamble: This course aims to provide a better understanding on the various aspects of communicative skills through a keen focus on LSRW.						
Prerequisite: Basic knowledge in Communicative English and Skills						

SYLLABUS: COMMUNICATIVE ENGLISH-I

Unit	Course Contents	Instructional hours
I	1. **Listening and Speaking** a. Introducing self and others b. Listening for specific information c. Pronunciation (without phonetic symbols) i. Essentials of pronunciation ii. American and British pronunciation 2. **Reading and Writing** a. Reading short articles – newspaper reports / fact based articles i. Skimming and scanning ii. Diction and tone iii. Identifying topic sentences b. Reading aloud: Reading an article/report c. Journal (Diary) Writing 3. **Study Skills** - 1 a. Using dictionaries, encyclopedias, thesaurus 4. **Grammar in Context**: Naming and Describing • Nouns & Pronouns • Adjectives	12
II	1. **Listening and Speaking** a. Listening with a Purpose b. Effective Listening c. Tonal Variation d. Listening for Information e. Asking for Information f. Giving Information 2. **Reading and Writing** 1. a. Strategies of Reading: Skimming and Scanning b. Types of Reading : Extensive and Intensive Reading c. Reading a prose passage d. Reading a poem e. Reading a short story 2. Paragraphs: Structure and Types a. What is a Paragraph? b. Paragraph structure c. Topic Sentence d. Unity e. Coherence f. Connections between Ideas: Using Transitional words and expressions g. Types of Paragraphs 3. **Study Skills II**: Using the Internet as a Resource a. Online search b. Know the keyword c. Refine your search d. Guidelines for using the Resources e. e-learning resources of Government of India f. Terms to know 4. **Grammar in Context** Involving Action-I a. Verbs b. Concord	12
	1. **Listening and Speaking**	

III	a. Giving and following instructions b. Asking for and giving directions c. Continuing discussions with connecting ideas **2. Reading and writing** a. Reading feature articles (from newspapers and magazines) b. Reading to identify point of view and perspective (opinion pieces, editorials etc.) c. Descriptive writing – writing a short descriptive essay of two to three paragraphs. **3. Grammar in Context:** Involving Action – II Verbals - Gerund, Participle, Infinitive Modals	12
IV	1. **Listening and Speaking** a. Giving and responding to opinions **2. Reading and writing** a. Note taking b. Narrative writing – writing narrative essays of two to three paragraphs **3. Grammar in Context:** Tense • Present • Past • Future	12
V	1. **Listening and Speaking** a. Participating in a Group Discussion **2. Reading and writing** a. Reading diagrammatic information – interpretations maps, graphs and pie charts b. Writing short essays using the language of comparison and contrast **3. Grammar in Context:** Voice (showing the relationship between Tense and Voice)	12
	Total	**60**

Text Book(s): Communicative English Text Book

Reference Book(s)

a. Books by Penny Ur
b. The Oxford English-English-Tamil dictionary (for pronunciation)
c. https://www.esolcourses.com/
d. For Readers' Theatre: https://www.youtube.com/watch?v=JaLQJt8orSw&t=469s (the link to the performance; refer scripts by Aaron Shepherd)

Focus of the Course: Skill Development

e-Resources or e-Content:https://www.youtube.com/watch?v=ejGoHFGJQ

CourseDesigner: TRANCHE BoSChairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Gain mastery in LSRW Skills	K1
CO2	Understand the fundamentals of grammar	K2
CO3	Apply LSRW skills and practice it	K2
CO4	Comprehend the nuances of English Language	K3

Mapping with Program OutcomesandProgramSpecific Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	M	S	S	S	S	S	M
CO2	M	S	S	M	M	S	M	S	L	M
CO3	M	S	S	S	L	S	M	S	S	S
CO4	M	S	S	M	M	S	M	S	S	M

S – Strong; L – Low; M – Medium

SEMESTER- I

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH1C10	Inorganic, Organic and Physical Chemistry –I	Core	Concept (B)	45	--	--	4

Preamble: To acquire basic knowledge about atomic structure, bonding, molecular structure, quantum chemistry, organic chemistry and preparation of hydrocarbons.

Pre-requisites: Basic understanding about the elements, periodic table and organic chemistry.

UNIT	COURSE CONTENTS	HOURS
I	**Electronic configuration**: Atomic Orbitals, quantum numbers - principal, azimuthal, magnetic and spin quantum numbers and their significance-Principles governing the occupancy of electrons in various quantum levels- Pauli's exclusion principle, Hund's rule, Aufbau Principle, (n+l) rule, stability of half-filled and fully filled orbitals. **Periodic Table**: Mendeleev's periodic classification-modern periodic table- grouping of elements into s, p, d, and f blocks. **Periodic Properties**: Atomic radius- covalent, Van der Waal's and ionic radii – determination of ionic radii by Pauling's method- Slater's rules- screening constant and effective nuclear charge-ionisation energy- electron affinity – periodic variation - electron affinity of halogens- electronegativity and its applications in predicting bond character.	9
II	**Ionic and covalent bonds** – Lattice Energy – Born – Haber Cycle – variable electrovalency-inert pair effect– partial ionic character–Fajan's rules- deviation from octet rule. **VB & MO Theories**: VB Theory – sigma and pi bonds- Principles of hybridization –types- sp, sp^2, sp^3, sp^3d, sp^3d^2, and sp^3d^3-VSEPR theory and shapes of molecules– $BeCl_2$, BF_3,CH_4, PCl_5 and SF_6, IF_7, H_2O,NH_3, SO_2 and CO_2. **MO Theory** – Bonding and anti-bonding orbitals – significance - Application of MO Theory to Homo and Hetero diatomic molecule (H_2, He_2, N_2, O_2, F_2, NO, HF and CO). Comparison of VB and MO theories.	9
III	**Clevage of covalent bonds:** Homolytic and heterolytic fissions – generation, structure, reactions and stability of carbocations, carbanions and free radicals. **Classification of reaction intermediates** - Electrophiles, Nucleophiles and Free radicals. **Types of organic reactions** – Displacement or substitution, addition, elimination, isomerisation, polymerisation and rearrangement definition and examples. **Factors that influence a reaction**-Inductive, mesomeric, electromeric and hyperconjugative effects **Isomerism** – Types of isomerism -structural and stereo isomerisms(elementary treatment) - definition and types with appropriate examples. **Alkanes** - Conformations of ethylene, n-butane and cyclohexane.	9
IV	**Cycloalkanes**- Preparation and chemical properties - Stability of cycloalkanes- Bayer's Strain theory and its limitations **Alkenes, alkadienes** Alkenes-Nomenclature-preparation- Saytzeff's rule and Hofmann's rule-Wittig reaction-Mechanism of beta elimination reactions - E_1 and E_2 reaction mechanisms- cis elimination-Addition reactions of alkenes- Hydroboration, polymerisation, ozonolysis - Allylic substitution with NBS. Types of alkadienes –stability - General methods of preparation- chemical properties – 1, 2- and 1, 4 additions – mechanism- Diels Alder reaction- Natural and synthetic rubbers. **Alkynes:**Preparation, acidity of alkynes – reactions - formation of acetylides, hydration and hydroboration reactions.	9
V	**Failure of classical theory of electromagnetic radiation** – Black body radiation and Planck's quantum theory, photo electric effect and Compton effect	9

	Wave particle dualism- de Broglie hypothesis – Davisson- Germer experiment- Heisenberg's uncertainty principle. **Schrodinger wave equation** – Derivation. Physical significance of ψ **and** ψ^2 - particle in a one dimensional box problem- derivation and significance.Shape of s, p and d orbitals- Nodal planes and nodal points in atomic orbitals.	
	TOTAL	**45**

Text Book:

1.Advanced Organic Chemistry, (12th edition), Bahl B.S. and Arun Bahl, Sultan Chand &Co., 2010, NewDelhi.

2. Principles of Inorganic Chemistry (23rd edition), B.R. Puri& L.R. Sharma, Shobanlal Nagin, Chand & Co. New Delhi, Shoban Lal, Nagin Chand &Co.,(1993)

3.Elements of Physical Chemistry, B. R. Puri, L. R. Sharma and M. S. Pathania. Vishal PublishingJalandar, 2nd Edn..

Reference:

1.Principles of Physical chemistry, S.M. Maron and C. F. Brutton, Oxford – IBH.

2.Physical Chemistry (3rd Edition), Castellan G.W., , New Delhi, Orient Longmann (1987).

3.Concise Inorganic Chemistry, Lee J.D., , UK, Black well science (2006).

4.Organic Chemistry, Graham Solomon, T.W., Fryhle, C.B. &Dnyder, S.A., John Wiley & Sons, 2014.

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos

Course Designer:
S.Sudha, Assistant Professor and Head
Department of Chemistry, STC

Chairman /BoS

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Understand the atomic structure and periodic properties of elements	K2
CO2	Know about the theories of chemical bonding and molecular structure	K2
CO3	Gather basic knowledge of organic chemistry and reaction intermediates	K2
CO4	Learn the chemistry of alkenes, cycloalkenes, dienes	K3
CO5	Explain the basic concepts in quantum chemistry	K2

Mapping the Programme Outcomes

Cos/Pos	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low, M-Medium

SEMESTER- I

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
19BCH1C20	Industrial Chemistry	Core	Concept	45	-	-	4

Preamble: This course aims to familiarize students with the major industrial processing such as sugar, fertilizer, paper, cement and dairy industry.

Pre-requisites: Basic understanding about the need for industries.

UNIT	COURSE CONTENTS	HOURS
I	**Sugar :** Manufacture of Crystalline sugar- Extraction of the Juice, Clarification of the Juice – Two step and One step process – Classification of Juice by Double carbonation process -Evaporation of clarified juice to make syrup - Crystallization of Syrup – Use of Seed Crystals for Crystallization – Curing of Sugar – Double Centrifuging – Treatment of Molasses – Refining of Raw sugar – Utilization of Bagasse – filter cakes used as manure – Testing and Estimation of Sugar – Fermentation- Industrial Spirit – Absolute Alcohol – Cane sugar industry in India – Sugar Factories of Tamil Nadu.	9
II	**Fertilizer:** Plant nutrients - functions and requirement of fertilizers – Classification of fertilizers - nitrogenous fertilizers – Manufacture of Ammonium nitrate – Ammonium Sulphate – Urea (Any one method) – Phosphatic Fertilizers – Manufactures of normal super phosphate – Triple super phosphate – Ammonium Phosphate – Potassium fertilizers – Manufacture of sulphate of potash and Nitrate of Potash. Fertilizer industries in India	9
III	**Paper:**Manufacture of pulp-chemical process- Sulphate or Kraft pulping — Soda pulping – – Rag pulping - beating – Refining – Filling – Colouring – Sizing – Manufacture of paper – Calendering– Uses – Environmental issues of Indian pulp and paper industry.	9
IV	**Cement:**Gypsum, Plaster of Paris, lime- manufacture, properties, Portland cement - Raw materials -manufacture — Physical requirements of Cement – Varieties of cement – Tests and Specification (ISI Specification for Cement) – Setting of Cement – Cement Industries in India.	9
V	**Milk and Milk Products** Composition and structure of milk- Properties of Milk- flavour and aroma, viscosity, Effect of heat on milk. Milk Processing – clarification, pasteurization, homogenized milk, whole milk Basic categories of milk products- skimmed milk powder- whole dry milk powder- butter milk, milk powder- butter- clarified ghee, Ice –cream	9
	TOTAL	45

Text Book:

1.Industrial Chemistry, B.K. Sharma, Industrial Chemistry, Goel publishing house, Meerut, 20th Edition 2016.
2. Engineering Chemistry, P.C. Jain and Monika Jain, DhanpatRai& Sons, Delhi
3. A Text Book of Engineering Chemistry, S.S. Dara, S. Chand & Co., New Delhi, 15th Edition, 2006

Reference:

1. Industrial Chemistry, B. N. Chakrabarty, Oxford & IBH Publishing Co, New Delhi, 1981
2. Industrial Chemistry, E. Stocchi, Vol-I, Ellis Horwood Ltd. UK.
3. Elementary Principles of Chemical Processes, R. M. Felder, R. W. Rousseau, Wiley Publishers, New Delhi.
4. Riegel'sHandbook of Industrial Chemistry J. A. Kent, CBS Publishers, New Delhi

Learning Methods (*): Lecture/Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability / Entrepreneurship/ Skill Development
e-Resource/e-Content URL: Youtube videos
Course Designer: Dr.N.Karpagam, Assistant Professor Department of Chemistry, STC Chairman /BoS

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Explain the sugar manufacture process	K2
CO2	Elucidate the fertilizer types and manufacture	K2
CO3	Illustrate the processing in paper and pulp industry	K2
CO4	Describe the manufacture of cement	K3
CO5	Improve the knowledge on dairy products and processing techniques.	K3

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

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SEMESTER- I

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BPHGAA1	Allied Physics-I	Allied	Concept (B)	45		--	3

Preamble: To expose the students to the fundamentals of basic concepts of physics

Pre-requisites: To provide the student with knowledge of the applications of light & materials.

UNIT	COURSE CONTENTS	HOURS
I	**OPTICS** Interference – Condition for interference- Theory of thin films- Reflected and transmitted systems – Newton's rings – Air wedges – Testing of planeness of a surface- Polarisation – Reflection and Refraction – Brewster's law – Double refraction – Nicol and its uses – Rotation of plane of polarization.	9
II	**BENDING OF BEAMS** :Expression for bending moment – Cantilever – Expression for depression – Experiment to find Young's modulus– Uniform bending –Expression for elevation – Experiment to find Young's modulus using microscope – Non Uniform bending – Expression for depression – Experiment to determine Young's modulus using mirror and telescope.	9
III	**Laser Physics** Introduction- characteristics of laser-stimulated emission- absorption –spontaneous emission -population inversion-components of laser -optical pumping-working principles of laser – Nd -YAG laser - Co_2laser – Semiconductor laser- applications.	9
IV	**Electricity:** Electric circuit–open circuit–closed circuit–switches–types of switches–fuses–types of fuses–circuit breaker–merits of circuit breaker -Relays – potentiometer – principle and theory - determination of internal resistance of a cell–Comparision of E.M.F of cells - calibration of low range voltmeter – Conversion of galvanometer into ammeter and voltmeter.	9
V	**Magnetism** Magnetic Properties of materials –Langevin's theory of magnetism; dia, para, ferromagnetism and their properties - magnetization – Domain theory of ferromagnetism - magnetic hysteresis – Hard and soft magnetic materials.	9
		45

Text Book:

1) R. Murugeshan, Properties of matter, S. Chand & Co. Pvt. Ltd., Revised edition, 2012.
2) Dr.N. Subramaniyam, Brijlal and Dr.M .N. Avathanulu,Optics, S. Chand &Co. Pvt.Ltd.—25 threvised edition, New Delhi, 2012.
3)D.S.Mathur, properties of matter – S. Chand and Co., NewDelhi (Reprint 2007).
4) Kittel C., Introduction to Solid State Physics, 8th Edition, Wiley Eastern Ltd,2005.
5) An introduction to LASERS – N. Avadhanulu, S. Chand

Reference:

1)Brijlal and Subramaniyan, Properties of Matter,S. Chand & Co.Pvt.Ltd.2005.
2)Brijlal and Subramaniyan., Thermal Physics, S. Chand & Co 2001.
3)Murugeshan and KiruthigaSivaprasath., A Text Book of Optics., S. Chand & Co. Pvt. Ltd.- 9th revised edition Ramnagar 2014. Newdelhi-110055.
4)Mehta V.K., Principles of Electronics, S.Chand and company Ltd, 2014
5)Malvino and Leach, Digital Principles & their applications. Tata McGraw Hill.

Focus of Course: Employability
e-Resource/e-Content URL: NPTEL Videos and You tube
Course Designer :Mrs.R.Bhagyashree Assistant Professor, Dept. of Physics, STC BOS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Basic understanding and remembrance of knowledge in light.	K1
CO2	Overall understanding of the principles of elasticity & bending of beams.	K2
CO3	Students enrich their knowledge in laser technology and its applications.	K2
CO4	Basic understanding about the concept in crystal systems.	K2
CO5	Basic understanding about the concept of semiconductors.	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER I

Course Code	Course Name	Category	Lecture (L)	Tutorial(T)	Practical (P)	Credit
18DHE1V10	EnvironmentalStudies	VBC 1	27	-	-	2

Preamble: Students are expected to have the practical exposure to local area environmental assets and its uses. Also knows about the polluted site and its causes

SYLLABUS: ENVIRONMENTAL STUDIES

Unit	Course contents	Instructional hours
I	Natural Resourcesand Associated Problems: Definition, scope and importance - Need for public awareness - Natural resources - Forest resources: use and over-exploitation,deforestation,casestudies.Timberextraction,mining,damsandtheireffectsonforestsandtribal people. Waterresources: useand over- utilization of surfaceandgroundwater,floods,drought,conflictsoverwater,dams – benefitsandproblemsMineral resources:Useandexploitation, environmental effects of extracting and using mineral resources, case studies. Food resources: world food problems, changes caused byagricultureand overgrazing,effectsof modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.Energyresources:growingenergyneeds,renewable andnon- renewableenergy sources,useofalternatesources.Casestudies. Landresources: land as a resource, land degradation, man induced landslides, soil erosion and desertification. Roleofanindividualinconservationofnaturalresources.Equitable use ofresourcesForsustainablelifestyles.	6
II	Ecosystems:Conceptofanecosystem – Structureandfunctionofanecosystem.-Producers, consumers and ecomposers. –Energyflow intheecosystem. -Ecological succession. - Food chains, foodwebs and ecological pyramids. Introduction, types, characteristic features,structureandfunctionofthefollowingecosystem: -Forestecosystem.-Grassland ecosystem. – Desertecosystem-Aquaticecosystems(ponds,streams,lakes,rivers,oceans,estuaries)	5
III	Biodiversity anditsConservation:Introduction– Definition:genetic,speciesandecosystem diversity. – BiogeographicalclassificationofIndia. – Valueofbiodiversity:consumptive use, productive use, social, ethical. Aesthetic andoption values – Biodiversity atglobal, National andlocallevels. – Indiaasamega–diversitynation.Hot – spotsofbiodiversity. Threatstobiodiversity:habitatloss,poachingofwildlifeman – wildlifeconflicts.Endangered andendemicspeciesofIndia.Conservationofbiodiversity:In –situandEx – situconservationofBiodiversity.	5
IV	EnvironmentalPollution: Definition- Causes,effectsandcontrolmeasuresof- Air pollution, Water pollution, Soil pollution, Noise pollution, Thermal pollution - Solid Waste Management:Causes,effectsandcontrolmeasuresofurbanandindustrialwastes. – RoleofanindividualinPreventionof Pollution. -Pollution Case Studies. – DisasterManagement:Floods,Earthquake,Cyclone andLandslides.	5
V	Social IssuesandtheEnvironment:Sustainabledevelopment – Urbanproblemsrelatedto energy. - Water conservation, rainwater harvesting, and watershed management.- Resettlement andrehabilitation of people; its problems and concerns. Case studies. – Environmentalethics:issuesandpossiblesolutions.- Climatechange,globalwarming, ozone layer,depletion, acid rain, nuclear accidents and holocaust. Case studies.Consumerismandwaste products. -Environmental protection Act. – Air(Prevention andControl of Pollution) Act. Water (Prevention and Control of Pollution) Act. – Wildlife Protection Act. –ForestConservationAct.- Issuesinvolvedinenforcementof environmental legislation. – Publicawareness. – Humanpopulationandtheenvironment – Populationgrowthanddistribution. – Populationexplosion–Family WelfareProgramme.- Environment and humanhealth. – Humanrights. –ValueEducation.-HIV/AIDS – WomenandChildWelfare – RoleofInformationTechnology inEnvironmentandHumanHealth MedicalTranscriptionand Bioinformatics	6
	SOS **Total**	27

Learning Outcome: Onsuccessfulcompletionthestudentsare expected to havethe practical exposuretolocalareaenvironmentalassets,anditsuses. Alsoknows about thepolluted site and its causes

Text Book:

1. S.V.S. Rana,-Environmental Studies□,RastogiPublications, Meerut, 4th edition, 2012

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	To remember key concepts from environmental studies, political and SocialStudies	K1
CO2	To understand the concepts and methods from renewable and non-renewable sources and their applications in environmental problem solving	K2
CO3	To acquire knowledge on concept of environment issues and links between human and natural system	K3
CO4	To demonstrate the general understanding of the breadth and interdisciplinary nature of environmental issues	K3

Mapping with Program Outcomes and Program Specific Outcomes:

Cos / POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	L	S	S	M	S	S
CO2	S	S	M	S	L	S	S	M	S	S
CO3	S	S	M	S	L	S	S	M	S	S
CO4	S	S	M	S	M	S	S	M	S	M

S –Strong; L –Low; M –Medium

SEMESTER I

Course Code	Course Name	Category	Lecture(L)	Tutorial(T)	Practical(P)	Credit
20GEN1Z10	Professional English – I for Physical Sciences	ECC 1	45	5	–	4
Preamble: To develop the language skills of students by offering adequate practice in professional contexts.						
Prerequisite: Basic knowledge in English.						

SYLLABUS: PROFESSIONAL ENGLISH – I FOR PHYSICAL SCIENCES

Unit	Course contents	Instructional Hours
I	**COMMUNICATION** **Listening:** Listening to audio text and answering questions- Listening to Instructions **Speaking:** Pair work and small group work. **Reading:** Comprehension passages –Differentiate between facts and opinion **Writing:** Developing a story with pictures. **Vocabulary:** Register specific - Incorporated into the LSRW tasks	10
II	**DESCRIPTION** **Listening:** Listening to process description.-Drawing a flow chart. **Speaking:** Role play (formal context) **Reading:** Skimming/Scanning Reading passages on products, equipment and gadgets. **Writing:** Process Description –Compare and Contrast Paragraph-Sentence Definition and Extended definition- Free Writing. **Vocabulary:** Register specific -Incorporated into the LSRW tasks.	10
III	**NEGOTIATION STRATEGIES** **Listening:** Listening to interviews of specialists / Inventors in fields (Subject specific) **Speaking:** Brainstorming. (Mind mapping). Small group discussions (Subject-Specific) **Reading:** Longer Reading text. **Writing:** Essay Writing (250 words) **Vocabulary:** Register specific - Incorporated into the LSRW tasks	10
IV	**PRESENTATION SKILLS** **Listening:** Listening to lectures. **Speaking:** Short talks. **Reading:** Reading Comprehension passages **Writing:** Writing Recommendations Interpreting Visuals inputs **Vocabulary:** Register specific - Incorporated into the LSRW tasks	10
V	**CRITICAL THINKING SKILLS** **Listening:** Listening comprehension- Listening for information. **Speaking:** Making presentations (with PPT- practice). **Reading:** Comprehension passages –Note making. Comprehension: Motivational article on Professional Competence, Professional Ethics and Life Skills **Writing:** Problem and Solution essay– Creative writing –Summary writing **Vocabulary:** Register specific - Incorporated into the LSRW tasks	10
	Total	**50**

Text Books:
Tamil Nadu State Council for Higher Education(TANSCHE)

Reference Books:
Tamil Nadu State Council for Higher Education(TANSCHE)

Focus of Course: Employability (Employability/Skill Development)

e-Resource/e-Content URL:

- **Vidya-MitraPortal:**http://vidyamitra.inflibnet.ac.in/index.php/search
- **e-PG Pathshala**:http://epgp.inflibnet.ac.in/ahl.php?csr

Course Designer
TANSCHE Assistant Professor of English

Dr.R.SenthilAmutha
BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Enhance the creativity of the students, which will enable them to think of innovative ways to solve issues in the workplace.	K1
CO2	Develop students' competence and competitiveness and thereby improve their employability skills.	K2
CO3	Attend interviews with boldness and confidence	K3
CO4	Adapt easily into the workplace context, having become communicatively competent	K4
CO5	Apply to the Research and Development organizations/ sections in companies and offices with winning proposals	K5

Mapping Course Outcomes with Programme Outcomes& Programme Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	S	S	M	M	S	S	S
CO2	M	M	M	S	S	S	M	S	S	S
CO3	M	M	M	S	S	S	S	S	S	S
CO4	M	S	S	S	S	S	M	S	S	S
CO5	M	S	S	S	S	S	M	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER – II

SEMESTER – II

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21TAM2L20	Tamil II	Part I Tamil Paper II	60	-	-	3

Preamble:தொன்மையான தமிழ்ச் சமூகத்தின் பண்பாடு வாயிலாக எடுத்துக் கொள்ளப்பட வேண்டிய அம்சங்களை விளக்குதலையும், வாழ்க்கையை நெறிப்படுத்துவதையும் சமூக நோக்கமாகக் கொண்டிருக்கும் இலக்கியங்களின் வழியே மானிட மதிப்புகளை அறிந்து கொள்ளும் வகையில் தமிழ்ப்பாடம் அமைக்கப்பட்டுள்ளது. மாணவர்களுக்குப் பயன்பாட்டு நோக்கில் மொழிபெயர்ப்புப் பயிற்சி வைக்கப்பட்டுள்ளது.

Prerequisite:

1. மேனிலைப்பள்ளி முடிய கற்றவற்றைப் பகுத்து தொகுத்து ஆராயும் போக்கில் பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
2. மானிட மதிப்புகளை உணரும் வகையிலும், போட்டித்தேர்வுகளை எதிர்கொள்ளும் நிலையிலும் 'தமிழ்' - பகுதி - ஐஅமைக்கப்பட்டுள்ளது.
3. பிழையின்றிப் பேச, எழுத ஆராயும் முயற்சிக்குப் பயிற்சி தரப்படுகிறது.

SYLLABUS: TAMIL II

Unit	Course contents	Instructional Hours
I	அலகு I சங்க இலக்கியம் நற்றிணை - நின்றசொல்லர் (1) – கபிலர் ஐங்குறுநூறு - அன்னாய் வாழி வேண்டன்னை (203) - கபிலர் மறுவல்தூவிச் சிறுகருங்காக்கை (391) - ஓதலாந்தையார் கலித்தொகை - அரிதாய அறன்எய்தி (11) - பாலை பாடிய பெருங்கடுங்கோ அகநானூறு - கிளியும் பந்தும் கழங்கும் (49) - வண்ணப்புறக்கந்தரத்தனார் சிறுகரு பிடவின் வெண்தலை (34) – மருதனிளநாகனார் புறநானூறு - பல்சான்றீரே பல்சான்றீரே (246) - பெருங்கோப்பெண்டு குழவி இறப்பினும் ஊன்தடி பிறப்பினும் (74) – சேரமான் கணைக்கால் இரும்பொறை	12
II	அலகு II பக்தி இலக்கியங்கள் & சிற்றிலக்கியங்கள் தேவாரம் - சுந்தரர் 1. மேலைவிதியே வினையின் பயனே (419) 2. பிறவாய் இறவாய் பேணாய் மூவாய் (420) 3. பொய்யே உன்னைப் புகழ்வார் புகழ்ந்தால் அடியேன் (421) 4. ஊனைப் பெருக்கி உன்னை நினையாது (422) 5. காதல்செய்து களித்துப் பிதற்றி (423) திருக்கோவையார் - மாணிக்கவாசகர் 1.முனிவரும் மன்னரும் பொன்னான் முடியுமென (332) 2.மூவர்நின் றேத்த முதலவன் ஆடமுப் பத்து மும்மைத் (337) 3.பிரியா ரெனவிகழ்ந் தேன் முன்னம் யான்பின்னை எற்பிரியின (340) கருவூர்த்தேவர் - தஞ்சை ராசராசேச்சரம் 1.உலகெலாம் தொழவந்து எழுகதிர்ப் பருதி (162) 2.நெற்றியிற் கண்என் கண்ணின்நின் றகலா (163) 3.எவரும்மா மறைகள் எவையும் வானவர்கள் (166) 4.தனிப்பெருந் தாமே முழுதுறப் பிறப்பின் (168) திருமந்திரம் - திருமூலர் 1.என்பே விறகாகி இறைச்சி அறுத்திட்டு (272) 2.தூய்மை அருள் ஊண் சுருக்கம் பொறை (556) 3.உள்ளத்தும் உள்ளன் புறத்துள்ளன் (1532) 4.தானே தனக்குப் பகைவனும் நட்டானும் (2228) 5.அவமும் சிவமும் அறியார் அறியார் (2340)	18

	சித்தர் பாடல்கள் - சிவவாக்கியர் (2 பாடல்கள்) பாம்பாட்டிச்சித்தர் (2 பாடல்கள்) இடைக்காட்டுச்சித்தர் (2 பாடல்கள்) கடுவெளிச்சித்தர் (2 பாடல்கள்) அழுகணிச்சித்தர் (2 பாடல்கள்) சிற்றிலக்கியங்கள் - தமிழ்விடுதூது – தமிழ்மொழியின்சிறப்பு, சிவபெருமானின் சிறப்பு (20 வரிகள்) அற்புதத்திருவந்தாதி - அரனென்கோ நான்முகன்,இன்று நமக்கெளிதே,நோ்ந்தரவங் கொள்ளச்,திறத்தான் மடநெஞ்சே,அடிபேறிற பாதாளம் (5 பாடல்கள்) திருவரங்கக் கலம்பகம் - பெருமாளின் அவதாரச் சிறப்பு,20புயவகுப்பு (இரண்டாம் பாடல்)	
III	**அலகு III உரைநடை** 1. நேரம் கடிகாரத்தில் இல்லை - வெ. இறையன்பு 2. நான் தோல்வியைத் தழுவிய போது - ஏ.பி. ஜே. அப்துல்கலாம் 3.தமிழகத்தில் இதழியல் வளர்ச்சி - மா. பா. குருசாமி 4. மனிதனும் சுற்றுச்சூழலும் - பேராசிரியர் ஜே. தர்மராஜ் 5. எதையும் தீர்மானிக்கும் சக்தி - சி. எஸ். தேவநாதன்	10
IV	**அலகு IV இலக்கிய வரலாறு** 1. சங்க இலக்கியத்தின் சிறப்புகள் 2. பக்தி இலக்கியத்தின் தோற்றமும் வளர்ச்சியும் 3. சிற்றிலக்கியத்தின் தோற்றமும் வளர்ச்சியும் 4. உரைநடையின் தோற்றமும் வளர்ச்சியும்	10
V	**அலகு V இலக்கணம்** பயிற்சி அளித்தல் - மொழித்திறன் வளர்த்தல் - மொழி ஆளுமை 1. ஒருமை, பன்மை மயக்கங்கள் 2. வழூஉச்சொற்களை நீக்குதல் 3. பிறமொழிச் சொற்களை நீக்குதல் 4. சொற்பிரிப்பு பிழைகளை நீக்குதல் 5. ஒலி வேறுபாடு அறிந்து சரியான பொருள் அறிதல் 6. மொழிபெயர்ப்பு (ஆங்கிலத்திலிருந்து தமிழுக்கு) 7. சிறுகதை எழுதுதல்.	10
	Total	60

Text Book(s):பாட நூல்கள்

1. சங்க, பக்தி இலக்கிய, உரைநடைத்திரட்டு - தமிழ்த்துறை வெளியீடு, ஸ்ரீ சரஸ்வதி தியாகராஜா கல்லூரி 2021 ஜூன் பதிப்பு
2. தமிழ் இலக்கிய வரலாறு - முனைவர் கா. வாசுதேவன் தேவன் பதிப்பகம், 16 ∴43,திருநகர், திருவானைக்கோவில், திருச்சிராப்பள்ளி - 620 005 பன்னிரெண்டாம் பதிப்பு - 2017.
3. தமிழ் இலக்கிய வரலாறு - மு. வரதராசன் சாகித்ய அகாடமி வெளியீடு, புதுதில்லி. மறுபதிப்பு - 2012

Reference Book(s): பார்வை நூல்கள்

1. சங்க இலக்கியத் தொகுப்புகள் - நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட், 41 - டி, சிட்கோ இண்டஸ்ட்ரியல் எஸ்டேட், அம்பத்தூர், சென்னை - 600 098 இரண்டாம் பதிப்பு - 2008
2. பத்தாயிரம் மைல் பயணம் - வெ. இறையன்பு புதிய தலைமுறை பதிப்பகம், 24, ஜி.என். செட்டி சாலை, 2021

			தியாகராயநகர், சென்னை - 600 017, ஆறாம்பதிப்பு - 2015.
3.	இந்தியக் கலைகள்	-	பி. கோதண்டராமன் நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட், 41 - டீ, சிட்கோ இண்டஸ்டிரியல் எஸ்டே, அம்பத்தூர், சென்னை - 600 098 இரண்டாம் பதிப்பு - 2009.
4.	அலைகடலுக்கப்பால் அருந்தமிழ்	-	முனைவர் ஆ. கார்த்திகேயன் அகரம், மனை எண்.1, நிர்மலா நகர் தஞ்சாவூர் - 613 007. முதல் பதிப்பு - 2007.
5.	பக்தி இலக்கியம்	-	ப. அருணாசலம் சைவ சித்தாந்த நூற்பதிப்புக்கழகம் சென்னை - 06, பதிப்பு - 1900.
6.	சைவமும் சமணமும்	-	வேலுப்பிள்ளை எனி இந்தியன் பதிப்பகம் 102 எண் 57 பி.எம்.ஜி.காம்ளெக்ஸ் தெற்கு உஸ்மான் சாலை தி.நகர், சென்னை -17, பதிப்பு -1900
7.	தமிழில் தவறின்றி எழுத,பேசகற்க!	-	நல்லாமூர். முனைவர் கோ. பெரியண்ணன் முத்தமிழ் பதிப்பகம் 9எ மேக்மில்லன் காலனி, நங்கை நல்லூர், சென்னை - 61, பதிப்பு - 2006.

Focus of Course: தமிழ் வரலாறு, சமூக வரலாறு குறித்த காலத்தின் செய்திகள் தரப்பட்டுள்ளன. பிழையின்றி எழுத, பேச, கட்டுரை, கதை எழுதுதலுக்குப் பயன்படும் வகையில் பயிற்சி தரப்பட்டுள்ளது.

Course Designer: Dr.T. Radhika Lakshmi
Associate Professor, Dept. of Tamil, STC

Dr. S. Rajalatha
BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	தமிழ்ப்பண்பாடு, சமூகஅமைப்பு, குறிக்கோள் அமைந்த இனவாழ்க்கையைப் பற்றிய செய்திகளை உணர்ந்து கொள்ளுதல்.	K1
CO2	பக்தி இயக்கம் வளர்ந்த வரலாறு, தமிழ் உரைநடை காலந்தோறும் மாறிவந்த நிலை ஆகியவை சார்ந்த கருத்துகளைப் புரியவைத்தல்.	K2
CO3	நடைமுறையில் தமிழைப் பிழையின்றி எழுத உதவுதல். மொழிபெயர்ப்புக் கலை, கதை எழுதும் திறமையை வளர்த்தல்.	K3

Mapping Course Outcomes with Programme Outcomes& Programme Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	-	-	S	S	-	-	-
CO2	S	S	M	-	-	S	S	-	-	-
CO3	M	M	S	-	-	S	M	-	-	-

S- Strong; L- Low; M-Medium

SEMESTER- II

Coursecode	21MAL2L20	PARTI MALAYALAM PAPERII	L	T	P	C
PartI		PARTI	60	-	-	3
Pre-requisite			SyllabusVersion			2020-21

COURSEOBJECTIVE:

- A basic understandingofcontemporarypoetrycan be gained andthenatureofmodern poetrycan berealized.
- Realizing the nature of drama and its nature and improving the knowledge ofreadingand understandingthe natureofcontemporaryplays.
- Understandsthebenefitsofcorrespondenceandcanenhancethecorrespondenceyou need.
- Translationisespeciallyuseful fortranslatingfrom EnglishtoMalayalam

PARTI– MALAYALAMII		
UnitNo.	Topics	Instructional Hours
I	Novel-Enmakaje	12
II	Novel-Enmakaje	18
III	Memmories–NeermaathalamPootthakaalam	10
IV	Memmories–NeermaathalamPootthakaalam	10
V	Translation(EnglishtoMalayalam)	10
	TOTAL	60

Teachingmethods:
Lecturing, Assignment, Group Discussion, Quiz, Group Activity. PowerPoint ProjectionthroughLCD

TextBooks:
1. Emakaje–AmbikasuthanMangad –DCBooksKottayam,Kerala
2. NeermaathalamPootthakaalam-Madhavikutty-DCBooksKottayam,Kerala

ReferenceBooks:
1. AthmakathasahithyamMalayalathil-Dr.VijayalamJayakumar(N.B.S.Kottayam)
2. MalayalaNovelSahithyaCharitram-K.M.Tharakan(N.B.S.Kottayam)
3. SahithyaCharitramPrasthanangalilude-Dr.K.MGeorge,(D.C.BooksKottayam)
4. MalayalaSahithyavimarsam-SukumarAzheekode(D.C.books)

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Getabasic understandingofMemories	K1
CO2	ItwillcreatebasicknowledgeaboutEnvironmentalPsychology.	K1
CO3	Itwillcreateawarenessaboutourenvironment.	K2
CO4	Knowledgeisgainaboutour country,cultureetc	K3
CO5	ItwillbeaneyeopenertothestudentstowardsourMotherEarth.	K4

MappingwithProgrammeOutcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	S	S	S	M	S
CO3	S	M	M	M	M	S	S	M	S	M
CO4	L	S	L	S	L	S	L	M	M	M
CO5	S	S	M	S	L	S	S	S	S	S

Approved by Academic BOM JUL 2021 HOD

SEMESTER- II

Course:French2 **Credits:3**

CourseCode:21FRE2L20 **Hours:60**

Course Objectives:

To understand and use familiar everyday expressions and very basic phrases aimed at the satisfaction of needs of a concrete type

Part1 -French2		
UnitNo.	**Topics**	**Instructional Hours**
1	Etape 5(Lecons 1 -3)	**12**
2	Etape 6(Lecons 1 -3)	**18**
3	Etape 7-Leçons 1 -2	**10**
4	Etape 7–Leçon3	**10**
	Etape 8–Leçon1	
5	Etape 8–Leçons 2 -3	**10**
	TOTAL	**60**
Etapes5to8,Pages63-114		

Text Book Prescribed: Adomania 1 – Methode de francais Authors: Céline Himber, Corina Brillant, Sophie Erlich Publisher: HACHETTE FLE

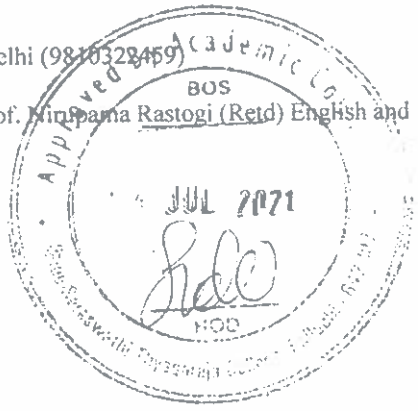
Available at: GOYAL Publishers and Distributors Pvt Ltd, New Delhi (9810322459)

Reference: Latitudes 1
Author: Yves Loiseau, Régine Merieux Publisher:

French and European Publications Inc

Available at: GOYAL publishers and distributors Pvt Ltd, New Delhi (9810322459)

SWAYAM:https://swayam.gov.in/nd2_cec19_lg04/previewby Prof. Nirupama Rastogi (Retd) English and Foreign Languages University, Hyderabad



SEMESTER- II

Coursecode	21HIN2L20	HINDIPAPER-II	L	T	P	C
PartI		PARTI	60	-	-	3
Pre-requisite			SyllabusVersion			2020-21

COURSEOBJECTIVE:

- A basic understanding of contemporary poetry can be gained and the nature ofmodernpoetry can berealized.
- Realizing the nature of drama and its nature and improving thc knowledge ofreadingand understanding the natureofcontemporary plays.
- Understands the benefits of correspondence and can enhance thecorrespondenceyou need.

TranslationisespeciallyusefulfortranslatingfromHinditoEnglish

PARTI -HINDI II		
UnitNo.		Instructional Hours
I	**MODERNPOETRY:** **PANCHVATIby MYTHLISHARANGUPT**	12
II	**ONEACT PLAY:EKANIKIPIYUSH** 1. Owrangjebki aakirirath -Ramkumarvarma 2. Ek din -LakshminarayanMisra 3. Vapasi -Vishnuprabhakar 4. Badsurathrajkumari -Krishnachandra 5. Aakket -Harijeeth	18
III	**LETTERWRITING** (Leave Letter, Job Application, Ordering Books, Letter to Publisher,Personal Letter)	10
IV	**CONVERSATION:** (Doctor&Patient,Teacher&Student,Storekeeper&Buyer,TwoFriends,Booking Clerk&PassengeratRailwayStation.AutorickshawdriverandPassenger) Ref: Bolchal Ki Hindi Aur Sanchar by Dr. Madhu Dhavan VaniPrakashan, NewDelhi.	10
V	**TRANSLATION:HINDI-ENGLISHONLY**Lessons –1-15onlyANUVADHABYAS-III	10
	TOTAL	60

MappingwithProgrammeOutcomes										
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO3	M	S	S	M	S	S	S	S	M	S
CO3	S	M	M	M	M	S	S	M	S	M
CO4	L	S	L	S	L	S	L	M	M	M
CO5	S	S	M	S	L	S	S	S	S	S

SEMESTER – II

CourseCode	CourseName	Category	Lecture(L)	Tutorial(T)	Practical(P)	Credit
21GEN2L20	Communicative English-II	Language	50	10	-	3

Preamble: This course aims to provide a better understanding on the various aspects of communicative skills through a keen focus on LSRW.

Prerequisite: Basic knowledge in Communicative English and Skills

SYLLABUS: ENGLISH PAPER-II

Unit	Course contents	Instructional hours
I	1. **Listening and Speaking** a. Listening and responding to complaints (formal situation) b. Listening to problems and offering solutions (informal) 2. **Reading and writing** a. Reading aloud (brief motivational anecdotes) b. Writing a paragraph on a proverbial expression/motivational idea. 3. **Word Power/Vocabulary** a. Synonyms & Antonyms 4. **Grammar in Context** Adverbs Prepositions	12
II	1. **Listening and Speaking:** a. Listening to famous speeches and poems b. Making short speeches- Formal: welcome speech and vote of thanks. Informal occasions- Farewell party, graduation speech 2. **Reading and Writing:** a. Writing opinion pieces (could be on travel, food, film / book reviews or on any contemporary topic) b. Reading poetry b .i. Reading aloud: (Intonation and Voice Modulation) b .ii. Identifying and using figures of speech - simile, metaphor, personification etc. 3. **Word Power** : a. Idioms & Phrases 4. **Grammar in Context:** Conjunctions and Interjections	12
III	1. **Listening and Speaking** a. Listening to Ted talks b. Making short presentations – Formal presentation with PPT, analytical presentation of graphs and 3 reports of multiple kinds c. Interactions during and after the presentations 2. **Reading and writing** a. Writing emails of complaint b. Reading aloud famous speeches 3. **Word Power** a. One Word Substitution 4. **Grammar in Context:** Sentence Patterns	12
IV	1. **Listening and Speaking** a. Participating in a meeting: face to face and online b. Listening with courtesy and adding ideas and giving opinions during the meeting and making concluding remarks. 2. **Reading and Writing** a. Reading visual texts – advertisements b. Preparing first drafts of short assignments 3. **Word Power** a. Denotation and Connotation 4. **Grammar in Context:** Sentence Types	12
V	1. **Listening and Speaking** a. Informal interview for feature writing b. Listening and responding to questions at a formal interview	12

	2. **Reading and Writing** a. Writing letters of application b. Readers' Theatre (Script Reading) c. Dramatizing everyday situations/social issues through skits. (writing scripts and performing) **3. Word Power** a. Collocation **4. Grammar in Context:** Working With Clauses	
	TOTAL	60

Text Book(s):
English Paper II, Department of English, Sree Sarawathi Thyagaraja College,2019.

Reference Book(s)
1. English Grammar Made Easy, Padmini Dev Kumar, T.Krishna Press,2008
2. General Grammar &interactive English, H.S.Bhatia,Ramesh Publishing House,2009.

Focus of the Course: Skill Development

e-Resources or e-Content:https://www.youtube.com/watch?v=ejGoHFGJQ

CourseDesigner: Dr. P.RenugaAssistantProfessor, Dept of English, STC

BoSChairman

Course Outcomes (COs)

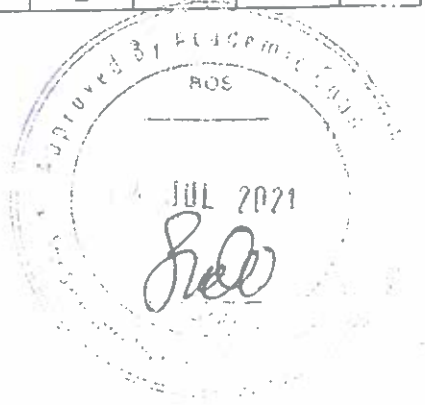
On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Understand grammar as an inherent tool for learning English language	K1
CO2	Analyze the improvement in their communication skills.	K2
CO3	To acquire knowledge to face the challenges of the professional world	K2
CO4	To gain confidence to apply language skills in practical life.	K3

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	M	S	S	M	M	S	S	M
CO2	M	S	S	S	S	M	M	M	S	L
CO3	M	S	S	S	S	S	M	S	S	M
CO4	S	S	S	S	S	S	L	S	S	M

S – Strong; L – Low; M – Medium



SEMESTER- II

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH2C11	Inorganic, Organic and Physical Chemistry –II	Core	Concept (B)	45	--	--	5

Preamble: This course aims to grasp the knowledge and understanding about the chemistry of alkali and alkaline earths, alkyl halides, benzonoid compounds, theories of wet and dry qualitative analysis, nuclear chemistry and radio activity

Prerequisites: Basic understanding about laws of chemical combinations.

UNIT	COURSE CONTENTS	HOURS
I	**Hydrogen:** Position of hydrogen in the periodic table- ortho and parahydrogens. **Water-** hard water and soft water- softening of water- Permutit, Calgan, ion exchange with resins- degree of hardness-purification of water for drinking purposes-estimation of hardness of water. Ozone and hydrogen peroxide-preparation, properties, structure and uses.	9
II	**s-block elements** General characteristics of s- block elements **Chemistry of alkali metals:** Anomolousbehaviour of Lithium - Diagonal relationship between Lithium and Magnesium. A comparitive study of oxides, hydroxides, halides and halides of alkali metals- Occurrence, Extraction and uses of Lithium. **Chemistry of alkaline earth metals:** Similarities in chemical behaviour of alkaline earth metals - Comparison of oxides, hydroxides, carbonates, halides and sulphates of alkaline earth metals. Comparison of Be with other elements of the group – diagonal relationship betweenBe- Al. Be and radium - occurrence, extraction, properties&uses.Preparation, properties and uses of Lithium AluminiumHydride, Sodium thiosulphate, Potassium carbonate(pearl ash), Epsom salt.	9
III	**Alkyl halides:** Preparation, Relative reactivity of ethyl halide, vinyl halide and allyl halides **Mechanism of substitution reactions:** Free radical substitution reactions- Mechanism of halogenations of alkanes. Nucleophilic substitution reactions- Mechanism of SN^1, SN^2, SN' reactions Substitution vs elimination. **Chemistry of benzene and other benzenoid compounds:** Aromacity and aromatic character- Huckel's rule, Mechanism of Electrophillic substitution reactions – nitration, sulphonation, halogenations and Friedal Crafts alkylation and acylation- Orientation and reactivity in substituted benzenes.Ortho/Para ratio – Nuclear and side chain Halogenation	9
IV	**Principles of wet chemical analysis and theories of acid and bases** Qualitative Analysis: Macro and Semi Micro and micro analysis- Advantages of semi-micro analysis. **Types of reactions in qualitative analysis:** Dry reactions – Action of heat, charcoal cavity test, flame test, borax bead test. Precipitation reactions –Complexation and oxidation reduction reaction – application of solubility product in qualitative analysis – analysis of second and fourth group cations. Spot test analysis for lead, copper, cadmium, bismuth, aluminium, cobalt, nickel, zinc, barium and magnesium. Removal interfering ions– removal of oxalate, borate, fluoride, chromate, phosphate, arsenite and arsenate. **Acids and bases;** Arrhenius, Lowry-Bronstead and Lewis concepts-strengths of Lewis Acids and Bases -Hard and Soft Acids and Bases. Applications of HSAB concept- Basis of	9

	hardness and softness- limitations of HSAB concept.	
V	**Solid state Chemistry** Classification of solid substances – Fundamental Laws in crystallography – law of constancy of Interfacial Angles – The law of Rationality of Indices (Weiss and miller) – The law of symmetry (Plane, axis and centre) – Elements of Symmetry in Cubic crystals – Crystal systems – Crystal Lattices, Unit cell, space lattice and space groups – Spacing of three planes of cubic lattices, simple cube, FCC, BCC.Imperfections in crystals-Schottky defect, Frenkel defects, metal excess defects and metal deficiency defects. **X-ray Examinations of crystals** – Bragg's Equation – Determination of crystal structures, Rotating Crystal method, Powder method –Structure of crystal of Rock salt and Sylvine – Calculation of Number of molecules in unit Lattice, Determination of Avagadro Number – Co-ordination number and distance between the nearest neighbours – Radius Ratio Rules – Structure of Diamond and Graphite.	9
	TOTAL	**45**

Text Book:

1. Elements of analytical chemistry (3rd edition n)-R.Gopalan, P.S.Subramanian, K.Rangarajan, Sultan Chand & Sons, New Delhi.
2. Inorganic Chemistry, P.L. Soni-Sultan Chand & Sons, New Delhi.
3. Advanced Organic Chemistry (12th edition), B.S. Bahl and ArunBahl Sultan Chand & Co., New Delhi. 2010.
4. Principles of Physical Chemistry, B.R. Puri, L.R. Sharma and M.S. Pathania, ShobanlalNagin, Chand &Co. Jalandhar.

Reference Book(s):

1. Principles of Physical chemistry, S.M. Maron and C.F. Brutton.
2. Physical Chemistry, G.W. Castellan, Narosa publishers, 2004
3. Concise Inorganic Chemistry,J.D. Lee, ELBS, 1991

Learning Methods (*): Lectures/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: you tube videos

Course Designer:
Dr. A.Shanmugapriya
Assistant Professor
Department of Chemistry, STC

Chairman /BoS

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Understand the chemistry of hydrogen, water and alkali metals	K2
CO2	Explain the properties of alkali and alkaline earth elements	K2
CO3	Executethe mechanism of substitution reactions and chemistry of benzonoid compounds	K3
CO4	Learn about the principle of wet and dry chemical analysis and acid base theory	K3
CO5	Illustrate the concept of solidstate chemistry	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- II

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
19BCH2EA0	Nano Chemistry	Core elective 1	Concept (B)	45	--	--	4

Preamble: To introduce some of the fundamentals and current state-of-the-art in nanotechnology, to get familiarized with the synthesis, characterization and applications of nanomaterials.

Prerequisites: Basic understanding about the materials science

UNIT	COURSE CONTENTS	HOURS
I	**Basics of Nanochemistry** Basics of nanomaterials: Properties of nanomaterials, quantum confinement effect, surface to volume ratio, surface properties of nanoparticles. Classification of the nanomaterials – zero,one, twoand threedimensional nanostructures	9
II	**Synthetic Techniques** Top down and bottom- up approaches–mechanical ball milling- Inert gas condensation technique – Arc plasma and laser ablation Chemical methods: sol-gel synthesis, solvo thermal synthesis, thermolysis route, spray pyrolysis. Physical methods: Pulsed laser deposition- Magnetron sputtering, Chemical Vapour Deposition	9
III	**Properties of Nanomaterials** **Physical Aspects**: Mechanical, optical, electronic, magnetic, and thermal properties. **Chemical Aspects**:Photochemistry and Electrochemistry of nanomaterials.Size dependent properties.	9
IV	**Characterization Techniques** X-ray diffraction- Electron microscopes – Scanning electron microscopes (SEM) – Transmission electron microscopes (TEM) – Scanning probe microscopy – Atomic force microscopy (AFM) – Scanning tunneling electron microscope (STEM) – basic principles only.	9
V	**Applications of Nanomaterials** Catalysis, semiconductors, sensors, and electronic devices,Nanophotonics, biology and medicine,applications of CNTs	9
	TOTAL	45

Text Book:

1. S.Shanmugam, Nanotechnology, MJP Publishers, Chennai (2010).
2. Patrick Salomon, A Handbook on Nanochemistry,, Dominant Publishers and Distributers, New Delhi.

Reference:

1.Pradeep, Nano: The Essentials: Understanding Nanoscience and Nanotechnology, McGraw-Hill Professional Publishing, 2008.
2. S. Balaji, Nanobiotechnology, MJP Publishers, Chennai (2010).
3. CNR Rao, The Chemistry of Nanomaterial: Synthesis, Properties and Applications, Vol. I and II, Springer (2006).
4. Nanotechnology: Basic Science and Emerging Technologies, Mick Wilson, Kamali Kannangara, Geoff Smith, Michelle Simmons, BurkhardRaguse, Overseas Press, (2005).

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

BOS

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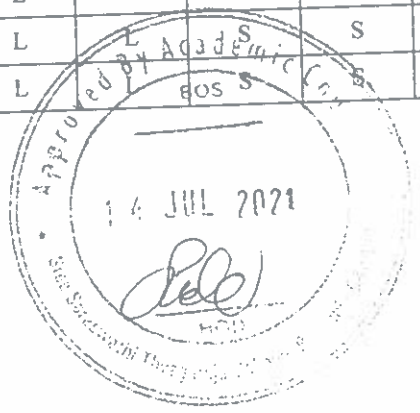
Focus of Course: Employability/ Entrepreneurship/ Skill Developmen
e-Resource/e-Content URL: NPTEL videos
Course Designer: **Dr. N.Karpagam, Assistant Professor** **Department of Chemistry, STC** **Chairman /BoS**

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Understand the basic concepts and classification of nanomaterials	K2
CO2	Study the common properties and size dependent absorption behavior of nanomaterials	K2
CO3	Demonstrate the physical and chemical synthetic routes of nanomaterials.	K2
CO4	Characterize the nanomaterials using various microscopic techniques	K2
CO5	Analyze the application of nanomaterials in various fields including catalysis,photonics, and medicine	K3

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium



SEMESTER- II

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
19BCH2EB0	Polymer Chemistry	Core Elective -1	Concept (B)	45	--	--	4

Preamble: To learn the structures, functions, properties and polymerization mechanisms of polymers.

Prerequisites: To have basic knowledge of organic chemistry

UNIT	COURSE CONTENTS	HOURS
I	**Introduction:** Basics of polymers – monomers and polymers - classification of polymers on the basis applications - thermosetting and thermoplastics -. Functionality -. Copolymers. Degree of polymerization. Types of polymerization reactions – chain polymerization -free radical and ionic polymerization – coordination and step polymerization reactions – poly-addition and poly-condensation. Basics of rubbers: types- Natural rubber - vulcanization of rubber- ebonite rubber-styrene-1,3 butadiene and neoprene rubber, uses of rubbers.	9
II	**Properties of polymers**: Glass transition temperature (Tg) -definition – factors affecting Tg. Relationship between Tg and molecular weight. Importance of Tg. Molecular weight of polymers: number average (Mn), weight average (Mw), sedimentation and viscosity average molecular weights. Polymer degradation- thermal, photo and oxidation degradation of polymers (basics only).	9
III	**Polymerization and moulding techniques:** Polymerization techniques: bulk, solution, emulsion, suspensionpolymerization. Moulding techniques: Injection, compression, extrusion, rotational and calendering.	9
IV	**Commercial polymers:**Preparation, properties and uses of the polymers: Polyethylene, polypropylene, `polystyrene, PVC, teflon and poly methyl methacrylate, polycarbonate, polyurethanes, polyamides (Kevlar), phenol-formaldehyde, urea-formaldehyde resin, epoxy resins	9
V	**Advances in polymers:** – Biomaterials. Polymers in medical field - High temperature and fire – resistant polymers. Silicones - conducting polymers- carbon fibers and polymer composites(basic idea only).	9
	TOTAL	45

Text Book:

1. Billmeyer F.W., Text book of polymer science, Jr. John Wiley and Sons, 1984.
2.Gowariker V.R., Viswanathan N.V. and JayaderSreedhar, Polymer Science, Wiley Eastern Ltd., New Delhi, 1978.

Reference Book(s):

1. Sharma, B.K., Polymer Chemistry, Goel Publishing House, Meerut, 1989.

2. Arora M.G., Singh M. and Yadav M.S., Polymer Chemistry, 2nd Revised edition, Anmol Publications Private Ltd., New Delhi, 1989.

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos

Course Designer:
Dr.A. Shanmugapriya
Assistant Professor
Department of Chemistry,STC

Chairman /BoS

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Understanding the classification, structure, function and importance of polymers	K2
CO2	Explain the nature and physical properties of polymers	K2
CO3	Acquiring the knowledge on Polymerization Techniques and moulding Technique	K3
CO4	Knowing the chemistry of commercial polymers	K2
CO5	Knowing about the advanced polymers	K3

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- II

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH2C31	Inorganic qualitative analysis- Practical –I	Core lab -1	Practical	-	-	90	3

Preamble: This course aims to equip the students with skills in carrying out wet and dry chemical test of qualitative analysis of inorganic salt mixture

Pre-requisites: Basic understanding about the chemical reactions

UNIT	COURSE CONTENTS	HOURS
I	**Safety measures in Chemistry:** Introduction – Personal protection – Nature of Chemicals – Toxic, Corrosive, Explosive, Inflammable, Carcinogenic, other hazardous chemicals – Safe storing and handling of chemicals – Disposal of chemical wastes – Glassware– Handling of Glassware – Handling of different types of equipments like Bunsen burner, Centrifuge, etc. – Ventilation facilities –Philosophy of Lab Safety – First-Aid techniques – General work culture inside the chemistry lab- importance of wearing lab coat, eye glasses.	-
II	Macro, micro, semi-micro and ultra micro methods - Semi-micro qualitative analysis for inorganic anions and cations (pertaining to undergraduate practical only). Dry and wet Tests, Sodium carbonate extract tests, confirmation test for anions –elimination of interfering radicals-general group separation and individual group analysis.	-
III	**Semi-micro Qualitative Analysis:** Analysis of simple acid radicals: carbonate, sulphide, sulphate, chloride, bromide, iodide, nitrate Analysis of interfering acid radicals: Fluoride, oxalate, borate, phosphate, chromate, arsenite Elimination of interfering acid radicals and identifying the groups of basic radicals Analysis of basic radicals (group-wise): Lead, copper, bismuth, cadmium, antimony, iron, aluminum, chromium, zinc, manganese, nickel, calcium, strontium, barium, magnesium, ammonium Analysis of a mixture-I to X containing two cations and two anions (of which one is interfering type)	-
IV	**Applied Experiments (Demonstration only):** Analysis of water for the presence of ions like calcium, magnesium, iron, sulphate, chloride, fluoride, carbonates. Analysis of Cement for the presence of ions like calcium, aluminium, iron, zinc, sulphate, chloride, phosphate Analysis of soil for the presence of minerals like potassium, sodium, nitrate, chloride, phosphate.	

Reference Books

1. Svehla, G. Vogel's Qualitative Inorganic Analysis, Pearson Education, 2012.
2. Basic principles of practical chemistry, V. Venkateswaran, R. Veeraswamy, A. R. Kulandaivelu, Sultan chand and sons,2nd edition, 1997.

Learning Methods (*): Practical

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: Youtube

Course Designer:
S.Sudha
Assistant Professor and Head
Department of Chemistry, STC

Chairman / BoS

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Understand the importance of lab safety and handling of glassware and chemicals	K1
CO2	Carry out systematic qualitative analysis of Inorganic salt mixture	K3/K4

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- II

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BPHGAB1	Allied Physics-II	Allied	Concept(B)	45		--	3
Preamble: This course gives knowledge about the different concepts in different areas of physics.							
Prerequisites: This courseaims to give some fundamental ideas in physics							

UNIT	COURSE CONTENTS	HOURS
I	**Thermodynamics**: Laws of thermodynamics – Reversible and irreversible process – Heatengine – Carnot's theorem. **Radiation**: Black body – Stefan's law – Newton's law of cooling – Newton's law of cooling from Stefan's law – Experimental determination of Stefan's constant – Wien's displacement law – Rayleigh – Jean's law – Planck's law. **Heat Conduction**: Coefficient of Thermal Conductivity – Determination of Thermal Conductivity of a bad Conductor by Lee's disc method.	9
II	**Mechanical waves:** a) **Waves in strings and pipes:** Velocity of a transverse wave along a stretched string-velocity of sound in gases- effect of temperature, pressure, humidity and density of medium on sound b) **Ultrasonic's& Sound:** Ultrasonic's – piezo-electric effect – detection of ultrasonic's – applications – reverberation time – absorption coefficient – conditions for good acoustical design of rooms – noise – measurement of noise – reduction and sound insulation	9
III	a) **Atomic physics**: Bohr's atom model – hydrogen spectrum – fine structure splitting : sodium doublet — quantum numbers- Pauli's exclusion principle b) **Quantum mechanics:** Failure of classical mechanics: Black body radiation spectra – Planck's theory – matter waves –Debroglie wavelength- Davission and Germer experiment- Heisenberg's uncertainity principle –Schroedingerequation(Time dependent & Time independent)– wave function and its interpretation.	9
IV	**Nuclear Physics** a) **General properties of nuclei:** Nuclear mass and binding energy- binding energy curve– nuclear spin and magnetic moment- mass, half life and spin of neutron - semi empirical mass formula b) **Nuclear models and elementary particles:** nuclear reactions: cross section – nuclear fission –liquid drop model –nuclear forces.	9
V	**V Electronics** Intrinsic and extrinsic semiconductor – PN Junction diode – Biasing of PN junction – V-I characteristics of junction diode – Rectifiers – Half wave – Full wave and bridge rectifiers –Zener diode – Characteristics of Zener diode – Voltage regulator – Transistor – Characteristics of transistor – CB, CE mode.	9
	TOTAL	45

Text Book:

1)Brijlal and Subramanyam, Electricity and magnetism , Ratan Prakashan Mandir publisher – 1995
2)A.B.Gupta and Dipak Ghosh, Atomic and nuclear physics – Books and allied (sp) Ltd, Calcutta

,n.S.Mani and Mehta. G.K., Introduction to modern physics
Reference: 1) Richard p. Feynman, robert b. Leighton &mathew sands, feynman lectures on physics series, vol. 1, 2 & 3, narosa publishing, new delhi, 8th reprint, 1995 2)Nelkon and Parker Advanced level physics — Arnold Publishers – 7th edition. 3)R.Khanna and R.S. Bedi , A text book of sound (Atma Ram and sons) 4) Powell and Crasemen, Quantum mechanics
Focus of Course: Employability
e-Resource/e-Content URL: NPTEL Videos and You tube
Course Designer : Ms.L.Manjuladevi Assistant Professor, Dept. of Physics, STC BOS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	The students can enrich their knowledge in basic concepts of atoms and X-rays.	K1
CO2	Enriching their knowledge about Nucleus and elementary particles.	K2
CO3	Basic knowledge about the concept Sound and Waves.	K2
CO4	Help the students to know the basics in quantum physics.	K2
CO5	Explore the students to know about the knowledge in basic electricity.	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- II

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BPHGAC0	Physics Practicals	Allied Lab	Practical (Annual pattern)	-	-	90	2

Preamble: This Course Aims To Give Practical Knowledge Of Physics Concepts

Prerequisites: To familiarize and acquire knowledge and skills through using basic measuring instruments and measurement techniques

UNIT	COURSE CONTENTS	HOURS
1	Compound Pendulum.	
2	Moment of inertia – Torsional pendulum method	
3	Young's Modulus – Non- Uniform bending – Pin and Microscope	
4	Refractive index of a solid prism – Spectrometer	
5	Thermal conductivity - Lee's disc method.	
6	Air Wedge – Thickness of Wire	
7	Viscosity by Capillary flow method	
8	Spectrometer – Grating	
9	Moment of magnet – Tan C Position	
10	Young's Modulus -Uniform bending – Pin and Microscope	
11	Sonometer – Frequency of A.C.	
12	Potentiometer – Low range Ammeter Calibration	
13	Characteristics of a Junction Diode	
14	Viscosity of highly viscous liquid - Stoke's method.	
15	Surface tension - Drop weight method	

Text Book:
Practical Physics-Dr.Sathyamoorthi .

Reference
1)University Practical Physics**Paperback– 2000** by Dr.D.C.Tayal**(Author)**

2) Practical Physics –C.L.Arora

Focus of Course: Employability

e-Resource/e-Content URL: Youtube Videos

Course Designer : Ms.L.Manjuladevi

ant Professor, Dept. of Physics, STC

BOS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Understand the importance of lab safety and handling of instruments.	K1
CO2	Carry out practical and analytical skills in physics.	K3/K4

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER – II

CourseCode	Course Name	Category	Lecture(L)	Tutorial(T)	Practical (P)	Credit
18DHE2V20	Value Education & Human Rights	VBC 2	27	-	-	2

Preamble: In order to promote and encourage interest in Value Education and Human rights, we, teach the noble purpose of education, life and living standards- Create patriotism and awareness in thenational interest by teaching the history of the country's freedom struggle – Make a good citizen imbibed with the knowledge of Indian constitution and human rights.

Prerequisite:

- The curriculum has been setup in the course of the classroom with the study of the lessons
- The syllabus is setup, to realize human values, to promote patriotism and to competewithCompetitive exams.

SYLLABUS: VALUE EDUCATION & HUMAN RIGHTS

Unit	Course contents	Instructional hours
I	**Unit-I :**Education – Definition –The purpose of education – Important values of life – The excellence of family and family relations – The significance and the necessity of culture – The roleof individual in a society – The art of complete life.	05
II	**Unit-II:** History of Indian freedom struggle – East India Company and its rule in India 1757 -1858 – Its unlawful practices and atrocities – Direct rule by British Government – Sepoy mutiny – Indians revolt against British Raj – The massacre of Jallionwalah Bagh – Indians'non-cooperation movement.**Short notes:** Pandit Jawaharlal Nehru, Patel, Subash Chandra bose, V.O.Chithambaram pillai, Baghat Sing.	06
III	**Unit-III :** Indian Constitution– The birth and the significanceof Indian Constitution – Indian citizenship – Equality of rights – The right to freedom – Right to arts, culture and education –Right to property – Basic responsibilities of every Indian – Therights andthe Acts concerned.	05
IV	**Unit-IV :**Gandhian thoughts – Gandhi and his principle of Sathyagraha – Sarvodhaya – concept and meaning – SwamiVivekananda and his teachings to the students – Dr. Abdul Kalam and the students.	06
V	**Unit-V :** Human rights – Definition – Classification of human rights – Rights to live – Rights to Equality – Traditional and cultural rights – Social, political and economic rights – Rights of women – Rights of children – Exploitation and cruelty to women – Organization protecting women's rights – Human rights organizations – Courts ofjustice – Safety of women rights.	05
	Total	**27**

Text Book(s):

1. Ethics of life and the Great Religions of theworld.
2. Publication of SreeSaraswathiThyagaraja College – 2018.

Reference Book(s):

1. Pen varalarumviduthalaikanaporatamum — Prof.P.S.Santhirababu, Dr L.Thilagavathi, Bharathi Buthaganilayam 421, Annastreet, Thenampettai, Chennai -18. Muthl pathippu - 2011.
2. MahathmaGandhiBooks — Gandhi Nool Vellietukkalagam. 21, Ramakrishna Street, Thiyagaraya Nagar, Chennai – 17, 7th Pathippu -2014
3. Inthiya viduthalaiporattavaralaru — Dr K.Vengatesh, J.J.Publications, 29, Karpaga vinayagar complex, K.Puthur, Madurai. Marupathippu – 2002.
4. Mulumaiyagavazhumkalai — M.Settu, Sree Saraswathi Thyagaraja College, Publication – 2008.

Focus of Course: Skill Development (Employability/Entrepreneurship/Skill Development)	
Course Designer: Dr. G.Malarvizhi Associate Professor, Dept. ofTamil,STC	Dr S.Rajalatha, BoSChairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Define the purpose of education, role of a person in a familyrelationship, culture and society.	K1
CO2	Understand the history of Indian independence and the Indianconstitution.	K2
CO3	Develop Gandhian ideas, Vivekananda's norms, Abdulkalam'slanguages, need for human rights and feminism.	K3

Mapping with Program OutcomesandProgramSpecific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	-	-	S	S	-	-	-
CO2	S	M	M	-	-	S	S	-	-	-
CO3	S	S	M	-	-	S	S	-	-	-

S- Strong; L- Low; M-Medium

SEMESTER II

Course Code	Course Name	Category	Lecture(L)	Tutorial(T)	Practical(P)	Credit
21GEN2Z10	Professional English – II for Physical Sciences	ECC2	45	5	–	4
Preamble: The course aims to Develop students' competence in the use of English with particular reference to the workplace situation						
Prerequisite: Basic knowledge in English						

SYLLABUS:PROFESSIONAL ENGLISH – II FOR PHYSICAL SCIENCES

Units	Course Contents	Instructional Hours
I	**Communicative Competence** **Listening** – Listening to two talks/lectures by specialists on selected subject specific topics and answering comprehension exercises (inferential questions) eg://youtu.be/moJjKqkn_Xs. **Speaking:** Small group discussions and narrating stories. **Reading:** Two subject-based reading texts followed by comprehension activities/exercises **Writing:** Summary writing based on the reading passages. Grammar and vocabulary exercises/tasks to be designed based on the discourse patterns of the listening and reading texts in the book. This is applicable for all the units.	10
II	**Persuasive Communication** **Listening:** listening to a product launch- sensitizing learners to the nuances of persuasive communication **Speaking:** Debates and Just a Minute Activities **Reading:** investigate a topic by answering inferential questions **Writing:** dialogue writing- writing an argumentative /persuasive essay.eg: Watch a you tube video on Natural Language Processing and draft a report based on the following link: https://youtu.be/5ctbvkAMQO4.	10
III	**Digital Competence** **Listening** to you tube video and doing exercises in comprehension e.g. https://youtu.be/nt2OIMAJj6o. **Speaking:** Interviews with subject specialists (using video conferencing skills) group discussion regarding drastic industrial disasters. eg: Vishakhapatnam gas leak disaster on 7 May, 2020 **Reading:** Selected sample of Web Page (subject area) and discuss the benefits of multilingualism and prepare a presentation based on discussion. **Writing:** Creating Web Pages. Essay Writing - Digital Competence for Academic and Professional Life. This essay must address all aspects of digital competence in relation to MS Office and how they can be utilized in relation to work in the subject area.	10
IV	**Creativity and Imagination** **Listening** to short (2 to 5 minutes) academic videos (prepared by EMRC/ other MOOC videos on Indian academic sites – E.g. https://www.youtube.com/watch?v=4WZTzKu3CsY) **Speaking:** Talk about a script on Analytical Engine – subject based. **Reading:** Essay on Creativity and Imagination **Writing:** Basic Script writing imagining your floating (individual). Role play of considering one's own self as a water molecule (group discussion).	10
V	**Workplace Communication and Basics of Academic Writing** **Listening:** Pronunciation Practice (Collins Dictionary) and Listening Comprehension. **Speaking:** Short academic presentations using PowerPoint. e.g. How man interferes with nature to console his greed. **Reading:** comprehension and reading activity Product Profiles, Circulars, Minutes of Meeting, Imagine a meeting to decide if you can invest a research product related to artificial photosynthesis. **Writing:** Introduction, Paraphrase and Summary, Creating webpages, Blogs,	10

	Flyers and brochures - Poster making writing slogans/captions Punctuation(period, question mark, exclamation point, comma, semicolon, colon, dash, hyphen, parentheses, brackets, braces, apostrophe, Capitalization (use of upper case quotation marks, and ellipsis)	
	Total	**50**

Text Books:
Tamil Nadu State Council for Higher Education(TANSCHE)

Reference Books:
Tamil Nadu State Council for Higher Education(TANSCHE)

Focus of Course: Employability (Employability/Skill Development)

e-Resource/e-Content URL:
- **Vidya-MitraPortal:**http://vidyamitra.inflibnet.ac.in/index.php/search
- **e-PG Pathshala:**http://epgp.inflibnet.ac.in/ahl.php?csr

Course Designer
TANSCHE Assistant Professor of English

BoS Chairman

COURSE OUTCOMES

On successful completion of the course the students will be able to:

CO Number	Course Outcome (CO) Statement	Bloom's Taxonomy Knowledge Level
CO1	Enhance the creativity of the students, which will enable them to think of innovative ways to solve issues in the workplace.	K1
CO2	Develop students' competence and competitiveness and thereby improve their employability skills.	K2
CO3	Attend interviews with boldness and confidence	K3
CO4	Adapt easily into the workplace context, having become communicatively competent	K4
CO5	Apply to the Research and Development organisations / sections in companies and offices with winning proposals	K5

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	S	S	M	M	S	S	S
CO2	M	M	M	S	S	S	M	S	S	S
CO3	M	M	M	S	S	S	S	S	S	S
CO4	M	S	S	S	S	S	M	S	S	S
CO5	M	S	S	S	S	S	M	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER – III

SEMESTER – III

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21TAM3L30	Tamil III	Part I Tamil Paper III	60	-	-	3

Preamble: காப்பிய இலக்கியங்களின் வழியே சமூகவியல், அரசியல், மானுடவியல் ஆகியவற்றின் சிறப்புகளைக் கற்பித்தல் தமிழ்ப்பாடத்தின் நோக்கமாகும். காப்பியத் தோற்றத்திற்கான காரணங்களையும் அது உண்டாக்கிக் காட்டும் பண்பாட்டு அசைவுகளையும் அறிவதை முக்கியமாகக் கொள்கிறது.

Prerequisite:

- மேனிலைப்பள்ளி முடிய கற்றவற்றைப் பகுத்து தொகுத்து ஆராயும் போக்கில்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
- மானிட மதிப்புகளை உணரும் வகையிலும், போட்டித்தேர்வுகளைஎதிர்கொள்ளும் நிலையிலும் 'தமிழ்' - பகுதி - ஐ அமைக்கப்பட்டுள்ளது.
- பிழையின்றிப் பேச, எழுத ஆராயும் முயற்சிக்குப் பயிற்சி தரப்படுகிறது

SYLLABUS: TAMILIII

Unit	Course contents	Instructional hours
I	அலகு Iஇதிகாசங்கள் கம்பராமாயணம் - நட்புக் கோட் படலம் - முழுவதும் வில்லிபாரதம் - விராட பருவம் - முழுவதும் நளவெண்பா - சுயம்வரக்காட்சி - முழுவதும்	18
II	அலகு II காப்பியங்கள் சிலப்பதிகாரம் - காடுகாண் காதை மணிமேகலை - ஆதிரை பிச்சையிட்ட காதை	14
III	அலகு III பக்திக் காப்பியங்கள் பெரியபுராணம் - அரிவாட்ட நாயனார் புராணம் சீறாப்புராணம் - புலி வசனித்த படலம் இயேசு காவியம் - எருசலேமிற்குள்	13
IV	அலகு IV இலக்கிய வரலாறு 1 இதிகாசம் , புராணங்கள் - புராணங்களின் வளர்நிலை 2. காப்பியத்தின் தோற்றமும் வளர்ச்சியும் தன்முயற்சிப் படிப்பு - இதழியல்	08
V	அலகு V இலக்கணம் யாப்பிலக்கணம் - செய்யுள் உறுப்புகள் - பா வகைகள் தண்டியலங்காரம் - காப்பிய இலக்கணம்	07
	Total	**60**

Text Book(s):பாட நூல்கள்

1.இதிகாசங்கள் காப்பியங்கள் திரட்டு - தமிழ்த்துறை வெளியீடு, ஸ்ரீ சரஸ்வதி தியாகராஜா கல்லூரி 2021 ஜூன் வெளியீடு

2. தமிழ் இலக்கிய வரலாறு - கா.வாசுதேவன் தேவன் பதிப்பகம் 16,43,திருநகர், திருவானைக்கோவில், திருச்சி-620 005.

3. இதழியல் கலை - மா. பா. குருசாமி தாயன்பகம் 6 வது தெரு,எ.கே.எம்,ஜி நகர், திண்டுக்கல் - 624061. பதிமுன்றாம் பதிப்பு -2009.

4. தமிழ் இலக்கிய வரலாறு - மு. வரதராசன் சாகித்ய அகாடமி வெளியீடு, புதுதில்லி. மறுபதிப்பு - 2012

Reference Book(s):பார்வை நூல்கள்

1. தமிழ்க்காப்பியங்கள்	-	கி.வா. ஜகந்நாதன் முல்லை நிலையம் 9, பாரதி நகர் முதல் தெரு, தியாகராய நகர், சென்னை – 600 017 முதற்பதிப்பு 2012
2. கூத்தும் சிலம்பும்	-	முனைவர்.அ.அறிவுநம்பி சித்திரம் வெளியீடு 15,கலைவாணி நகர் இலாசுப் பேட்டை புதுச்சேரி – 605 008 இரண்டாம் பதிப்பு - 2009.
3. காப்பிய நோக்கில் கம்பராமாயணம்	-	முனைவர்.அ.பாண்டுரங்கன் நியூ செஞ்சுரி புக் ஹவுஸ் 41,பி சிட்கோ இன்டஸ்ட்ரியல் எஸ்டேட் அம்பத்தூர், சென்னை – 98 திருத்திய பதிப்பு - 2007.
4. கம்பனின் காட்சிக் கோலங்கள்	-	டாக்டர்.அ.ஞானசுந்தரத்தரசு தமிழ்ச்சோலைப் பதிப்பகம் 14,முத்துக்கருப்பனார் நகர் இராச கோபாலபுரம், புதுக்கோட்டை – 622 003 முதல்பதிப்பு -2006.
5.யாப்பருங்கலக்காரிகை	-	முனைவர் ச.திருஞானசம்மந்தர் கதிர்பதிப்பகம் தெற்கு வீதி, திருவையாறு 613204, பதிப்பு - 2006.

Focus of Course:தமிழ் இலக்கியத்தில் காப்பியம், அதன் சிறப்புகளை அறிந்து கொள்ளும் வகையில் பாடங்கள் அமைக்கப்பட்டுள்ளன. செய்யுள் உறுப்புகளை அறிந்து இலக்கண அறிவை மேம்படுத்தும் வகையில் பயிற்சி தரப்பட்டுள்ளது.

Course Designer: Dr. R.BABY
Associate Professor, Dept. of Tamil, STC

Dr. S. Rajalatha
BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	காப்பிய இலக்கியங்களின் வழி சமூகம், பண்பாடு, வரலாறு, அரசியல் கூறுகளை அறிந்து கொள்ளல்	K1
CO2	தமிழ் இலக்கிய வடிவத்தில் ஏற்பட்ட மாற்றம், சமயக் காப்பியங்களால் இலக்கியம் அடைந்த செல்வாக்கு, வரலாறு போன்றவற்றை புரியவைத்தல்.	K2
CO3	மரபுக்கவிதை எழுதுவதற்குத் தேவையான யாப்பிலக்கணம் அறிந்து மரபுக்கவிதை எழுதும் திறனை வளர்த்தல்	K3

Mapping Course Outcomes with Programme Outcomes & Programme Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	-	-	S	S	-	-	-
CO2	M	S	M	-	-	M	S	-	-	-
CO3	M	M	S	-	-	M	M	-	-	-

S- Strong; L- Low; M-Medium

SEMESTER- III

Coursecode	21MAL3L30	PART I - MALAYALAM-PAPERIII	L	T	P	C
Part-I		PARTI	60	-	-	3
Pre-requisite			SyllabusVersion			2020-21

COURSEOBJECTIVE:

- Mayhaveknowledgeofthecontentsofprimitivepoetry
- Learnabout contemporarypoetryand itstechniques.
- Interestinreadingpoetryandtheabilityto expresssocialthoughtswillimprove
- This will help you to understand the basics of Malayalam Poetry and to understand Malayalamliteratureproperly
- Itwillprovideknowledgeoftheelementsofpoetry.

UnitNo	PARTI –MALAYALAMIII	Instructional hours
I	Poetry–Chinthavishtayaya Seetha	18
II	Poetry–Chinthavishtayaya Seetha	14
III	Poetry-Mrugasikshakan	13
IV	Poetry -Mrugasikshakan	8
V	Poetry-Aayisha	7
	TOTAL	60

Teaching methods:
Lecturing, Assignment, Group Discussion, Quiz, Group Activity. PowerPoint Projection through LCD

TEXT BOOKS:
Chinthavishtayaya Seetha –Kumaranasan,Kerala Book Store Publishers.
Mrugasikshakan – Vijayalakshmi,DC Books, Kottayam
Aayisha – VayalarRamavarma - Kerala Book Store Publishers.

Reference Books:
1.Kavitha SahithyaCharitram-Dr.M.Leelavathi (Kerala SahithyaAcademy,Trichur)
2.Kavitha Dwani-Dr.M.Leelavathi (D.C.Books, Kottayam)
3.Aadhunika SahithyacharithramPrasthanangalilude-Dr.K.M.George (D.C.Books, Kottayam)
4.Padya SahithyaCharithram – T.M.Chummar (Kerala SahithyaAcademy,Trichur)

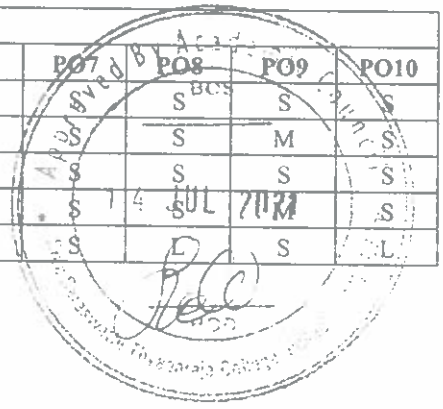
Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Getabasicknowledgeof thehistoryofMalayalamliterature.	K1
CO2	Enhancesthe artandtasteofMalayalamliteraryworks	K1
CO3	Literarygenrescanbelearned	K2
CO4	Createmoretoreadandenjoy Malayalampoetry	K3
CO5	Getthebasic Knowledgeofpoetrytechniques	K4

MappingwithProgrammeOutcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO2	M	S	S	M	S	S	S	S	M	S
CO3	S	S	M	S	L	S	S	S	S	S
CO4	M	S	S	M	S	S	S	S	M	S
CO5	S	M	M	M	M	S	S	L	S	L



SEMESTER- III

Course:French3 **Credits:3**
CourseCode:21FRE3L30 **Hours:60**

CourseObjectives:

Tointeractinasimpleway,askandanswersimplequestionsaboutthemselves,wherethey live, people they know, and things they have, initiate and respond to simplestatements in areas of immediate need or on very familiar topics, rather than relyingpurely on a very finite rehearsed, lexically-organised repertoire of situation-specificphrases

Part1 -French3		
UnitNo.	**Topics**	**Instructional hours**
1	Etape1(Lecons 1-3)	**18**
2	Etape 2(Lecons 1 -3)	**14**
3	Etape3 -Leçons 1 -2	**13**
4	Etape3 –Leçon3	**8**
	Etape4 –Leçon1	
5	Etape4 –Leçons 2 -3	**7**
		60

Etapes1to4,Pages9to62

TextBookPrescribed:Adomania2–MethodedefrancaisAuthors:Céline Himber,CorinaBrillant,Sophie ErlichPublisher: HACHETTEFLE

Availableat:GOYALPublishersandDistributorsPvtLtd,NewDelhi(9810322459)

Reference:Latitudes1
Author:YvesLoiseau,RégineMerieuxPublisher:FrenchandEuropeanPublicationsInc

Availableat:GOYALpublishersanddistributorsPvtLtd,NewDelhi(9810322459)

SWAYAM:https://swayam.gov.in/nd2_cec19_lg04/preview byProf.NirupamaRastogi(Retd)Englishand ForeignLanguagesUniversity,Hyderabad

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Comprehendarepertoireofvocabulary	K1
CO2	Understandtensesandintermediarylevelofgrammar	K2
CO3	Trytoconverseinunknownsituation	K3
CO4	Translateunknowntextsonfamiliartopics	K4

SEMESTER- III

Coursecode	21HIN3L30	HINDI– PAPER-III	L	T	P	C
Part-I		PARTI	60	-	-	3
Pre-requisite			SyllabusVersion			2020-21

COURSEOBJECTIVE:

- Mayhaveknowledgeofthecontentsof primitivepoetry
- Learnaboutcontemporarypoetryanditstechniques.
- Interestinreadingpoetryandtheabilitytoexpresssocialthoughtswillimprove
- This will help you to understand the basics of Hindi literature and to understand Hindiliteratureproperly
- Knowledgeoftheelementsofpoetryandtheknowledgeofsubtletranslationwillimprove.

UnitNo	PARTI –HINDIII	Instructional hours
I	POETRY:**KAVYALEHAR–byDr.V.BaskharPRACHEENKAVITHA** 1. MAHATMAKABER –SAKI 2. GOSWAMYTULASIDAS –RAM-VAN-AMAN 3. MAHATMASOORDAS -BAAL-LEELA 4. KAVIVARRAHIM -DOHE	18
II	**POETRY:KAVYALEHAR–byDr. V.BaskharAADHUNIKKAVITHA** 1. MYTHILISHARNGUPTH –VIKARALBIJALI 2. SUMITHRANANDANPANTH –PARIVARTHAN 3. SURYAKANTHTHRIPATINIRALA –SANDHAYASUNDARAI 4. RAMDHARISINGDINKAR KEDAKKIYA –BHAGAVAN 5. HARIVANSRAYBACHCHAN –KOTASIKKA 6. AGYEYA –ANUBHAVPARIPAKVA 7. NARESHMEHTHA –ULLANGAN 8. DHARMAVEERBHARATHI – TUMMERE KOUN HO	14
III	**HISTORYOFHINDILITERATURE**:(SAHITHYIKTIPPANIAN) 1. AMMERKUSRO 2. VIDHYAPATHI 3. CHANDBARDHAYI 4. PRUTHIVIRAJRASO 5. RAMACHARITHAMANAS 6. VINAYAPATRIKA	13
IV	**ALANKAR:** 1.ANUPRAS, 2. YAMAK, 3. SLESH 4.VAKROKTHI, 5.UPAMA, 6. ROOPAK, 7. VIRODHABAS	8
V	**TRANSLATION:ENGLISH-HINDIonly**ANUVADHABHYAS – III(16-30Lessonsonly)	7
	TOTAL	60

Teaching methods:

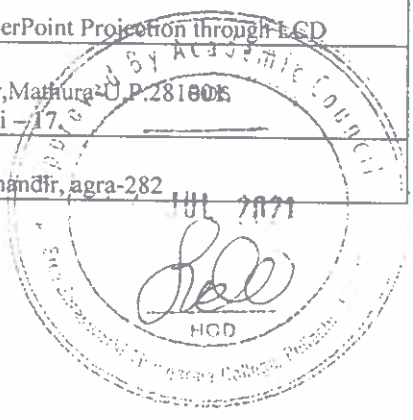
Lecturing, Assignment, Group Discussion, Quiz, Group Activity. PowerPoint Projection through LCD

Text Book:

1. Kavya Lehar – Dr.V.Baskhar, Jawahar Pusthakalay, Sadar Bazaar,Mathura-U.P.281001
2. Anuvadh abyas-III,Dakshin Bharath Hindi Prachar Sabha Chennai – 17.

Reference Books:

1. Hindi sahithya ka saral ithihaas,by rajnath sharma, vinod pustak mandir, agra-282



2. Kavya Pradeep Rambadri Shukla, Hindi Bhavan, 36, Tagore Town, Allahabad – 211 002.
Web Link: https://hi.wikipedia.org/wiki/ https://en.wikipedia.org/wiki/Premchand

MappingwithProgrammeOutcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	S	S	S	S	S	S	S	S	S	S
CO2	M	S	S	M	S	S	S	S	M	S
CO3	S	S	M	S	L	S	S	S	S	S
CO4	M	S	S	M	S	S	S	S	M	S
CO5	S	M	M	M	M	S	S	L	S	L

SEMESTER III

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21GEN3L30	English Paper-III	Language 2	50	10	-	3

Preamble: This course aims at facilitating the student to understand the functional usage of English language and apply it in real time situation

Prerequisite: Basic knowledge in English

SYLLABUS: ENGLISH PAPER-III

Unit	Course contents	Instructional hours
I	Prose : The Gift of Language Poetry: Buying and Selling-Khalil Gibran Short Story:Home Coming-Rabindranath Tagore SpeakingSkill: Narration of shortstories, events, incidents	12
II	Prose : Three Days to See-Helen Keller Poetry :La Belle DameSans Merci-Keats Short Story: The Silver Butterfly-Pearl S.Buck Writing Skill: Review of shortstory, films Writing Advertisement	12
III	Scenes From Shakespeare Othello – Act V; scene - II The Tempest - Act III ; scene - I King Lear – Act – I ; scene - I	12
IV	Wuthering Heights Chapter 1-16	12
V	Wuthering Heights Chapter 17-32	12
	Total	60

Text Book(s):

English Paper III, Department of English, Sree Saraswathi Thyagaraja College,2019.

Brontte, Emily.Wordsworth Editions Limited,1992.

Reference Book(s):

1. Moruzzi,Massimo.15 Questions about Online Advertising.Free.Ebooks.net
2. Moruzzi,Massimo.15 Questions about Native Advertising.Free.Ebooks.net
3. Monaco,James. How to Read a Film. Oxford: OUP 2009.
4. Lewis,Jon. Essential Cinema. Michael Rosenberg. Boston 2014.
5. Sparkles English for Communication,Board of Editors, Emerald Publishers,2015

Focus of Course: Skill Development

e-Resource/ e-Content URL:https://www.youtube.com/watch?v=ejXrGoHFGJQ

Course Designer: Dr. R Vennila Nancy Christina,
Assistant Professor, Department of English, STC,

BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Acquire good communicative skills both in content and language	K1
CO2	Acquire an ability to analyze social and cultural aspects of English speaking community	K2
CO3	To enhance the narrative skill	K2
CO4	To gain proficiency in writing for advertisement	K3

Mapping with Program OutcomesandProgramSpecific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	M	S	S	M	M	S	S	M
CO2	M	S	S	S	S	M	M	S	S	L
CO3	M	S	S	S	S	S	M	S	S	M
CO4	S	S	S	S	S	S	S	S	S	M

S –Strong; L –Low; M –Medium

Approved By Academic Council
14 JUL 2021
HOD

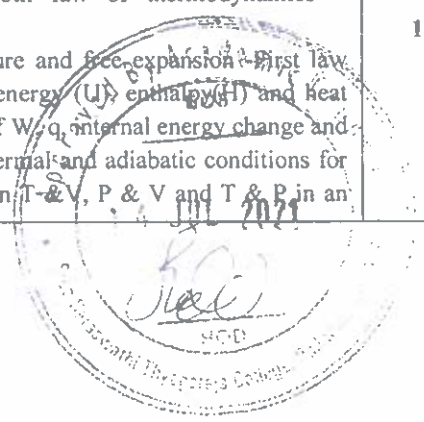
SEMESTER- III

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH3C11	Inorganic, Organic and Physical Chemistry-III	Core	Concept (B)	60	-	-	5

Preamble: To acquire knowledge about boron and nitrogen family, alcohols, ether, phenols, carbonyl compounds and thermodynamics

Prerequisites: Basic knowledge about inorganic and organic chemistry and thermodynamics

UNIT	COURSE CONTENTS	HOURS
I	**Boron Family:** Group discussion–Electron acceptor behaviour andelectron deficiency of boron hydrides- bonding in diboranes; Preparation,properties,structure and uses of $NaBH_4$,Borax and Borazole - Amphoteric behaviour of aluminium. **Allotropes of Carbon**-Graphite, Diamond and Fullerenes **Silicates:** Classification of silicates with examples. Silicones – types and Silicone rubbers. **Nitrogen family**: Difference between nitrogen and other elements of thegroup – Preparation and properties of Hydrazine, Hydroxyl amine, Nitrous oxide, H_3PO_3 and H_3PO_4, $H_4P_2O_7$- chemistry of $NaBiO_3$	12
II	**Alcohols:** Preparation,Classification–Distinction between primary, secondary and tertiary alcohols – Hydrogen Bonding in alcohols-Effects on boiling point and solubility – Oppenhauer oxidation of diols- Inter conversion of alcohols. **Ethers**: Isomerism in ethers- inertness- cleavage of ethers with HI - uses of diethyl ether-Anisole- preparation and properties. **Phenols**: Effect of substituents on solubility, boiling points and acidity of phenols-Electrophilicsubstitution reaction of phenol. Mechanism of Kolbe, Reimer-Tiemann, Gattermann, Lederer - Manasse and Houben – Hoesch and Coupling reaction with diazonium salts.	12
III	**Carbonyl Compounds:** Reactions of Aldehydes and Ketones– Nucleophilic addition across C=O Group-Addition of Grignard Reagent, NH_3, $NaHSO_3$, HCN, Alcohol- reaction with Hydrazine, Phenyl Hydrazine, 2,4-Dinitrophenyl hydrazine,Semicarbazide,Aldol Condensation,Knoevenagel, Claisen, Dieckmann, Reformatsky Reactions, Benzoin and Perkin condensation, Cannizaro Reaction, Oxidation-Reductions using $LiAlH_4$, $NaBH_4$, Wolf-Kishner, Clemmensen Reduction. (Mechanism Included). **Di carboxylic acids:** Preparation, properties and uses of malonic, succinic, glutaric and adipic acids- Action of heat on dicarboxylicacids. **Tri carboxylic acid**: Citric acid- preparation, properties and uses.	12
IV	**Thermodynamics–I:** Scope and limitations of thermodynamics-Terminology – system –surroundings – isolated, closed and opensystems– Homogeneous and heterogeneous systems- state of the system – intensive and extensive properties- thermodynamic processes-cyclic, reversible, irreversible, isothermal and adiabatic processes – state and path functions –exact and inexact differentials – Zeroth law of thermodynamics – Absolute scale of temperature. Heat and work – work of expansion at constant pressure and free expansion - First law ofthermodynamics – statement – definition of internal energy (U), enthalpy(H) and heat capacity -relationship between Cp and Cv – calculation of W, q, internal energy change and enthalpy change for expansion of ideal gase under isothermal and adiabatic conditions for reversible and irreversible process – relationship between T & V, P & V and T & P in an	12



	adiabatic process. Joule Thomson effect- calculation of Joule Thomson coefficient for ideal and real gases – inversion temperature	
V	**Thermodynamics – II** Second Law of Thermodynamics: Introduction–Need for Second Law– Various statements – Carnot cycle –expression for efficiency of a heat engine Entropy-definition units-entropy changes in isothermal transformations-Trouton's rule, entropy as a function of P &Vas well asT and P-changes of entropy with temperature as well as pressure. Entropy changes of ideal gases, entropy of mixing of ideal gases, physical significance of entropy. Standard entropy. **Free Energy and work function:**Definition of Helmholtz Free Energy and Gibbs free energy – physical signifcanceof ΔA and ΔG. Gibbs – Helmholtz Equation. Work Function and Free Energy Relationships – Variation of free energy change with T and P- Maxwell's Equations and their significance – Criteria for the reversible and irreversible processes.VantHoff isotherm andVantHoff isochore- derivation and significance.	12
	OTAL	60

Text Book(s):

1. Advanced Organic Chemistry, B. S. Bahl, ArunBahl, S.Chand& Co., 2010, NewDelhi.
2. Principles of Inorganic Chemistry, B.R. Puri& L.R. Sharma, ShobanlalNagin, Chand & Co.
3. Elements of Physical Chemistry, B. R. Puri, L. R. Sharma and M. S. Pathania. Vishal PublishingJalandar, 2nd edition.

Reference Book(s):

1. Principles of Physical chemistry, S.M. Maron and C. F. Brutton, Oxford – IBH.
2. Physical Chemistry, G.W. Castellan, Narosa Publishers.
3. Concise Inorganic chemistry, J.D. Lee., ELBS,1991

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos

Course Designer: S. Sudha, Assistant Professor,Department of Chemistry (UG), STC

BOS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Understand the chemistry of boron and nitrogen family, concept of allotropy and silicates	K2
CO2	Learn about the chemistry of alcohols ethers and phenols, carbonyl compounds, di carboxylic and tri carboxylic acids	K3
CO3	Apply the concept of thermodynamics (I and II law)	K3

BOS

12 JUL 2021

Mapping the Programme Outcomes

COs/Pos	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER – I / III (Science Stream)

Class : II B.Sc (Chemistry) **ACADEMIC YEAR : 2021-22**

Course Code	Course Name	Category	Lecture(L)	Tutorial(T)	Practical (P)	Credit
21BMAGAB0	Basic Mathematics for Science	Allied	45	15	-	4

SYLLABUS: BASIC MATHEMATICS FOR SCIENCE

Unit	Course Contents	Hours
I	Differentiation-standard forms-product rule-quotient rule-function of function rule-inverse functions-logarithmic differentiation-parametric differentiation (derivations to be avoided)	12
II	Tangent and normal: Direction of tangent-equation of tangent and normal at any point of the curves-angle of intersection of curves-sub tangent and sub normal's	12
III	Curvature: Definition-radius of curvature-Cartesian form of radius of curvature-centre of curvature	12
IV	Integrals of the functions of the form $\int [f(x)]^n f'(x)dx$ – integration of the form $\int \frac{dx}{ax^2+bx+c}$ integration of the form $\int \frac{lx+m}{ax^2+bx+c}$ integration of the form $\int \frac{dx}{\sqrt{ax^2+bx+c}}$	12
V	Reduction formula for Trigonometric function: Reduction formula for $In = \int \sin^n xdx$and $In = \int \cos^n xdx$- Double integral- Double integral in polar co-ordinates	12
	Total	60

Text Book(s):

1. T.K. ManicavachagamPillai, S.Narayanan, Calculus (Volume I), Viswanathan Printers & Publishers Private Ltd, 2003 (For Unit- I, II & III)
2. Prof.M.L.Khanna, Dr.Sudhir.K.Pundir, Integral Calculus, JayaprakashNath& Co. (For Unit- IV & V)

Unit I Pages: 24-44, 50-51, 59-60.
Unit II Pages: 241-280
Unit III Pages: 291-308
Unit IV Pages: 17-19, 38-41, 59-64
Unit V Pages: 130-134, 425-435

Theory 20% and Problems 80%

Reference Book(s):

1. T.K. ManicavachagamPillai, S.Narayanan, Calculus (Volume II), Viswanathan Printers & Publishers Private Ltd, 2003
2. P. Kandasamy and K.Thilagavathy, Mathematics for BSc Vol I and. II, S.Chand and Co, 2004.
3. Shanthi Narayanan and J.N. Kapoor, Differential Calculus, S.Chand& Co, 1996.

Learning Methods (*):

- Assignment/Seminar/Quiz etc.,

Focus of Course: Employability

e-Resource/e-Content URL: https://www.youtube.com/watch?v=ZsqXYSrOXg8

Course Designer: Dr. R. SenthilAmutha
Head & Assistant Professor, Dept. of Mathematics , STC

BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Classify different types of differentiation	K2
CO2	Explain equation of tangent and normal at any point of the curves	K3
CO3	Build the concept of curvature and apply if in solving problems	K2
CO4	Explain integration by parts and to develop reduction formula	K1
CO5	Explain double and triple intergrals	K2

Mapping the Programme Outcomes (For B.ScChemistry)

Cos/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	L	L	M	M	L	L	M	L	L
CO2	L	L	L	L	L	L	L	L	L	L
CO3	M	L	L	L	M	L	M	L	L	L
CO4	L	L	L	L	L	L	L	L	L	L
CO5	L	L	L	L	L	L	L	L	L	L

S – Strong; L – Low; M – Medium

2021-22

SEMESTER – III(Science Stream)

Class : II B.Sc (Chemistry) **ACADEMIC YEAR : 2021-22**

Course Code	Course Name	Category	Lecture(L)	Tutorial(T)	Practical (P)	Credit
21BMAGAA0	Applied Statistics	Allied	45	15	-	4

SYLLABUS: APPLIED STATISTICS

Unit	Course Contents	Hours
I	**Time series:** Components of time series – Measurement of trend - graphical method – semi average method– moving average method – method of least square & problems.	12
II	Index number: Introduction -Weighted and Un weighted Index numbers –Laspeyre's, Paasche's, Fisher's, Marshal – Edgeworth, Bowley's, Kelley's index numbers - Cost of living Index number - Ideal index number.	12
III	**Probability:** Introduction - classical definition – Addition & multiplication theorem - Axiomatic Theorem of probability – Conditional probability & problems.	12
IV	Binomial distribution – definition – properties (Statement only) – Problems – Poisson distribution – definition – properties (Statement only) – problems.	12
V	Normal distribution:Standard of normal distribution & problems.	12
	Total	**60**

Text Book(s):

1. Gupta. S. P," Statistical Methods ",Sultan Chand & Sons, New Delhi.
   UNIT I Page No. 614-620,622-644.
   UNIT II Page No. 536,543-557, 576-587.
   UNIT III Page No. 752-755,761-766.
2. D.C. Sancheti&V.K.Kapoor, Statistics, Sultan Chand & Sons, New Delhi.
   UNIT IV Page No. 16.2-16.3, 16.7-16.11,16.14-16.15,16.19-16.25
   UNIT V Page No. 16.30-16.32, 16.34-16.42

Theory 20% and Problems 80%

Reference Book(s):

1. Gupta, S.C., Kapoor, V.K., "Elements of Mathematical Statistics", Sultan Chand & Sons, New Delhi.
2. Gupta C.B, Vijay Gupta, "An introduction to Statistical Methods", Vikas publishing house private limited.
3. S.N.Pillai, Bagavathi, Statistics theory & Practice, S. Chand company PVT Ltd, New Delhi, Reprint 2015.

Learning Methods (*):

• Assignment/Seminar/Quiz etc.,

Focus of Course: Employability

e-Resource/e-Content URL: https://www.youtube.com/watch?v=aG9Bbt3-itk

Course Designer: Dr. R. SenthilAmutha
Head & Associate Professor, Dept. of UG Mathematics , STC

BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Recall the basic concepts of statistics	K1
CO2	Describe the types of index numbers	K2
CO3	Remember the notions of probability	K1
CO4	Understand the concept of Binomial distribution and application.	K2
CO5	Apply the concepts of probabilty in real life situations	K3

Mapping the Programme Outcomes (For B.ScChemistry)

Cos/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	S	S	M	M	S	L	M	M	M
CO2	M	S	S	M	M	S	M	M	M	M
CO3	M	M	M	M	M	M	L	M	M	M
CO4	S	M	M	M	M	M	L	M	M	M
CO5	S	M	M	M	M	M	L	M	M	M

S – Strong; L – Low; M – Medium

SEMESTER – III(Science Stream)

Class:II B.Sc (Chemistry) **ACADEMIC YEAR : 2021-22**

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BMAGAC0	Theory of Matrices and Differential Equations	Allied	45	15	-	4

Preamble: To throw light on the importance of the Theory of Matrices and Differential Equations.

Prerequisite: Matrices and differential equation at HSc level

SYLLABUS: THEORY OF MATRICES AND DIFFERENTIAL EQUATIONS

Unit	Course contents	Hours
I	Types of Matrices: Addition of matrices – Multiplication of matrices- Inverse matrix – Orthogonal matrices – Properties – Simple Problems.	12
II	Rank of a matrix: Solving a system of m homogeneous linear equations in n unknowns – system of non – homogeneous linear equations.	12
III	Eigen Values and Eigen vectors of a matrix :Similar matrices – Cayley Hamilton Theorem (Statement Only) – Simple Problems	12
IV	**Differential Equations :** Definition- Solution of Differential equations – Formation of Differential equations – Equations of the first order and of the first degree – Variable Separable	12
V	Solution of first order and of a degree of higher than the first: Second and Higher order linear Differential equations of the form $\frac{d^2y}{dx^2} - m\frac{dy}{dx} + ny = k, e^{nx}, x, x^2$.	12
	Total	**60**

Text Book(s):

1. T.K.Manicavachagompillay, T.Natarajan and K.S. Ganapathy,Algebra Volume II, S.V. Publications, Chennai. (Unit I , II and III)
2. Dr.M.K.Venkatraman, ManoramaSridhar ,Differential Equations and Laplace Transforms, . (Unit IV , V)

Unit I Pages: 59-95.
Unit II Pages 96-102,104-109.
Unit III Pages 110-122.
Unit IV Pages 1.1 -1.8,2.1-2.7.
Unit V Pages 4.12-4.47.

Theory 20% and Problems 80%

Reference Book(s):

1. Narayanan S. ManickavachagomPillai T.K, "Differential Equations and its Applications" Viswanathan Printers, 2007.
2. ZafarAhsan, Differential Equations and their application, second edition, prentice Hall of India , Pvt ltd,2004
3. P. Kandasamy, K.Thilagavathy, Mathematics for B.Sc Br. I Third Semester Vol III, S.Chand Publications, 2004.

Learning Methods (*):

- Assignment/Seminar/Quiz/Group Discussion/Case-Study/Self-Study/etc.,

Focus of Course:Employability

e-Resource/e-Content URL: https://www.youtube.com/watch?v=EVeH6guQaVM

Course Designer:K. Sivasamy , DeanMathematics, STC

BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Classify different types of matrices and their properties	K2
CO2	Apply concept of rank in solving homogeneous and non – homogeneous linear equations	K3
CO3	Discuss eigen values and eigen vectors of a matrix and to apply Cayley Hamilton theorem to get A^{-1}	K3
CO4	Define the concept of ODE and its formation.	K1
CO5	Understand the concept solution of ODE	K2

Mapping the Programme Outcomes (For B.ScChemistry)

Cos/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	L	L	M	M	L	L	M	L	L
CO2	L	L	L	L	L	L	L	L	L	L
CO3	M	L	L	L	M	L	M	L	L	L
CO4	L	L	L	L	L	L	L	L	L	L
CO5	L	L	L	L	L	L	L	L	L	L

S – Strong; L – Low; M – Medium

SEMESTER – III

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21TAM3N10	Basic Tamil I	NME 1	27	-	-	2

Preamble:தமிழ்மொழியை அறிமுகம் செய்து தமிழ் எழுத்துக்களின் சிறப்பு, தமிழர் பண்பாடு, தமிழ் இலக்கியங்களை அறிமுகம் செய்து, மொழியைப் புரிந்து கொள்வதற்கும், மடல் எழுதுவதற்கும் அடிப்படைத்தமிழ் வழி பயிற்சி அளிக்கப்படுகின்றது.

Prerequisite:

- தமிழ்மொழி கற்காத பிறமொழி கற்ற மாணவர்களுக்குத் தமிழ் எழுத்துக்களின் அறிமுகத்தை ஏற்படுத்தும் நோக்கில் பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
- தமிழ் மக்களின் பண்பாடுகளை அறியும் நோக்கில் பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
- பிழையின்றிப்பேச, எழுத பயிற்சி அளிக்கப்படுகிறது.

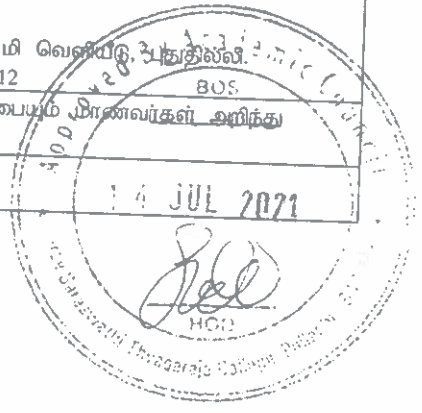
SYLLABUS:BASIC TAMIL I

Unit	Course contents	Instructional hours
I	அலகு I தமிழ் எழுத்துக்கள் அறிமுகமஸ - உயிர், மெய், உயிர்மெய், ஆய்தம்,குறில், நெடில் வேறுபாடு, எழுத்துப்பயிற்சி மற்றும் உச்சரிப்பு	06
II	அலகுII திணை, பால், எண், இடம், காலம்	06
III	அலகுIII சேர்த்தெழுதுக, பிரித்தெழுதுக, பொருத்துக	04
IV	அலகு IV பெயர்ச்சொல், வினைச்சொல் வகைகள	05
V	அலகுV குறிப்புகளைக் கொண்டு கதை எழுதுதல், வாசிப்புப் பயிற்சியளித்தல்	06
	Total	27

Reference Book(s):பார்வை நூல்கள்

1. பஞ்சதந்திரம் - முனைவர். துரை சுந்தரேசன்
ஜோதி லட்சுமி பப்ளிகேசன்,
24-135 கற்பகம் அவென்யூ,
நான்காம் தெரு,
சென்னை – 28.:. பதிப்பு - 2006.
2. நல்ல தமிழ் - முனைவர். க. வெள்ளி மலை
விஜயா பதிப்பகம்
20.:. இராஜ வீதி
கோவை – 1.:. பதிப்பு - 2006.
3.தமிழில் தவறின்றி எழுத பேச கற்க! - நல்லாமூர் முனைவர் கோ.பெரியண்ணன்
முத்தமிழ் பதிப்பகம்,
9 எ மேக்மில்லன் காலனி,
நங்கை நல்லூர், சென்னை – 61.
பதிப்பு -2006
4. இனிய தமிழ் பயிற்சி நூல்
புத்தகம் -3 - கோ.சந்திரலேகா
அலைடு பப்ளி'ர்ஸ் பிரைவேட் லிமிடெட்,
சென்னை - 02.
பதிப்பு– 2008.
5.தமிழ் இலக்கிய வரலாறு - மு. வரதராசன்
சாகித்ய அகாடமி வெளியீடு, புதுதில்லி.
மறுபதிப்பு - 2012

Focus of Course:தமிழ் எழுத்துக்களின் வரி வடிவத்தையும் வாக்கிய அமைப்பையும் மாணவர்கள் அறிந்து கொள்ளப் பயன்படுகிறது.



Course Designer: Dr. G.Malarvizhi Associate Professor, Dept. of Tamil, STC	Dr. S. Rajalatha BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	தமிழ் எழுத்துக்களை அடையாளப்படுத்துதல்	K1
CO2	தமிழ்ச்சொற்கள், வாக்கிய அமைப்பு, அடிப்படை இலக்கணப் பிழைகள் ஆகியவற்றை உணரவைத்தல்.	K2
CO3	கதை, பாடல்களின் கருத்துணர்தல்	K3

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	-	-	S	M	-	-	-
CO2	S	S	M	-	-	S	M	-	-	
CO3	S	S	M	-	-	M	S	-	-	--

S- Strong; L- Low; M-Medium

SEMESTER – III

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21TAM3N20	AdvancedTamil I	NME 1	27	-	-	2

Preamble: சிறப்புத்தமிழின் வழியாக இலக்கிய வடிவங்கள், வாழ்வியல் விழுமியங்கள் கற்பிக்கப்படுகின்றன.

Prerequisite:

- பத்தாம் வகுப்பு வரை தமிழைக் கற்ற மாணவர்களுக்குத் தமிழ் மொழியின் சிறப்பினை இலக்கியங்கள் எடுத்துக்காட்டும் நோக்கில் பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
- இலக்கிய ஆளுமைகளின் சமூக வெளிப்பாடுகளை அறியும் நோக்கில் சிறப்புத்தமிழ் பாடப்பகுதி அமைக்கப்பட்டுள்ளது.
- பிழையின்றிப் பேச, எழுத பயிற்சி அளிக்கப்படுகிறது.

Unit	Course contents	Instructional hours
I	**அலகு I** இக்கால இலக்கியங்கள் - புதுக்கவிதைகள் அப்துல்ரகுமான் - குருடர்களின் யானை வைரமுத்து - சிறுமியும் தேவதையும் த.பழமலய் - அடிமாடுகள் சல்மா - தவிப்பு ஜென்கவிதைகள் - பெயரற்ற யாத்ரீகன்	06
II	**அலகுII** சிற்றிலக்கியம் அற்புதத்திருவந்தாதி - முதல் பத்துப்பாடல்கள்	03
III	**அலகுIII** பக்தி இலக்கியம் பெரியபுராணம் - திருக்குறிப்புத் தொண்டர் நாயனார்புராணம் நாலாயிரத்திவ்யப்பிரபந்தம் - திருப்பாணாழ்வார் - அமலனாதிபிரான் (முதல் ஐந்து பாடல்கள்)	07
IV	அலகு IV சிறுகதைகள் விசாலாட்சி - வருடப்பிறப்பு ஜெயமோகன் - அப்பாவும் மகனும் தமிழ்ச்செல்வன் - வெயிலோடுபோய்	06
V	**அலகு V** மொழிபெயர்ப்பு (ஆங்கிலத்திலிருந்து தமிழுக்கு), அலுவலகக் கடிதங்கள்	05
	Total	**27**

Reference Book(s):பார்வை நூல்கள்

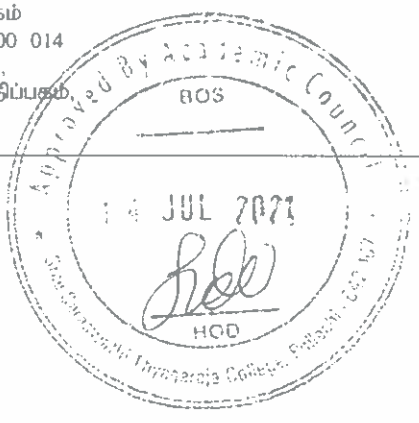
1. பக்தி இலக்கியம் - ப. அருணாசலம்
சைவ சித்தாந்த நூற்பதிப்புக்கழகம்
சென்னை - 06, பதிப்பு - 1900.

2.கொங்குதேர் வாழ்க்கை - இ. இராஜமார்த்தாண்டன்
யுனைட்டெட் ரைட்டர்ஸ்
67 - பீட்டர்ஸ் சாலை
இராயப்பேட்டை, சென்னை -14.
முதல் பதிப்பு -2003

3. அற்புதத்திருவந்தாதி - சாரதா பதிப்பகம்
ஜி.4,சாந்தி அடுக்ககம்
3,ஸ்ரீகிருஷ்ணாபுரம் தெரு, சென்னை – 600 014
முதல் பதிப்பு – மே.2000

4. நாலாயிரத் திவ்யப் பிரபந்தம் - சாரதா பதிப்பகம்
சென்னை – 600 014

5. தமிழில் சிறுகதை பிறக்கிறது - சி.சு.செல்லப்பா,
காலச்சுவடு பதிப்பகம்,
நாகர்கோவில்,
2007 பதிப்பு.



Focus of Course:இலக்கிய வரலாறு குறித்த செய்திகள் தரப்பட்டுள்ளன. ஆங்கிலத்திலிருந்து தமிழுக்கு மொழிபெயர்ப்பு செய்வதற்கும், தமிழைப் பிழையின்றி எழுதுவதற்கும் பேசுவதற்கும் பயிற்சி வழங்கப்படுகிறது. மேலும் கடிதம் எழுதுவதற்குப் பயன்படும் வகையில் பயிற்சி தரப்பட்டுள்ளது.
Course Designer: Dr.T. Radhika lakshmi Associate Professor, Dept. of Tamil, STC Dr. S. Rajalatha BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	புதுக்கவிதைகளின் சிறப்புகளைக் கவிஞர்களின் கவிதைகள் வழி உணர்த்தல்.	K1
CO2	சிற்றிலக்கியங்களின் சிறப்புகளையும் புனைகதைகளையும் விரித்துரைத்தல்.	K2
CO3	மொழிபெயர்ப்பின் சிறப்புக்களை எடுத்துரைத்தல். கடிதம் எழுதப் பயிற்றுவித்தல்	K3

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	-	-	S	M	-	-	-
CO2	S	S	M	-	-	M	S	-	-	-
CO3	S	M	S	-	-	S	M	-	-	-

S- Strong; L- Low; M-Medium

SEMESTER -III

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BEN3N11	Basic English for Competitive Examinations I	NME 1	22	5	-	2

Preamble: To prepare students for competitive examination and interviews

Prerequisite: Basic knowledge in Grammar

SYLLABUS: BASIC ENGLISH FOR COMPETITIVE EXAMINATIONS I

Unit	Course contents	Instructional hours
I	Phrasal verbs, Tenses, Vocabulary	5
II	Error Analysis, Clauses	5
III	Voices, Narration , Degrees of Comparison	5
IV	Precis Writing. Expansion of an Idea Report Writing, Letter Writing	6
V	Public Speaking Group Discussion, Interview Etiquettes	6
	Total	**27**

Text Book(s):

Basic English for Competitive Examinations, Department of English, Sree Saraswathi Thyagaraja College, Pollachi, 2017.

Reference Book(s) :

Facets of English Grammar, R.N.Shukla& N.M.Nigam, Macmillan, 2009

English for Competitive Examinations, R.P.Bhatnagar& Rajul Bhargava, Macmillan, 2007.

Focus: Employability

Course Designer: Dr.R.Vennila Nancy Christina,
Dept of English

BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	To recollect the grammatical elements	K1
CO2	Understand the rules of grammar.	K2
CO3	Develop the skill to write formal writings.	K3
CO4	Apply the grammatical rules	K3

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	S	S	M	M	S	S	S
CO2	M	M	M	S	S	S	M	S	S	S
CO3	M	M	M	S	S	S	S	S	S	S
CO4	M	S	S	S	S	S	M	S	S	S

S –Strong; L –Low; M –Medium

SEMESTER -III

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BMA3N11	Numerical Ability I	NME1	22	5	-	2

Preamble: Students will be able to solve life related problems and will create confidence in him to appear various competitive exam conducted by the central and State Government

Prerequisite: Basic Knowledge in time-distance and ratio and Proportion

SYLLABUS:Numerical Ability I

Unit	Course contents	Instructional hours
I	Partnership	5
II	Pipes and Cisterns	5
III	Allegation / Mixture	5
IV	Problems on Trains	6
V	Boats and Streams	6
	Total	27

Text Book:

Dr.R.S.Aggarwal of Quantitative AptitiudeS.Chand& Sons,2013

Unit I : Page No 311-317
Unit II : Page No 371-374
Unit III : Page No 435-439
Unit IV : Page No 405-409
Unit V : Page No 425-427

Reference Book(s):

1.Abhijit Guha Educational Consultant ofQuantitative Aptitiude for Competitive Examinations Published by Tata McGraw-Hill Education Pvt Ltd sixth Reprint 2011

2.Kiran's Textbook of Quicker Mathematics (Quantitative Aptitude and Numerical Ability)Satellite Baba Publishing House Pvt Ltd

Learning Methods (*):

- Assignment/Seminar/ Self-Study/etc.,

Focus of Course:Employability

e-Resource/e-Content URL:

https://www.youtube.com/watch?v=58Bx5dkTDTI

Course Designer: Prof. K.Sivaswamy
Dean Mathematics , STC

Dr. R. Senthil Amutha
BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Apply ratio and Proportion in business problem	K1
CO2	Study and solve storage and leakage problems	K1
CO3	Mix the components in farming a mixture as required by the customer	K3
CO4	Analyze all types of train problems	K3
CO5	Study speed of boat upstream and downstream	K2

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Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	M	M	-	-	M	L	M
CO2	L	S	M	-	M	L	L	M	M	L
CO3	M	M	S	L	M	L	S	M	M	M
CO4	M	L	L	M	M	M	L	S	M	M
CO5	L	M	S	M	L	M	L	M	M	M

S –Strong; L –Low; M –Medium

SEMESTER -III

Course Code	Course Name	Type	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BPH3N10	Physics of Sports	NME 1	27	-	-	2

Preamble: To expose the students to the fundamentals of basic concepts of physics of sports.

Prerequisites: Basic knowledge about Kinematics.

SYLLABUS: PHYSICS OF SPORTS

Unit	Course contents	Instructional hours
I	**INTRODUCTION:** Distribution of mass in Human body – forces in muscles and bones – elastic properties – work, energy and power of the body – sizes – strength and food requirements – calculation of calorific content needed for each sportsperson.	5
II	**RUNNING AND JUMPING:** Basic idea about distance – velocity and speed – acceleration, acceleration due to gravity – angular distance, speed and angular acceleration. Analysis of Track Techniques: Starting, running, hurdling, stride length, frequency, sprint length, frequency and sprint start.	5
III	**BATS AND BALLS LINEAR KINETIC:** Inertia – mass – force – momentum – Newton's laws of motion – friction – impulse – impact – oblique impact – elasticity – impact on fixed surface, moving bodies. Analysis of Cricket/Base Ball: Impact – moment of inertia – spin – size of the ball – size of the bat – batting – stride – swing – bunting.	5
IV	**DIFFERENT PROJECTILES IN SPORTS:** Projectiles – horizontal and vertical motion – range of projectile – trajectory – Analysis of throwing events: techniques involved in speed of release, angle of release and reverse in shot-put, discus, javelin and hammer throw – analysis of broad jump – basketball shooting and football kicking (video demonstration of projectiles in sports)	6
V	**THE GYMNASTICS AND ADVENTURE SPORTS:** Eccentric force – moment – equilibrium – center of gravity – weight – rotator and circular motion – Analysis of Gymnastics activities: Techniques of lift – rotation – take off – landing for long horse vault, parallel bar etc., - Analysis of rope climb, tight rope walking, skipping, carrace, boat race, cycle race.	6
	Total	27

Text Books:

1. The Bio mechanics of Sports Techniques, Third edition, Hay.G.James – Relevant portion of chapters 3 to 10 & 12, 13 to 17.
2. Scientific Principles of Coaching, Second Edition – Relevant portion of chapters 5, 7 to 14, 16 to 18
3. General Physics with Bioscience Essays, Marion and Nornyak, Second Edition – Chapters

Focus of Course: Employability

e-Resource/e-Content URL: NPTEL Videos and You tube

Course Designer: Mrs.N.M.Shanthi
Assistant Professor, Dept. of Physics, STC

BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Basic understanding of knowledge of biomechanics of sports.	K1
CO2	Basic understanding of concept of physical activities related to physics.	K2
CO3	Students enrich their knowledge in linear kinetics.	K2
CO4	Basic understanding about the concept in projectile in sports.	K2
CO5	Basic understanding about the concept of gymnastic in sports.	K2

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S –Strong; L –Low; M –Medium

SEMESTER -III

Course Code	Course Name	Course Type	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BPY3N10	Psychology Life Skills-I	NME 1	27	0	-	2

Preamble:

- To enlighten the students on the vital skills that they need to inculcate within themselvesinordertoprepare themselvesforabrightandoptimisticfuture;
- To help the students know how psychology acts as a basic driving force for all the basic skills required to lead an equanimouslife;

Prerequisite: Basics of Biology Subject at High SchoolLevel

SYLLABUS:PSYCHOLOGY LIFE SKILLS-I

Unit	Course contents	Instructional hours
I	**Basics of Human Motivation:** Meaning – Nature – Basic Theories of Motivation – Maslow's Need Hierarchy Theory – Drive Theory – Instinct Theory – Arousal Theory – Expectancy Theory – Goal Setting Theory of Motivation.	6
II	**ClassifyingHumanMotives:**PhysiologicalMotives–Hunger–Thirst–Sleep–Air–Shelter–AvoidanceofPain;PsychologicalMotives–Achievement– Affiliation – Power – Self Esteem - Aggression – Frustration Aggression Hypothesis.	6
III	**BasicsofHumanEmotions:**Emotions:Meaning–Definition–Aspectsof Emotion - Robert Plutchik's Primary Emotions; Physiological Changes in Human Body; Basic Theories of Emotion: James Lange Theory –Cannon Bard Theory – Two factor Theory – Opponent Process Theory – Facial FeedbackHypothesis.	6
IV	**Basics of Stress:**Meaning – Variations of Stress – Eustress – Distress – Hypo stress – Hyper stress; Causes of Stress – Stressful life events – hasslesofeverydaylife–Workrelatedandenvironmentalsourcesofstress; EffectsofStress–Healthrelated–jobrelated–behaviouralproblems.	5
V	**BasicsofConflictsandFrustration:**Conflict–meaning–4types;Frustration– Meaning – 6 frustration reactions – sources of frustration.	4
	Total	**27**

Text Book: Baron, Robert A (1997). Psychology (4th Edition). London: Allyn and Bacon Ltd.

Reference Book(s)

1. Devito, J. A (2013). The Interpersonal Communication Book (13thEdition). Boston: Pearson Education Inc. pp. 106 -180
2. Schermerhorn,J.Ret. al[2010].OrganizationalBehaviour[11thEdition].JohnWileyand Sons, Inc. USA. pp. 321 –334.
3. Compton, William C., & Hoffman Edward (2015). Positive Psychology (2nd Edition). Boston: WadsworthCengageLearningpp.42–47;51-54;69–74.

Focus of Course: Skill Development

Course Designer:
Mr.AshwanthKanna.V,
AssistantProfessor&Head,Dept.ofPsychology,STC

Mr.Ashwanth Kanna.V
BOS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Present the basic theories on the concept of motivation	K1
CO2	Explainthevarioustypesofphysiologicalandpsychological motives	K2
CO3	Predict the basic human emotions and related theories	K3
CO4	Illustrate the basics of stress and the stress causing agents.	K3
CO5	Analyze the fundamental concepts behind conflict and frustration	K4

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	L	L	M	M	M	L	L	M	M
CO2	M	L	M	L	L	L	M	L	L	L
CO3	L	M	L	M	L	L	L	L	M	L
CO4	M	L	L	L	L	L	L	L	M	L
CO5	L	M	L	M	L	L	L	L	M	L

S –Strong; L –Low; M –Medium

SEMESTER- III

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH3S10	Green Chemistry	Skill Based course	Concept (B)	25	--	--	2

Preamble: To impart the knowledge of green chemistry and ensure the establishment of the principles of green chemistry

Prerequisites: Basic understanding about the need for green chemistry

UNIT	COURSE CONTENTS	HOURS
I	**Introduction:** Green Chemistry, Need for Green Chemistry. Goals of Green Chemistry. Limitations/ Obstacles in the pursuit of the goals of Green Chemistry	5
II	**Principles of Green Chemistry** Twelve principles of Green Chemistry with their explanations and examples and special emphasis on the following: Designing a Green Synthesis using these principles; Prevention of waste/ byproducts; maximum incorporation of the materials used in the process into the final products, Atom economy, calculation of atom economy of the rearrangement, addition, substitution andelimination reactions	5
III	**Green Solvents:** Prevention/ minimization of hazardous/ toxic products reducing toxicity. Risk =(function) hazard × exposure; waste or pollution prevention hierarchy. Green solvents– supercritical fluids, water as a solvent for organic reactions, ionic liquids, fluorous biphasic solvent, PEG, solventless processes, immobilized solvents and how to compare greenness of solvents	5
IV	**Catalysis and Green Chemistry** Use of catalytic reagents (wherever possible) in preference to stoichiometric reagents: catalysis and green chemistry, comparison of heterogeneous and homogeneous catalysis, biocatalysis, asymmetriccatalysisand photocatalysis.	5
V	**Green Synthesis** Green synthesis of the following compounds: adipic acid, catechol, disodium iminodiacetate (alternative to Strecker synthesis) Microwave assisted reactions in water: Hofmann elimination, methyl benzoate to benzoic acid, oxidation of toluene and alcohols; microwave assisted reactions in organic solvents Ultrasound assisted reactions: sonochemical Simmons-Smith Reaction (Ultrasonic alternative to Iodine) Surfactants for carbon dioxide – replacing smog producing and ozone depleting solvents with CO_2 for precision cleaning and dry cleaning of garments.	5
TOTAL		25

Text Book(s):

1.V. K. Ahluwalia (2006): Green Chemistry – Environmentally benign reactions – Ane Books, New Delhi, India

2.Paul T. Anastas& Tracy C. Williamson (1998): Green Chemistry – Frontiers in benign chemical synthesis and processes- edited by, Oxford University Press.

Reference Book(s):
1.RashmiSanghi& M. M. Srivastava (2003): Green Chemistry – Environment friendly alternatives, Narora Publishing House.
2.Cann, M.C. & Connelly, M. E (2008): Real- world cases in Green Chemistry, American Chemical Society, Oxford University Press.

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos

Course Designer:
Dr.N.Karpagam, Assistant Professor,Department of Chemistry,STC

BOS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Know the basic principles of green chemistry	K2
CO2	Understand how identity and attachment theory contribute to social work practice.	K2
CO3	Making the student imbibe to the professionalism in social work.	K2

Mapping the Programme Outcomes

COs/Pos	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

JUL 2021

SEMESTER – IV

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21TAM4L40	Tamil IV	Part I Tamil Paper IV	60	-	-	3

Preamble:சங்க இலக்கியங்கள், பதினெண் கீழ்க்கணக்கு நூல்கள் மரபு நிலைக்கும் வாழ்க்கைச் சூழலுக்கும் ஏற்ற செழுமைகளைத் தரும் பொருண்மைகளாக விளங்குவதை எடுத்துரைத்தல் தமிழ்ப் பாடத்தின் நோக்கமாகும்.

Prerequisite:

1. மேனிலைப்பள்ளி முடிய கற்றவற்றைப் பகுத்து தொகுத்து ஆராயும் போக்கில் பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
2. மானிட மதிப்புகளை உணரும் வகையிலும், போட்டித்தேர்வுகளை எதிர்கொள்ளும் நிலையிலும் 'தமிழ்' - பகுதி - Iஅமைக்கப்பட்டுள்ளது.
3. பிழையின்றிப் பேச, எழுத பயிற்சி தரப்படுகிறது.

SYLLABUS: TAMIL IV

Unit	Course contents	Instructional hours
I	அலகு I சங்க இலக்கியம் பத்துப்பாட்டு - நெடுநல்வாடை (முழுவதும்) பதிற்றுப்பத்து - இரண்டாம் பத்து – மறம் வீங்கு பல்புகழ் (12) நான்காம் பத்து –தகும்புதுளங்கிருக்கை (42)	15
II	அலகு IIஅற நூல்கள் திருக்குறள் - 20 குறட்பாக்கள் (186, 187,156,158,316,317 477,479,753,754,785,786,1032, 1038,1261, 1069,553,554, 1296, 1297) நாலடியார் - 05 பாடல்கள் (2,19,33,51,115) விவேக சிந்தாமணி - 03 பாடல்கள் (1,4,9) இனியவை நாற்பது - 05 பாடல்கள் (11,24,28,36,40) திரிகடுகம் - 05 பாடல்கள் (4,9,12,14,18) நான்மணிக்கடிகை - 05 பாடல்கள் (3,12,19,23,37) இன்னிலை - 05 பாடல்கள் (05,10,20,22,38) முதுரை - 05 பாடல்கள் (11,13,15,25,29) நன்னெறி - 05 பாடல்கள் (2,9,8,15,18) ஆத்திசூடி - 25 வரிகள் (51 முதல் 75 வரை)	15
III	அலகு III நாடகம் புராண நாடகங்கள் - ஜெயந்தி நாகராஜன்	10
IV	அலகு IVஇலக்கிய வரலாறு 1.அறநூல்கள் வரலாறு 2.நாடகத்தின் தோற்றமும் வளர்ச்சியும் தன் முயற்சிப் படிப்பு - ஐ.ஏ.எஸ் தேர்வும் அணுகுமுறைகளும்	10
V	அலகு VIலக்கணம் அணி இலக்கணம் - உவமையணி, உருவகஅணி, தற்குறிப்பேற்ற அணி, இல்பொருள் உவமையணி, பிறிதுமொழிதல் அணி, சொல்பின்வருநிலை அணி, சொற்பொருள் பின்வருநிலை அணி, வேற்றுமை அணி, இரட்டுறமொழிதல் அணி, வஞ்சப்புகழ்ச்சி அணி.	10
	Total	**60**

Text Book(s):பாட நூல்கள்

1. சங்க இலக்கியம், அற இலக்கியத்திரட்டு - தமிழ்த்துறை வெளியீடு, ஸ்ரீ சரஸ்வதி தியாகராஜா கல்லூரி 2021 ஜூன் பதிப்பு.
2. தமிழ் இலக்கிய வரலாறு - முனைவர் கா. வாசுதேவன், தேவன் பதிப்பகம், 16.43. திருநகர், திருவானைக்கோவில், திருச்சி-620 005.
3. தமிழ் இலக்கிய வரலாறு - மு. வரதராசன், சாகித்ய அகாடமி வெளியீடு, புதுதில்லி, மறுபதிப்பு - 2012
4. ஐ.ஏ.எஸ்.தேர்வும் அணுகுமுறையும் - வெ.இறையன்பு, நியூ செஞ்சுரி புக் ஹவுஸ்

	41,பி சிட்கோ இன்டஸ்ட்ரியல் எஸ்டேட் அம்பத்தூர், சென்னை - 98 இரண்டாம் பதிப்பு - 2007
Reference Book(s):பார்வை நூல்கள்	
1. சங்க இலக்கியத் தொகுப்புகள் -	நியூ செஞ்சுரி புக் ஹவுஸ் 41,பி சிட்கோ இன்டஸ்ட்ரியல் எஸ்டேட் அம்பத்தூர், சென்னை - 98 இரண்டாம் பதிப்பு - 2004.
2. பதினெண்கீழ்க்கணக்கு நூல்கள் -	தொகுப்பு நூல் - வர்த்தமானன் பதிப்பகம் ஏ.ஆர்.ஆர். காம்ப்ளெக்ஸ் 141, உஸ்மான் சாலை, தியாகராய நகர், சென்னை - 17 இரண்டாம் பதிப்பு - 1999.
3. தமிழ் அரங்கியல் ஆவணம் -	வெளி. இரங்கராஜன் எனி இந்தியன் பதிப்பகம் 102எண் 57 பி.எம்.ஜி. காம்ளெக்ஸ் தெற்கு உஸ்மான் சாலை தி.நகர், சென்னை -17, பதிப்பு - 2007.
4.தண்டியலங்காரம் -	ராமலிங்கத் தம்பிரான் (உரை) கழக வெளியீடு 79,பிரகாசம் சாலை சென்னை - 108. 21-ஆம் பதிப்பு 1998.
Focus of Course:சங்க இலக்கியத்தின் வழி தமிழ்ச் சமூகத்தின் அகப்புற வாழ்வு குறித்த செய்திகள் தரப்பட்டுள்ளன. அற நூல்களின் வழி மக்களின் வாழ்வியலுக்கான நீதிகள் கூறப்பட்டுள்ளன. தமிழ் இலக்கிய இனிமைக்கு அணி இலக்கணங்கள் உதவுகின்ற தன்மை கூறப்பட்டுள்ளன.	
Course Designer: Dr. G.Malarvizhi Associate Professor, Dept. of Tamil, STC	Dr. S. Rajalatha BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	சங்க இலக்கியங்களில் அகம் , புற வாழ்விற்குக் கொடுத்த முக்கியத்துவம் பதிவு செய்யப்பட்டுள்ளது.	K1
CO2	அறநூல்கள் , நாடகத்தின் வழி மனித சமூகத்திற்கு ஒழுக்கநெறிகளைப் புரியவைத்தல்.	K2
CO3	அணி இலக்கணத்தை கவிதைகளில் பயன்படுத்தும் முறைகளை எடுத்துக்காட்டுதல்.	K3

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	-	-	M	S	-	-	-
CO2	S	S	M	-	-	S	S	-	-	-
CO3	M	S	M	-	-	M	M	-	-	-

S- Strong; L- Low; M-Medium

SEMESTER- IV

Coursecode	21MAL4L40	PARTIMALAYALAM PAPERIV	L	T	P	C
Part-I		PARTI	60	-	-	3
Pre-requisite			SyllabusVersion			2020-21

COURSEOBJECTIVE:

- Knowledgeof contemporarydramacontents ofMalayalamliterature
- Learn Screenplayand its techniques. The ability to read drama and expresscriticismabout itand theabilityto express socialthoughts will improve
- Therewillalsobelitigationmessages inMalayalamandnews onspeechtechniques
- Abletowritearticles ontheirown andimprovetheircreativeskills.

UnitNo.	PARTI –MALAYALAMIV	Instructional hours
I	ScreenPlay-Perumthachan	15
II	Screenplay-Perumthachan	15
III	Drama-Saketham	10
IV	Drama - Saketham	10
V	Drama - Saaketham	10
	TOTAL	60

Teachingmethods:
Lecturing,Assignment, GroupDiscussion,Quiz,GroupActivity.PowerPointProjectionthroughLCD

TextBooks:

1. Perumthachan –M.T.VasudevanNair,DCBooks
2. Saketham– C.N.SreekandanNair,DCBooks

ReferenceBooks:

1. Malayala Nataka Sahithya Charithram.GSankaraPillai(KeralaSahithyaAkademi,Trissur)
2. MalayalaNatakaSahithyaCharithram,VayalaVasudevanPillai(KeralaSahithyaAkademiThrissur).
3. Natakam-OruPatanam(C.J.SmarakaPrasangaSamithi,Koothattukulam)
4. Natakaroopacharcha,Kattumadam Narayanan(NBS,Kottayam)
5. Chalachithrasameeksha–Vijayakrishanan.
6. CinemayudePaadangal-VisakalanavumVeekshanavum–Jose-K.Manual.

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Getabasicknowledgeof drama	K1
CO2	CanreadandcritiqueScreenplay	K1
CO3	Createinterestinartliteraturecourses	K2
CO4	ThehopeofwritingaDramaoraScreen Play.	K3
CO5	The idea of creating new works and critique knowledgewillimprove	K4

MappingwithProgrammeOutcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO2	M	S	S	M	S	S	S	S	M	S
CO3	S	S	M	S	L	S	S	S	S	S
CO4	M	S	S	M	S	S	S	S	M	S
CO5	S	M	M	M	M	S	S	S	S	L

Approved by Academic Council
14 JUL 2021
HOD
Sree Saraswathi Thyagaraja College, Pollachi

SEMESTER- IV

Course:French4 **Credits:3**

CourseCode: 21FRE4L40 **Hours:60**

CourseObjectives:
Tocommunicateduringeasyor habitualtasksrequiringabasicanddirectinformationexchange on familiar subjects to use simple words to describe his or her surroundingsand communicateimmediateneeds

Part1 -French4		
UnitNo.	**Topics**	**Instructional hours**
1	Etape5(Lecons 1-3)	15
2	Etape6(Lecons 1-3)	15
3	Etape7 -Leçons 1 -2	10
4	Etape7 –Leçon3	10
	Etape8 –Leçon1	10
5	Etape8 –Leçons 2 -3	10
	TOTAL	60
Etapes 5to8,Pages 63to114		

TextBookPrescribed:Adomania2–MethodedefrancaisAuthors:Céline Himber,CorinaBrillant,Sophie ErlichPublisher: HACHETTEFLE

Availableat:GOYALPublishersandDistributorsPvtLtd,NewDelhi(9810322459)

Reference:Latitudes1
Author:YvesLoiseau,RégineMerieuxPublisher:FrenchandEuropeanPublicationsInc

Availableat:GOYALpublishers anddistributors PvtLtd,NewDelhi(9810322459)

SWAYAM:https://swayam.gov.in/nd2_cec19_lg04/previewbyProf.NirupamaRastogi(Retd)Englishand ForeignLanguagesUniversity,Hyderabad

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	Comprehendthe grammaticalstructuresinvariousgenres	K1
CO2	Understandthetextstylesandpoeticalelements	K2
CO3	Developaninterestintheappreciationofliterature	K3
CO4	Discussandrespondtocontentofareading passage	K4

SEMESTER- IV

Coursecode	21HIN4L40	HINDIPAPER-IV	L	T	P	C
Part-I		PARTI	60	-	-	3
Pre-requisite			SyllabusVersion			2020-21

COURSEOBJECTIVE:

- Knowledgeof contemporarydramacontentsofHindiliterature
- Learn novels and its techniques. The ability to read novels and express criticism aboutitand the ability to express socialthoughts willimprove
- Therewillalso belitigationmessages inHindiand newson speechtechniques
- Abletowritearticlesontheir ownand improvetheirsophisticated translationskills.

UnitNo.	PARTI -HINDIIV	Instructional hours
I	**DRAMA:DHUVASAMINYByJAYASHANKARPARSAD**	15
II	**NOVEL : NIRMALA–Premchand**	15
III	**LOKKOTHI & MUHAVARE** - NAVEEN HINDIYAKARAN (SelectedLokkokthi -10&Muhavare-10)	10
IV	**GENERALESSAY** : AADARSHNIBANDH	10
V	**TRANSLATION** : HINDI-ENGLISH onlyANUVADHABHYAS–III (16-30Lessonsonly)	10
	TOTAL	60

Teachingmethods:
Lecturing,Assignment,GroupDiscussion,Quiz, GroupActivity.PowerPointProjectionthrough LCD

TextBook:
1. Dhuvasaminy –Drama- Jayashankar parsad, 2015, Publisher : dakshin bharath hindi pracharsabha,chennai – 17.
2. Nirmala–Novel-Premchand,2015,RajkamalPrakashan,1BNethajiSubash Marg,NewDelhi.

ReferenceBooks:
1. Hindisahithyakasaralithihaas,byrajnathsharma,vinodpustakmandir,Agra-282
2. KavyaPradeepRambadriShukla,HindiBhavan,36,Tagore Town,Allahabad–211002.

WebLink:
https://hi.wikipedia.org/wiki/
https://en.wikipedia.org/wiki/Premchand
http://www.hindisamay.com/content/259/
https://www.hindisamay.com/content/1050/2

MappingwithProgrammeOutcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	S	S
CO2	M	S	S	M	S	S	S	S	M	S
CO3	S	S	M	S	L	S	S	S	S	S
CO4	M	S	S	M	S	S	S	S	M	S
CO5	S	M	M	M	M	S	S	S	S	L

SEMESTER-IV

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21GEN4L40	English Paper-IV	Language 2	50	10	-	3

Preamble: This course aims at facilitating the student to understand the functional usage of English language and apply it in real time situation

Prerequisite: Basic knowledge in English

SYLLABUS: ENGLISH PAPER-IV

Unit	Course contents	Instructional hours
I	Prose : Pele's Thousandth Goal – R.L.Fish Poetry: The Professor-Nissim Ezekiel Grammar: Common Errors in English	12
II	Prose : Narayana Murthy-Gopal Raj Poetry :Telephone Conversation Wole soyinka Idioms and phrases Interview techniques	12
III	Fiction Tale of Two Cities Book I, Book II chapter 1-12	12
IV	Tale of Two Cities Book II 13-24, Book III	12
V	You Can Win – Shiv kera Build a positive Attitude Motivation Self-Esteem Inter personal skills Goal setting	12
	Total	**60**

Text Book(s): English Paper IV, Department of English, Sree Sarawathi Thyagaraja College,2019

Reference Book(s):

1.Shiv Kera You Can Win New Delhi:Bloomsberry Publishing India Pvt.Ltd.2014
2. Corfield,Rebecca.Successful Interview Skills. London: Kogan Page Ltd. 2009

Focus of Course: Skill Development

e-Resource/ e-Content URL:https://www.youtube.com/watch?v=ejXrGoHFGJQ

Course Designer: Dr. R Vennila Nancy Christina,
Assistant Professor, Department of English, STC,

BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Enhance language competency required for specific career	K1
CO2	Acquire the ability to work in a team	K2
CO3	Acquire interview skills	K2
CO4	Gain confidence to write grammatically correct sentences	K3

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	M	S	S	M	M	S	S	M
CO2	M	S	S	S	S	M	M	M	S	L
CO3	M	S	S	S	S	S	M	S	S	M
CO4	S	S	S	S	S	S	L	S	S	M

S –Strong; L –Low; M –Medium

Approved by Academic Council
14 JUL 2021

SEMESTER- IV

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH4C12	Inorganic, Organic and Physical Chemistry – IV	Core	Concept (B)	60	--	--	5

Preamble: This course aims to grasp the knowledge and understanding about the chemistry of oxides, oxy acids S, Se, Te, inter halogen compounds, rare earths and nitrogen compounds, third law of thermodynamics, phase rule and solution of non electrolytes

Prerequisites: Basic understanding about oxides, fats and oils, tautomerism and about active methylene compounds, I & II law of thermodynamics

UNIT	COURSE CONTENTS	HOURS
I	**Classification of oxides**: Classification based on their chemical behaviour- acidic,basic amphoteric, neutral oxides, peroxides, super oxides, dioxides, sub oxides and mixed oxides –examples. **Oxy acids of Sulphur** – Caro's and Marshal's acids –preparation, properties, structure and uses. **Selenium, tellurium**: Occurrence, extraction and uses. **Bleaching powder-** preparation by modern method, properties, uses and process of bleaching, Calculation of available chlorine in bleaching powder. **Inter halogen compounds**: ICl, BrF_3, IF_5, and IF_7–preparation, properties, structure and uses, Pseudo halogens, Basic nature of iodine. **Rare gases:**Isolation , uses–preparation, properties, structure and uses of XeO_3, XeF_4, XeF_6 and $XeOF_4$.Fluorides of krypton and radon.	12
II	**Fats and Oils**- Natural sources- composition – Sulphonation number, Iodine number, Acid number and Richert- Meissel number of fats and oil- manufacture of Vanaspathi. **Tautomerism:** Definition–Keto-Enoltautomerism, Nitro–Aci- nitro and Amido–Imidotautomerism- Difference between tautomerism and resonance. **Active methylene compounds**: Malonic ester, aceto acetic ester and cyano acetic ester-preparation and synthetic uses. **Nitro Compounds**: Aromatic nitro compounds–Reduction in neutral, acidic and alkaline media-electrolytic reduction and selective reduction. TNT-preparation, properties and uses.	12
III	**Amines :** Preparation of primary, secondary and tertiary amines, Relative basic characters of aliphatic and aromatic amines – Separation of amines - Hoffmann and Hinsberg Method – Schotten Baumann raction, Libermannniroso amine reaction, Carbylamine reaction-Distinction between primary, secondary and tertiary amines. Preapation, properties and uses of diphenylamine, N-methyl aniline and N,N-diemethyl aniline, para phenylenediamine. **Diazonium salts:**Diazotisation and its mechanism – Synthetic applications of diazonium salts **Diazomethane and Diazo acetic ester**: Preparation, structure and their synthetic uses-Sulphanilic acid, Sulphanilamide, Saccharin and Chloramine – T-preparation and uses	12
IV	**Thermodynamics-III:** Nernst heat theorem–Statement of Third law– Evaluation of absolute entropies – Use of entropies – Exceptions to Third Law of Thermodynamics. **Phase rule:** Definition of phase, component and degrees of freedom–Derivation of phase rule –reduced phase rule, Application of phase rule to one component systems – phase diagram of H_2O – Application of phase rule to two component systems– Eutectic system (Pb–Ag System) – Compound formation with congruent melting point (Zn-Mg system).	12
V	**Solution of Non-electrolytes:**Solution of liquids in liquids – Raoult's law –Ideal and non-ideal solutions–Vapour pressure – composition and boiling point curves – Composition	12

	curves of completely miscible binary solutions – fractional distillation of binary liquid solution – Azeotropic mixtures – distillation of immiscible liquids-steam distillation – stability of partially miscible liquids – Phenol – water system –Triethylamine - water system. Nicotine – water system, solutions of gases in liquids – factors influencing solubility of a gas – Henry's law and Raoult's law. Liquid Crystals: Vapour pressure-temperature diagrams-Thermography-Classification of liquid crystals (Smectic,-Nematic and Cholesteric liquid crystals-Disc–shaped liquid crystals –Polymer liquid crystals)Polymorphism inthermotropic liquid crystals-Molecular arrangements in various states of liquid crystals.	
	TOTAL	**60**

Text Book:
1. Inorganic Chemistry, P.L. Soni-Sultan Chand & Sons, New Delhi.
2.Advanced Organic Chemistry, B.S. Bahl and ArunBahl S. Chand & Co., New Delhi. 2010
3.Principles of Physical Chemistry, B.R. Puri, L.R. Sharma and M.S. Pathania, ShobanlalNagin, Chand &Co. Jalandhar.

Reference Book(s):
1.Principles of Physical Chemistry, S.M. Maron and C.F. Brutton.
2.Physical Chemistry, G.W. Castellan, Narosa publishers, 2004
3.Concise Inorganic Chemistry, J.D. Lee, ELBS, 1991

Learning Methods (*): Lectures/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/Skill Development

e-Resource/e-Content URL: NPTEL videos

Course Designer:
S.Sudha, Assistant Professor, Department of Chemistry, STC

BOS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Understand the oxides, oxy acids, S, Se, Te chemistry, inter halogen compounds, bleaching powder and rare earths	K2
CO2	Gather knowledge of tautomerism, active methylene compounds, nitro compounds, amines, diazonium salts	K2
CO3	Acquire knowledge on thethe third law of thermodynamics and phase rule	K3
CO4	Explain the solution behaviour of non electrolytes	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- IV

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH4C20	**Volumetric analysis, organic mixture qualitative analysis and organic preparations**	Core lab -2	Practical	-	-	90	4

Preamble: This course aims to equip the students with skills in carrying out volumetric analysis, organic mixture qualitative analysis and organic preparations

Prerequisites: Basic understanding about the volumetric law and organic reactions

UNIT	COURSE CONTENTS	HOURS
I	ACIDIMETRY AND ALKALIMETRY • Estimation of Sodium Carbonate • Estimation of Sodium Carbonate and Sodium Bicarbonate in a mixture – Warder's method. • Estimation of Sulphuric acid. • Comparison of strength of two acids or bases PERMANGANOMETRY: • Estimation of Ferrous ion. • Estimation of oxalic acid • Estimation of ferrous sulphate COMPLEXOMETRIC TITRATIONS • Estimation of Zn and Mg using EDTA DICHROMETRY (demonstration only) • Estimation of Ferrous Ion. IODOMETRY AND IODIMETRY (DEMOSTRATIONS ONLY) • Estimation of Copper. • Estimation of Potassium dichromate	
II	Organic Qualitative Analysis Organic compounds with onefunctionalgroups:Carboxylic acids, Phenol, Esters, Aldehydes, Ketones, Carbohydrate (mono saccharide), Nitro compounds, Aromatic primary Amines, Amides, Diamide, Anilides. Systematic analysis of organic compounds.	
III	PREPARATION OF ORGANIC COMPOUNDS • Acetylation- Acetanlide from Aniline. • Hydrolysis- Salicylic acid from Methyl salicylate • Hydrolysis -benzoic acid from benzamide • Benzoylation-Phenylbenzoate from Phenol. • Bromination - Para-BromoAcetaniide from Acetanilide. • Nitration-meta- DiNitrobenzene from Nitrobenzene. • Nitration-Picricacid from phenol. • Oxidation-Benzoicacid from Benzadehyde. • Diazotization – Coupling-Preparation of Methyl Orange.	

Text Books:
1.Venkateswaran V., Veerasamy R. and Kulandaivelu A.R., (1997.): Basic principles of Practical Chemistry, 2nd edition, Sultan Chand & sons, New Delhi.
2.Sundaram, Krishnan, Raghavan, (1996): Practical Chemistry (Part II), S.Viswanathan Co. Pvt.

References:
1. Furniss B.S., Hannaford A.J., Smith P.W. G., Tatchell A.R, (2005): Vogel□sText Book of Practical Organic Chemistry, 5th Edn., Harlow, Longman.
2. Ganapragasam N.S. and Ramamurthy G., (1998): Organic Chemistry – Lab manual, S. Viswanathan Co. Pvt.

Learning Methods (*): Practical

Focus of Course: Employability/ Entrepreneurship/ **Skill Development**
e-Resource/e-Content URL:

Course Designer:
Dr.A.Shanmugapriya, Assistant Professor, Department of Chemistry, STC

BOS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Carry out volumetric analysis	K3/K4
CO2	Carry out systematic qualitative analysis of organic salt mixture and preparation of organic compounds	K3/K4

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

JUL 2021

SEMESTER –/ IV (Science Stream)

Class : II B.Sc (Chemistry) ACADEMIC YEAR : 2021-22

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BMAGAD0	Numerical Methods	Allied	45	15	-	4

Preamble: This course aims give an introduction to Mathematical techniques in analysis of Numerical methods

Prerequisite: Basic Mathematics at higher secondary level

SYLLABUS: NUMERICAL METHODS

Unit	Course contents	Hours
I	The Solution of algebraic and transcendental equations: The Bisection method - The method of false position - Newton Raphson method	12
II	The Solution of simultaneous linear algebraic equations: GaussEliminationandGaussJordanmethod - Iterative method - Gauss Jacobi method and Gauss Seidel method.	12
III	Numerical Differentiation: Newton's forward difference formula to get the derivatives - Newton's backward difference formula to compute the derivatives - Derivatives using Stirling's formula - Numerical integration: Trapezoidal rule - Simpson's one third rule-simple problems(Derivation omitted)	12
IV	Interpolation: Newton's forward and backward interpolation - Lagrange's Interpolation Formula- Inverse Interpolation.	12
V	Numerical solution of ODE: Introduction-Power series approximation-point wise methods-solution by Taylor series- Taylor series method for simultaneous first order differential equations-Taylor series method for second order differential equations.	12
	Total	**60**

Text Book:

P. Kandasamy , K. Thilagavathi, K. Gunavathi, Numerical Methods, S. Chand & company Ltd. New Delhi Revised Edition 2005

Unit I : Page.No:69-97.

Unit II : Page.No:112-126,145-159

Unit III : [Page.No:281-284, 300-301, 303-304]

Unit IV : [Page.No209-215,271-277]

Unit V : [Page.No:348-361]

Theory 20% and Problems 80%

REFERENCE BOOKS:

1. Dr.M.K.Venkataraman, Numerical Methods , The National publishing company, 2009.
2. Dr. A. Singaravelu, Numerical Methods, Meenatchi Agency, 2007.
3. Shankar Rao. K, Numerical Methods for Scientists and Engineers, Prentice Hall of India Private Limited, New Delhi- Third Edition ,2008.

Learning Methods (*):

Assignment/Seminar/ Self-Study/etc.,

Focus of Course:Employability

e-Resource/e-Content URL: https://www.youtube.com/watch?v=AEsBHyEsOgQ

Course Designer: Prof. K. Sivaswamy,
Dean Mathematics, STC

BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	To Solve algebraic and transcendental equations by Bisection method and Newton Raphson method	K3
CO2	Examine the solutions of simultaneous linear algebraic equations	K4
CO3	Apply the concepts of Numerical Differentiation and Integration through Newton's formula	K3
CO4	To show the solutions for Interpolation by Lagrange's and Newton's formula	K2
CO5	Find the numerical solutions of ODE by Taylor series method and power series method	K1

Mapping the Programme Outcomes (For B.Sc Chemistry)

Cos/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	L	L	S	L	L	M	M
CO2	M	M	S	L	L	S	S	L	M	M
CO3	M	M	M	L	L	M	M	L	M	M
CO4	L	M	S	L	L	S	M	M	M	M
CO5	L	S	S	M	M	S	M	L	M	M

S – Strong; L – Low; M – Medium

SEMESTER – IV (Science Stream)

Class : II B.Sc (Chemistry) **ACADEMIC YEAR : 2021-22**

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21BMAGAE0	Operations Research	Allied	45	15	-	4

Preamble: To enable the learners to apply the concept of Operations Research in Various fields like Business, Industry and to have sound knowledge various models of Operations Research.

Prerequisite: Problem solving skill

SYLLABUS: OPERATIONS RESEARCH

Unit	Course contents	Hours
I	Definition of OR - Characteristics of OR - Scope of OR - Uses and limitations of OR - Linear Programming Problem: Introduction - Mathematical formulation of the problem - Graphical method of solving LPP.	12
II	The Transportation problem: Introduction-Mathematical formulation-finding initial basic feasible solution by NWCR, VAM only- MODI'S method of finding optimal solution (Non-degenerate problems only).	12
III	The Assignment problem: Introduction - Mathematical formulation - Hungarian Assignment method-Special cases in assignment problem.	12
IV	Game Theory: Introduction - Two person zero sum game - The Maximin - Minimax principle - saddle point - problems - Pure and Mixed games - Solution of (2 x 2) games - Graphical solution of (2 x n) and (m x 2) games- Dominance property.	12
V	Network scheduling by PERT & CPM - Introduction - Network and basic components - Rules of network construction - Time calculation in networks - CPM, PERT calculations.	12
Total		60

Text Book:

1. Kantiswarup, P. K. Gupta, Man Mohan, Operations Research, S. Chand & Sons Education Publications, New Delhi, 2016

Unit I : Chapter 1, 2, 3 [Page No 25-29, 39-62,65-73]
Unit II : Chapter 10 [Page No 247-248,253-266]
Unit III : Chapter 11 [Page No295-304, 308-312]
Unit IV : Chapter 17 [Page No 443-460]
Unit V : Chapter 25 [Page No 763-766,771-785]

Theory - 20% , Problems - 80%

Reference Book(s):

1. Premkumargupta, D.S. Hira,Operations Research, S. Chand & Sons Education,2008.
2. Hamdy A. Taha, An Introduction to Operations Research-Pearson's Education, 2007.
3. J.K. Sharma, Operations Research-Theory of application, Macmillan India Ltd, 2004.
4. Frederick &Hillies, Gerald I.Lieberman, Operations Research, Tata McGraw – Hill Publications company, 2009.
5. AdithamB.Rao, Operations Research, Jaico Publishing House, 2005.

Learning Methods (*):

- Assignment/Seminar/ Self-Study/etc.,

Focus of Course:Employability

e-Resource/e-Content URL: http://youtube.com/watch?v=Pl5F3bdozMw

Course Designer:A.ShakDawood,
Assistant Professor, Dept. of Mathematics , STC

BoS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	To learn the formulation of Linear Programming Problem , Graphical method, Network concepts	K1
CO2	To list the methods of solving Transportation problem and Assignment problem	K1
CO3	Apply assignment problem for special cases	K3
CO4	Identify pure and mixed strategy in game theory	K3
CO5	Explain PERT and CPM concepts in solving real life projects	K2

Mapping the Programme Outcomes (For B.Sc Chemistry)

Cos/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	L	L	S	L	L	M	M
CO2	M	M	S	L	L	S	S	L	M	M
CO3	M	M	M	L	L	L	M	L	M	M
CO4	L	M	S	L	L	S	M	M	M	M
CO5	L	S	S	M	M	M	M	L	M	M

SEMESTER – IV

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21TAM4N30	Basic Tamil II	NME 2	27	-	-	2

Preamble: அடிப்படைத் தமிழ்ச் சொற்களை அறிந்து கொள்வதற்கும் தமிழர்களின் பண்பாடு, இலக்கியங்களை உணர்ந்து கொள்வதற்கும் பயன்படுகின்றது.

Prerequisite:

- தமிழ்மொழி கற்காத பிறமொழி கற்ற மாணவர்களுக்குத் தமிழ் எழுத்துக்களின் அறிமுகத்தை ஏற்படுத்தும் நோக்கில் பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
- தமிழ் மக்களின் பண்பாடுகளை அறியும் நோக்கில் பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
- பிழையின்றிப் பேச, எழுத பயிற்சி அளிக்கப்படுகிறது.

SYLLABUS:BASIC TAMIL II

Unit	Course contents	Instructional hours
I	அலகு I சொற்பொருள் விளக்கம் - மலர்கள், காய்கள்,சுவைகள், பழங்கள் உடல் உறுப்புகள்.	05
II	அலகுII வாக்கியத்தில் அமைத்து எழுதுதல்	04
III	அலகுIII தமிழர் விழாக்கள் - பொங்கல், ஆடிப்பெருக்கு, கார்த்திகை தீபம், தைப்பூசம், பங்குனி உத்திரம்.	06
IV	அலகு IV பத்தியைப்படித்து பொருள் அறிதல்	06
V	அலகு V தலைப்புகளைக் கொடுத்து மாணவர்களை எழுத வைத்தல். – சுதந்திரதினம்,குடியரசுதினம், இயற்கை, மனிதம், கல்வி, வேளாண்மை.	06
	Total	**27**

Reference Book(s):பார்வை நூல்கள்

1. இலக்கிய வரலாறு - சோம.இளவரசு
மணிவாசகர் பதிப்பகம்
8-7 சிங்கர் தெரு
பாரி முனை
சென்னை - 8
ஆறாம்பதிப்பு - 2007

2. பாரதியார் கவிதைகள் - பாரதியார்
ஸ்ரீ இந்து பப்ளிகேசன்ஸ்
100.'. கெனால் பங்க் ரோடு
கிழக்கு சி.ஐ.டி.நகர்
சென்னை - 35
13-ஆம் பதிப்பு -2011

3. பொதுக்கட்டுரைகள் - கவிஞர் செந்தமிழ்ச்செழியன்
சக்திப ப்ளிகேசன் ஹவுஸ்,
1ஊஇஜீர் தெரு
வண்ணாரப்பேட்டை, சென்னை -21
முதற்பதிப்பு - 2014.

4. நாட்டுப்புற இயல் ஆய்வு - டாக்டர் சு.சக்திவேல்
மணிவாசகர் பதிப்பகம்
31.'. சிங்கர் தெரு.'.
பாரி முனை
சென்னை -108
முதற்பதிப்பு - 1983.

5. இனிய தமிழ் பயிற்சிநூல் - புத்தகம் -3 கோ.சந்திரலேகா
அலைடு பப்ளி'ர்ஸ் பிரைவேட் லிமிடெட்

சென்னை - 02.
பதிப்பு- 2008.

Focus of Course:தமிழ்ச்சொற்களின் இயல்புகளையும், தமிழ் இலக்கிய மரபு மற்றும் பண்பாட்டுக்கூறுகள் பற்றிய செய்திகள் தரப்பட்டுள்ளன. கட்டுரை எழுதுவதற்கான பயிற்சிகள் தரப்பட்டுள்ளன.

Course Designer: Dr. R.BABY
Associate Professor, Dept. of Tamil, STC

Dr. S. Rajalatha
BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	சொற்பொருளுக்கான விளக்கங்கள் குறித்து எடுத்துரைத்தல்.	K1
CO2	தமிழர்களின் பண்பாட்டினை வெளிப்படுத்தும் விழாக்கள் குறித்து எடுத்துரைத்தல்.	K2
CO3	பத்தியைப்படித்து எழுதுதல், தலைப்புகளைக் கொடுத்து அதைப் பற்றிவிளக்கி, எழுதும் திறமையை வளர்த்தல்	K3

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	S	-	-	S	M	-	-	-
CO2	S	S	M	-	-	S	S	-	-	-
CO3	M	M	S	-	-	M	M	-	-	-

S- Strong; L- Low; M-Medium

SEMESTER – IV

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
21TAM4N40	Advanced Tamil II	NME 2	27	-	-	2

Preamble: சிறப்புத்தமிழின் வழியே சங்ககாலம் முதல் இக்காலம் வரையிலான இலக்கியங்கள், மொழியின் இனிமை மற்றும் வாழ்வியல் தன்மை அறிமுகம் செய்யப்படுகின்றன.

Prerequisite:

- பத்தாம் வகுப்பு வரை தமிழைக் கற்ற மாணவர்களுக்குத் தமிழ் மொழியின் சிறப்பினை இலக்கியங்கள் எடுத்துக்காட்டும் நோக்கில் பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
- இலக்கிய ஆளுமைகளின் சமுக வெளிப்பாடுகளை அறியும் நோக்கில் சிறப்புத்தமிழ் பாடப்பகுதி அமைக்கப்பட்டுள்ளது.
- பிழையின்றிப் பேச, எழுத பயிற்சி அளிக்கப்படுகிறது.

SYLLABUS: ADVANCED TAMIL II

Unit	Course contents	Instructional hours
I	அலகு I சங்க இலக்கியம் நற்றிணை - அம்ம வாழி தோழி (158) – வெள்ளைக்குடி நாகனார் குறுந்தொகை - மாஎன மடலும் ஊர்ப (17) - கபிலர் புறநானூறு - சிற்றில் நற்றூண் (86) – காவற்பெண்டு	05
II	அலகுII அற இலக்கியம் விவேக சிந்தாமணி - ஒப்புடன் முகமலர்ந்தே (04) நன்னெறி - நல்லார்செயும் கேண்மை(38) உலகநீதி - ஒதாமல் ஒருநாளும் (1)	04
III	அலகு III காப்பிய இலக்கியம் சிலப்பதிகாரம் - ஊர் சூழ் வரி	06
IV	அலகு IV உரைநடை இலக்கியம் 1. அறிவொளி இறக்கி வைத்த - சா.மாடசாமி 2. தோல்வியை எதிர்கொள்ளுங்கள் - ஜி.சந்தானம் 3. முளையின் முக்கியப் பணிகள் - ஆர்.வி.பதி 4. துணிந்து முடிவெடுத்தல் - சி.எஸ்.தேவநாதன்	06
V	அலகுV கவிதை, சிறுகதை எழுதுதல்.	06
	Total	**27**

Reference Book(s):பார்வை நூல்கள்

1. தமிழ் உரைநடையின் தோற்றம் வளர்ச்சி - க.கைலாசபதி
நியு செஞ்சுரி புத்தக நிலையம்.
சென்னை.

2 நற்றிணை - நியூ செஞ்சுரி புக் ஹவுஸ்
41,பி சிட்கோ இன்டஸ்ட்ரியல் எஸ்டேட்
அம்பத்தூர், சென்னை - 98
இரண்டாம் பதிப்பு - 2004.

3 .சிலப்பதிகாரம் - டாக்டர் ப.சரவணன்(உ.ஆ)
சந்தியா பதிப்பகம்
நியூடெக் வைபவ்,
57 - 53 ஆவது தெரு,அசோக் நகர்,
சென்னை - 600 083

4.இலக்கிய வழியிலான மனித விழுமியங்கள் - நா.ஜானகிராமன்
இயல் பதிப்பகம்,
23பி.2739 டி.பி.கோவில் தெரு
தெற்கலிங்கம், தஞ்சாவூர் பதிப்பு - 2015.

5. கூத்தும் சிலம்பும் - முனைவர்.அ.அறிவுநம்பி
சித்திரம் வெளியீடு

15,கலைவாணி நகர்
இலாசுப் பேட்டை
புதுச்சேரி - 605 008
இரண்டாம் பதிப்பு - 2009.

Focus of Course: சங்க இலக்கியத்தின் வழி தமிழ்ச்சமூகத்தின் அகப்புற வாழ்வு குறித்த செய்திகள் தரப்பட்டுள்ளன. அற நூல்கள், காப்பியங்கள். உரைநடையின் வழி விழுமியங்கள் எடுத்துரைக்கப்பட்டுள்ளன. கவிதை, சிறுகதை எழுதுவதற்குப் பயிற்சி அளிக்கப்படுகிறது.

Course Designer: Dr. K.Ramganesh,
Assistant Professor, Dept. of Tamil, STC

Dr. S. Rajalatha
BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	சங்க இலக்கியத்தில் அகம், புறம் - பாடல்கள் குறித்தும் சங்ககால மக்களின் வாழ்வியல் குறித்தும் விளக்குதல்.	K1
CO2	அற இலக்கியங்கள், காப்பியத்தின் சிறப்புகள், உரைநடை சார்ந்த கருத்துக்களை அறிவுறுத்தல்	K2
CO3	மாணவர்களின் படைப்பாளுமையை வெளிக்கொணர்தல்.	K3

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	-	-	S	S	-	-	-
CO2	S	S	M	-	-	M	S	-	-	-
CO3	M	S	M	-	-	S	M	-	-	-

S- Strong; L- Low; M-Medium

SEMESTER IV

Course Code	Course Name	Category	Lecture(L)	Tutorial (T)	Practical (P)	Credit
19BEN4N20	Basic English for Competitive Examinations II	NME 2	22	5	-	2
Preamble: To prepare students for competitive examination with basic grammar knowledge						
Prerequisite: Basic knowledge in Grammar						

SYLLABUS: BASIC ENGLISH FOR COMPETITIVE EXAMINATIONS II

Unit	Course Contents	Instructional hours
I	Concord (Subject Verb Agreement) Articles Synonyms -Antonyms	5
II	Tenses Common Errors Idioms and phrases	5
III	Kinds of Sentence (transformation) Classification of Sentences **(simple, complex, compound)** Rearrange the Sentences Improvement of Sentences	5
IV	One word substitution Selection of mis spelt /Correctly spelt words Odd word out	6
V	Comprehension Cloze test	6
	Total	**27**
Text Book(s): Basic English for Competitive Examinations, Department of English, Sree Saraswathi Thyagaraja College, Pollachi, 2017.		

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO Number	**Course Outcome (CO) Statement**	**Blooms Taxonomy Knowledge Level**
CO1	To remember the application grammatical rules	K1
CO2	Understand the concept of competitive examinations.	K2
CO3	Identify the commonly wrongly spelt and wrong usage in English language.	K3
CO4	Develop a flair for English grammar	K3

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	S	S	S	S	M	M	S	S	S
CO2	M	M	M	S	S	S	M	S	S	S
CO3	M	M	M	S	S	S	S	S	S	S
CO4	M	S	S	S	S	S	M	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER - IV

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BMA4N21	Numerical Ability II	NME 2	22	5	-	2

Preamble: Students will be able to solve life related problems and will create confidence in him to appear various competitive exam conducted by the central and State Government

Prerequisite: Basic Knowledge in Area and Permutation and combination

SYLLABUS: NUMERICAL ABILITY II

Unit	Course contents	Instructional hours
I	Area	5
II	Volume of surface area	5
III	Permutation and combination	5
IV	Probability	6
V	Simple and Compound Interest	6
	Total	**27**

Text Book:

1. Dr.R.S.Aggarwal, Quantitative Aptitude, S.Chand& Sons,2013

Unit I : Page No 499-505. Unit II : Page No 549-555 Unit III : Page No 613-615
Unit IV : Page No 621-625 Unit V : Page No 445-447,466-470

Reference Book(s):

1..Abhijit Guha Educational Consultant ofQuantitative Aptitiude for Competitive Examinations Published by Tata McGraw-Hill Education Pvt Ltd sixth Reprint 2011

2.Kiran's Textbook of Quicker Mathematics (Quantitative Aptitude and Numerical Ability)Satellite Baba Publishing House Pvt Ltd

Learning Methods (*): Assignment/Seminar/ Self-Study/etc.,

Focus of Course:Employability

e-Resource/e-Content URL: https://www.youtube.com/watch?v=k0cnDTo5XfA

Course Designer: Prof. K.Sivasamy
Dean Mathematics , STC

Dr. R. SenthilAmutha
BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Expressed to practical Knowledge on Area related problems	K1
CO2	Calculate volume of surface area of important solids like cone, cylinder and Sphere	K1
CO3	Solve all types of Permutation and combination which have Practical application	K2
CO4	Form strong basis for studying Mathematical Statistics	K2
CO5	He Knows to Calculate Interest	K2

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	S	S	-	L	M	S	M	M
CO2	M	M	L	M	L	M	M	L	S	S
CO3	L	M	S	S	M	L	M	S	S	L
CO4	L	S	M	M	-	M	M	L	M	M
CO5	M	L	M	S	M	L	M	S	M	L

S –Strong; L –Low; M –Medium

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SEMESTER -IV

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BPH4N20	Physics of Music	NME-2	27	-	--	2

Preamble: To expose the students to the fundamentals of basic concepts of physics of music

Prerequisites: Basic knowledge sound and musical instruments.

SYLLABUS: PHYSICS OF MUSIC

Unit	Course contents	Instructional hours
I	**BASICIDEASOFSOUND:** Wavemotion–typesofwaves – simpleHarmonicmotion– Propertiesofsoundwaves– reflection,refraction,diffractionandinterferenceofsoundvelocityofsound – standingwaves – Beats – Resonance.	5
II	**BASICIDEAOFMUSIC:** Theear – pitchloudnessandqualityofmusicalnotes-just noticeabledifferenceinpitch – barrelhearing – auralorcombinationtones – subjectivetones-subjective music – vibratoandtremolo – pitchrangeofmusicalinstruments – quality.	6
III	**MUSICALINSTRUMENTS:** Stringinstruments – frequencyofstretchedstrings-longitudinal vibrationinstrings-plucked,bowedandstruckstringedinstruments – oneexampleforeachfromcarnatic Hindustani andwestern.	5
IV	**ELECTRONICSOFMUSIC:** Microphones(carbon&crystal)–pickup–Loudspeaker, Amplifiers.Additionofsound – santoors.	5
V	**ELECTRONICSYSTEMS:** Taperecordingandplaybackequalizers,Recordingand reproductionofsoundincinefilms. Acoustic of Buildings:Aoustics-Reverberation and Reverberation time–Acoustic measurements:Acousticintensitylevel– Acousticpressurelevel – Factorsaffectingthe acousticsofbuildings– sounddistributioninanAuditorium–Requisitesforgoodacoustics.	6
	Total	27

Text Books:

1.PhysicsofMusicalsounds–Askill.J
2.Physicsforyou-Johnson.K
3.Waves-Berkely
4.SoundandUltrasound-FreemanI.M.
5.HomeSciencePhysics-Renganayakiamma
6.MusicalInstrumentsofIndia-Krishnasami.S
7.TextbookofSound-BrijlalandSubramanyam
8.InstrumentationandAnalysis–NakraandChoudry

Focus of Course: Employability

e-Resource/e-Content URL: NPTEL Videos and You tube

for K. Shanthi

Course Designer : Mrs.N.M.Shanthi
Assistant Professor, Dept. of Physics, STC

BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Basic understanding of knowledge of sounds.	K1
CO2	Basic understanding of concept of Music	K2
CO3	Students enrich their knowledge in Musical instruments.	K2
CO4	Basic understanding about the concept in electronics of music.	K2
CO5	Basic understanding about the concept of electronic systems	K2

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Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S –Strong; L –Low; M –Medium

SEMESTER - IV

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BPY4N20	Psychology Life Skills II	NME 2	27	-	-	2

Preamble:

- To enlighten the students on the vital skills that they need to inculcate within themselvesinordertopreparetl tolead an equanimouslife;
- To help the students know how psychology acts as a basic driving force for all the basic skills required

Prerequisite: Basics of Biology Subject at High School Level

SYLLABUS: PSYCHOLOGY LIFE SKILLS II

Unit	Course contents	Instructional hours
I	**Management of Stress:** Stress – GAS Model; Coping with stress – active coping styles: meditation – exercise – biofeedback – relaxation – chemotherapy – time management – role management – assertiveness training– stressinoculation–supportgroups–humourtherapy.	5
II	**Basics of Leadership Styles:** Leadership – meaning – various forms of leaderships – Charismatic leadership – transactional leadership– transformational leadership – Authentic leadership– Spiritual leadership– Servant leadership – Ethicalleadership	5
III	**Basics of Memory Techniques:** Memory – meaning – basic process; memory techniques –mnemonics – loci – keyword and peg word system – chunking – link method. Study Habits -Recitation – rehearsal – selection – serial position – whole vs part learning – spaced practice – over learning.	6
IV	**Inculcating Positive Thoughts:** Defining Happiness and Well being via one dimensional and multidimensional theories– Measuring Subjective well being by self report measures – Stability and Importance of Happiness	5
V	**Maintaining Happiness:** Increasing Happiness and Life Satisfaction: Intensity and Frequency of Positive emotion – Creating good mood – Sustainable and maintaining happiness.	6
	Total	27

Text Book(s): Baron, Robert A (1997). Psychology (4th Edition). London: Allyn and Bacon Ltd.

Reference Book(s)

- Devito, J. A (2013). The Interpersonal Communication Book (13thEdition). Boston: Pearson Education Inc. pp. 106 -180
- Schermerhorn,J.Ret.al[2010].OrganizationalBehaviour[11thEdition].JohnWileyand Sons, Inc. USA. pp. 321 – 334.
- Compton,WilliamC.,&HoffmanEdward(2015).PositivePsychology(2ndEdition).Boston: WadsworthCengage Learningpp.42–47;51-54;69–74.

Focus of Course: Skill Development

Course Designer:
Mr.AshwanthKanna.V,
AssistantProfessor&Head,Dept.ofPsychology,STC

Mr Ashwanth KannaV
BOS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Present various ways of managing stress in our day to day life	K1
CO2	Explain various levels and styles of leadership	K2
CO3	Predict the various techniques used to improve memory	K3

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CO4	Illustrate the importance of happiness and well being	K3
CO5	Analyze the components contributing to life satisfaction	K4

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	L	L	M	M	M	L	L	M	M
CO2	M	L	M	L	L	L	M	L	L	L
CO3	L	M	L	M	L	L	L	L	M	L
CO4	M	L	L	L	L	L	L	L	M	L
CO5	L	M	L	M	L	L	L	L	M	L

S –Strong; L –Low; M –Medium

SEMESTER- IV

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
20BCH4S10	Medicinal Chemistry	Skill Based course	Concept (B)	25	--	--	2

Preamble: To impart the knowledge of chemistry and ensure the establishment of the principles of medicinal chemistry

Prerequisites: Basic understanding about medicines

UNIT	COURSE CONTENTS	HOURS
I	**Herbs as raw materials**:Definition of herb, herbal medicine, herbal medicinal product, herbal drug preparation,Source of Herbs Selection, identification and authentication of herbal materials Processing of herbal raw material	5
II	**Tablets:** Introduction, ideal characteristics of tablets, classification of tablets. Excipients, Formulation of tablets, granulation methods, compression and processing problems. Equipments and tablet tooling. Tablet coating: Types of coating, coating materials, formulation of coatingcomposition, methods of coating, equipment employed and defectsin coating. Quality control tests: In process and finished product tests **Liquid orals:** Formulation and manufacturing consideration of syrups and elixirs suspensions and emulsions; Filling and packaging; evaluation of liquid orals official in pharmacopoeia	5
III	**Capsules:** Hard gelatin capsules: Introduction, Production of hard gelatin capsule shells. size of capsules, Filling, finishing and special techniques of formulation of hard gelatin capsules, manufacturing defects. In process and final product quality control tests for capsules. Soft gelatin capsules: Nature of shell and capsule content, size ofcapsules,importance of base adsorption and minim/gram factors, production, inprocess and final product quality control tests. Packing, storage and stability testingof soft gelatin capsules and their applications.	5
IV	**Semi-Solid Dosage Forms**: Ointments: Types of ointments, classification and selection of dermatological vehicles. Preparation and stability of ointments by the following processes: Trituration fusion, chemical reaction, Emulsification. Pastes: Differences between ointments and pastes, Bases of pastes. preparation of pastes and their preservation.	5
V	**Packaging Materials:** Materials used for packaging of pharmaceutical products, factors influencing choice of containers, legal and official requirements for containers, stability aspects of packaging materials, quality control tests.	5
TOTAL		25

Text Book(s):
1. Textbook of Pharmacognosy by Trease& Evans.
2. Textbook of Pharmacognosy by Tyler, Brady & Robb

Reference Book(s):
1. Pharmaceutical dosage forms - Tablets, volume 1 -3 by H.A. Liberman, Leon Lachman&J.B.Schwartz
2. Modern Pharmaceutics by Gilbert S. Banker & C.T. Rhodes, 3rd Edition

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos

Course Designer:
S.Sudha, Assistant Professor,Department of Chemistry, STC

BOS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Understand raw material as source of herbal drugs from cultivation to herbal drug product	K2
CO2	Know the various pharmaceutical dosage forms and their manufacturing techniques.	K2
CO3	Formulate solid, liquid and semisolid dosage forms and evaluate them for their quality	K3

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

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14 JUL 2021
Shri Saraswathi Thyagaraja College

SEMESTER- V

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH5C11	Inorganic Chemistry	Core	Concept (B)	45	--	--	5

Preamble: To acquire knowledge about d, f- block elements, co- ordination chemistry and bio–inorganic chemistry

Prerequisites: Basic knowledge about the inorganic chemistry

UNIT	COURSE CONTENTS	HOURS
I	**Transition metals (d – block elements):** General characteristics - Electronic configuration, Metallic character, atomic and ionic radii – oxidation states, colour, complex formation, catalytic and magnetic properties, Non-stoichiometric compounds. Occurrence, extraction, properties and uses of Ti, V and Mo. Important compounds of transition metals:Preparation and uses of V_2O_5, tungsten bronze, Ziegler– Natta catalyst. Prussian blue, Sodium nitro prusside, Turnbull's blue, Ni-DMG complex, Wilkinson's Catalyst, -$KMnO_4$ and $K_2Cr_2O_7$	9
II	**Inner transition metals (f – block elements)** **Lanthanides:** Properties of lanthanides. Electronic configuration – oxidation states – ionic radii, lanthanide contraction. Colour and magnetic properties. Extraction of mixture of lanthanides from monazites-Separation and uses of lanthanides. **Actinides:** Electronic configuration – oxidation states – ionic radii – colour of ions – Comparison with lanthanides. Extraction of thorium from monazite sand. Production and uses of plutonium. Comparison of lanthanides and actinides. Elements with atomic number more than 103-their position and synthesis.	9
III	**Coordination chemistry I** Coordination compounds – central metal ion – ligands - types of ligands–coordination number, oxidation number and coordination sphere –Nomenclature IUPAC - isomerism (structural and stereo) - Werner's theory ofcomplexes. EAN rule – Magnetic properties. VB theory-inner and outerorbital complexes, applications and limitations. Factors affecting stability ofcomplexes.	9
IV	**Coordination chemistry II** Crystal Field theory - Crystal field splitting in octahedral, tetrahedral and square planar fields – factors influencing the magnitude of crystal field splitting – CFSE calculations-magnetic properties and colour. Labile and inert complexes- stepwise and overall stability constants, comparison of VBT and CFT.	9
V	**Bio – Inorganic chemistry** Myoglobin and haemoglobin – Structure – role in biological systems – co-operativity effect – explanation. **Metallo enzymes:** Carbonic anhydrides, carboxy peptidase, peroxy- dases, catalyses and functions. Inhibition and poisoning of enzymes. Role of alkali and alkaline earth metal ions in biological systems. Biological functions of Cr, Mn, Ni, Cu, Ar, Cd, Pb, Fe and Zn. Biological fixation of Nitrogen.	9
	TOTAL	45

Text Book(s):

1. Puri B.R., Sharma L.R., Kalia K.K., Principles of Inorganic Chemistry,(23rd edition) New Delhi, ShobanLal, Nagin Chand & Co.,(1993)

2. MadhanMalikTuli, selected topic in Inorganic Chemistry, S. Chand Publishing, 197(
3. P.L.Soni, Text of Inorganic chemistry(11th edition), SultunChand&Sons, 1963

Reference Book(s):
1. Lee J.D., Concise Inorganic Chemistry, UK, Black well Science (2006).
2. Huheey J E, Keiter E A, Keiter R L and Medhi O K. Inorganic Chemistry:Principles of Structure and Reactivity, Fourth Edition, Pearson Education, New Delhi, 2006.
3. Atkins P, Overton T, Rourke J, Armstrong F and Weller M. Inorganic Chemistry, 5th Edition. Oxford University Press, 2011.

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos

Course Designer:
Dr.A.Shanmugapriya, Assistant Professor,Department of Chemistry, STC

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Explain the chemistry of transition metals (d – block elements) and their compounds	K2
CO2	Learn about the chemistry of Inner transition metals (f–block elements) and their compounds	K3
CO3	Understand the concept of Coordination chemistry	K2
CO4	Describe the concept of Bio – Inorganic Chemistry	K3

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- V

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH5C21	Organic Chemistry I	Core	Concept	60	-	-	5

Preamble: To understand the chemistry of heterocyclic compounds, carbohydrates, disaccharides, stereochemistry, organic rearrangements, amino acids and proteins

Prerequisites: Basics of organic chemistry

UNIT	COURSE CONTENTS	HOURS
I	**Heterocyclic Compounds:** Preparation–Properties and uses of Furan – Pyrrole – Thiophene and Pyridine. Fused ring system: Synthesis,Reactions and structure of IndoleQuinoline ,and Isoquinoline.	12
II	**Carbohydrates:** Classification -Haworth Projection. Formula, Configuration of Mono saccharides, Epimerisation. Chain Lengthening and Chain Shortening of Aldoses. Inter Conversion of Aldoses and Ketoses -Constitution of Glucose and Fructose- Reactions of Glucose and Fructose-Ozazone Formation, Muta rotation and its mechanism. Cyclic Structure. Pyranose and Furanose Forms **Disaccharide:** Sucrose-Extraction,Reactions and Structural elucidation. **Polysaccharides:** Starch and Cellulose– Structure (Elucidation not necessary) Derivatives of Cellulose and Starch.	12
III	**Stereoisomerism :**Classification into optical and Geometricalisomerism. **Optical Isomerism**: Optical Activity – Optical and Specific Rotations- Condition for optical activity – Asymmetric Centre – Chirality – Achiral Molecules – Meaning of (d) and (l)forms and D and L Notations –R-S nomenclature- Elements of Symmetry – optical isomerism of lactic acid, malic acid and tartaric acid. Racemisation – methods of racemisation (By Substitution and Tautomerism)-Resolution –methods of resoultion (Mechanical Separation, Seeding, biochemical and conversion to diastereoisomers) – Asymmetric Synthesis (Partial and Absolute Asymmetric Synthesis) – Walden Inversion. Optical activity in compounds containing *no* asymmetic carbons – Biphenyls, Allenes and Spiranes. **Geometrical isomerism**: Cis, trans, syn and anti, E- Z notations- examples, methods of distinguishing geometrical isomers- methods to determine the configuration of geometrical isomers.	12
IV	**Molecular Rearrangements**: Classification (Anionotropic, Cationotropic, Intermolecular andIntramolecular).Pinacol–Pinacolonerearrangement(Mechanism,evidence for carboniumion intermediate –formation-migratoryaptitude) Beckmann,Benzidine,Hofmann, Curtius, Lossen, Schmit,Benzilicacid Rearrangements-Claisenrarrangement (Sigmatropic Rearrangement) – Cope, Oxy-cope and Fries Rearrangement.	12
V	**Amino acids and Proteins:** Classification of Amino acids-Essential and Non-Essential Aminoacids.Preparation of Alpha – Amino acids, Properties and Reactions. Zwitter Ions,Isoelectric Points, Peptide Synthesis- C-terminal and N-terminal amino acids residues-nomenclature of peptides-Structuraldetermination of Polypeptides. End Group Analysis- Methods of determination of C-terminal and N-terminal amino acids Proteins Classification Based on Physical and Chemical Properties and basedon	12

	Physiological Functions. Primary and Secondary structures of Proteins.Helical and sheet structures. (Elementarytreatment only) Denaturation of Proteins- colour test for Proteins- Nucleic Acids DNA and RNA– components, Structure and biological functions of DNA and RNA.	
	TOTAL	**60**

Text Book(s):

1. Organic Chemistry, S.M.Mughergee,S.P.Singh,R.P.Kapoor, Wiley-Eastern.Vol 1,2,3.
2. Advanced Organic ChemistryB.S.Bhal,ArunBahl, S-Chand Co

Reference Book (s):

1. Text Book Of Organic Chemistry, P.L.Soni, S.M. Chawla Sultan Chand& Sons
2. Organic Chemistry, R.T. Morrison and R.W.Boyd,Prentice Hall..

Learning Methods(*): Lecture/Assignment/Seminar/Quiz/Self-study

Focus of Course: Employability / Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos

Course Designer:
S.Sudha, Assistant Professor, Department of Chemistry, STC

BOS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Acquire knowledge on Heterocyclic Compounds	K3
CO2	Explain the chemistry of Carbohydrates	K2
CO3	Execute the concept of Stereoisomerism	K3
CO4	Understand the organic Rearrangements	K2
CO5	Learn the chemistry of Amino acids and Proteins	K3

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- V

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH5C31	Physical Chemistry – I	Core	Concept (B)	45	--	--	4

Preamble: This course aims to grasp the knowledge and understanding about electrochemical conductance and solid state chemistry

Prerequisites: Basic understanding about electrical properties and solids

UNIT	COURSE CONTENTS	HOURS
I	**Ionic Equilibria:** Dissociation of weak acids and bases – Ionic product of water, pH and pOH, common ion effect -buffer solutions – mixture of weak acid & its salt, weak base &its salt – examples and buffer actions – pH of buffer solutions – Henderson – Haselbalch equation- Hydrolysis of salts of strong acid- strong base, strong acid- weak base, weak acid-strong base, weak acid- weak base – relationship between Kh, Ka/Kb & Kw Acid base indicators: Examples and theory. Solubility product & its applications.	9
II	**Conductance:** Metallic and electronic Faraday's Law of Electrolysis – Coulometer. Specific, Equivalent conductance – Determination of Equivalent conductance (Kohlrausch Bridge Method)- Molar Conductance – Variation of Equivalent Conductance with Dilution. Kohlrausch Law and its application in the determination of Equivalent conductance at infinite dilution for weak electrolytes –ionic mobilities- Oswald dilution law.	9
III	**Theory of strong electrolyte**: Debye Huckel theory – Theory of conductivity (Asymmetry and Electrophoretic effect). Effects of high fields and high frequencies – Wien effect and Debye-Falkenhagen effect. **Transference Number**: Definition – Determination of transport number –Hittorf's Method – Moving Boundary Method – Application of Transference Number.	9
IV	**Applications of conductance measurements**: Determination of degree of dissociation of weakelectrolytes, determination of ionic product of water and conductometric titrations. **Electrochemical cells**: Electrolytic cells, Galvanic cells, Reversible and irreversible cells, distinction between cell and Battery, EMF of a cell and its measurement- Weston standard cell. **Electrodes and Electrode Reactions:** Representation of Electrodes and cells. Electrodes andhalf cells. Reversible electrodes and their types: Metal - Metal ion, Metal - insoluble salt,Gas - ion and Redox electrodes. Single electrode potentials, Standard electrode potentials, TheInternational sign convention for the Electrode potentials, Electrochemical series, Computation of standard EMF and writing cell reactions.	9
V	**Electrochemical cells**: Nernst Equation, Thermodynamic quantities of cell reactions: ΔH, ΔS and ΔG from EMF data. Electrodes for measurement of pH- Hydrogen electrode, Quinhydrone electrode, glass Electrode. Chemical cells with transport and without transport – Concentration cells with transport – Without transport – Liquid Junction potential – Determination -Elimination – SaltBridge. Application of EMF Measurements – Determination of valency of ions in doubtful cases- determination of solubility product - potentiometric titrations. (Acid-base and Redox)	9
	TOTAL	45

Text Book(s): 1.Physical Chemistry, P.L. Soni - Sultan Chand & Sons, New Delhi. 2.Elements of Physical Chemistry, B.R. Puri, L.R. Sharma and M.S. Pathania, Shobanlal Nagin,Chand &Co. Jalandhar. 3.Principles of Physical Chemistry, B.R. Puri, L.R. Sharma and M.S. Pathania, Shobanlal Nagin, Chand &Co. Jalandhar.
Reference Book(s): 1.Principles of Physical Chemistry, S.M. Maron and C.F. Brutton. 2.Physical Chemistry, G.W. Castellan, Narosa publishers, 2004
Learning Methods (*): Lectures/ Assignment/ Seminar/Quiz/ Self-study
Focus of Course: Employability/ Entrepreneurship/ Skill Development
e-Resource/ e-Content URL: you tube videos
Course Designer: Dr.N.Karpagam, Assistant Professor, Department of Chemistry, STC

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Understand and explain the concept of electrolytic conductance	K2
CO2	Describe the operation of electrochemical system for the production of electric energy	K3
CO3	Explain the concept of Ionic Equilibria	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- V

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH5EA2	Food chemistry	Core Elective	Concept (B)	45	--	--	4
Preamble: To acquire knowledge about food chemistry							
Prerequisites: Basic knowledge about organic chemistry							

UNIT	COURSE CONTENTS	HOURS
I	**Food and its Adulteration** Classification of food, functions of food, food metabolism, sources of food,processing of food, types. Food Adulteration –wheat, rice, milk, butter, oils, ghee, coffee powder, chilli powder and turmeric powder-adulterants, effect and their detection	9
II	**Poison:** Diseases due to food stuffs-food poisoning and first aid to food poisoning-Causes and remedies for acidity, gastritis, indigestion and constipation. **Beverages:** Soft drinks–soda–fruit juices–alcoholic beverages- examples.Carbonation – addiction of alcohol	9
III	**Food Additives:** Food additives – artificial sweeteners – saccharin – cyclamate and aspartate. Foodflavours –Types-Examples of esters, aldehydes and heterocyclic compounds used. Food colours –natural and artificial –Emulsifying agents – preservative agents, Bakingpowder- yeast – taste makers.	9
IV	**Food Preservates** Food Preservatives - definition - classification - Food Spoilage - definition -Prevention. Methods of preservation -classification- Low and hightemperature - preservatives examples - Dehydration - osmotic pressure.	9
V	**Basics to Packaging and Packaging methods:** Packaging-Definition, Function, Significance, Classification. Packaging materials-types, Various uses, Merits and drawbacks.Packaging systems and methods-Vacuum and gas flush packaging, CAP and MAP, Aseptic and retort packaging.	9
TOTAL		45

Text Book(s):
1.Srilakshmi B, "Food Science", New age International Publishers Pvt. Ltd, 2003
2. H.K. Chopra, P.S.Panesar, "Food Chemistry", Narosa Publishing House, 2010.
3 Thanlamma Jacob, "Textbook of applied chemistry" for home science and allied science, MacMillan, 1976.

Reference Book(s):
1.Alex V.Ramani, "Food Chemistry", MJP Publishers, Chennai, 2009.
2. Lilian Hoagland Meyer, Food Chemistry - CBS Publishers & Distributors, 2004.

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos

Course Designer:
Dr.N.Karpagam, Assistant Professor, Department of Chemistry, STC.

BOS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Familiarize the students on food chemistry and food poison.	K2
CO2	Acquire the knowledge onfood additives.	K3
CO3	Understand the food preservation methods.	K2
CO4	Know about the packaging of foods.	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- V

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
19BCH5EB2	Forensic Science	Core Elective	Concept (B)	45	-	-	4

Preamble: This course aims to help the student to develop approaches to understanding, correctly using and further developing current chemical tools that are used in the Forensic Sciences.

Prerequisites: To have basic knowledge of Chemistry

UNIT	COURSE CONTENTS	HOURS
I	**Forensic Science:** Forensic Science - Basic principles and its significance - History & development of forensic science - Nature and scope of forensic science - Organizational structure of Forensic Science Laboratories at central & state level - Ethics in Forensic science	9
II	**Crime Scene** Introduction, Significance, Role of Investigator, Evaluation of crime scene, protection of crime scene, Photography of Crime scene, Tools and techniques, Significance of Photography and Videography, Introduction of Sketching, Purpose of Sketching, Making of Sketches, Types of Sketches, Methods of Sketching, Procedure of Sketching, Searching Methods, Chain of Custody types, Significance and their evaluation	9
III	**Cases Involving Arson** Chemistry of fire.Conditionsfor fire.Fire scene patterns.Location of point of ignition.Recognition of type of fire.Searching the fire scene.Collection and preservation of arson evidence.	9
IV	**Explosives** Classification of explosives – low explosives and high explosives.Homemadeexplosives.Militaryexplosives.Blastingagents.Synthesis and characteristics of TNT, PETN and RDX.	9
V	**Explosion Process and Detection** Explosion process. Blast waves. Bomb scene management.Searching the scene of explosion.Mechanism of explosion. Post blast residue collection and analysis. Blast injuries. Detection of hidden explosives.	9
	TOTAL	45

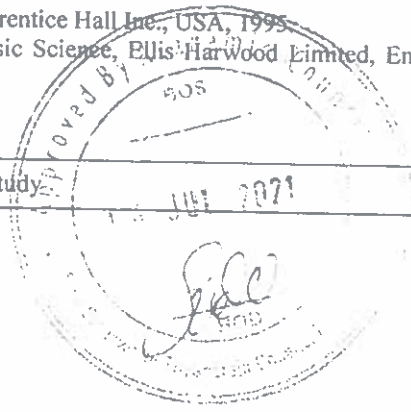
Text Book

1. Basic Principles of Forensic Chemistry,JaVed I. Khan • Thomas J. Kennedy Donnell R. Christian, Jr. Humana Press
2. W.J. Tilstone, M.L. Hastrup and C. Hald, Fisher's, Techniques of Crime Scene Investigation, CRC Press, Boca Raton (2013).

Reference Book:

1.Saferstein, Criminalistics - An introduction to Forensic Science, Prentice Hall Inc., USA, 1995.
2.C.G.G. Aitken and D.A. Stoney, The use of statistics in Forensic Science, Ellis Harwood Limited, England, 1991.

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study



Focus of Course: **Employability**/ Entrepreneurship/ Skill Development
e-Resource/e-Content URL: NPTEL videos
Course Designer: **S.Sudha, Assistant Professor, Department of Chemistry,STC** **BOS Chairman**

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Know about the basic of forensic science	K2
CO2	Explain about the crime scene	K2
CO3	Learn about the methods of searching and analyzing arson evidence etc	K3
CO4	Exposed the ideas classification of explosives and bomb scene management	K3

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- V

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH5EC2	Fuels and Energy storing devices	Core Elective		45	--	--	4

Preamble: To assimilate the importance and applications of fuels and energy storing devices

Prerequisites: Know the need for energy resources

UNIT	COURSE CONTENTS	HOURS
I	Review of energy sources– classification offuels and their calorific value. Coal: Uses of Coal (fuel and non fuel) invarious industries, its composition , carbonization of coal - coal gas ,producer gas and water gas – composition and uses – fractionation of coal tar– uses of coal tar based chemicals , requisites of a good metallurgical coke.	9
II	Solar system: Energy from the sun, solar window, atmospheric effects, diffused radiations, Air mass, effect of Air Mass, seasonal effects, environmental effects on standard test conditions.	9
III	Petroleum and petrochemical industry: Composition of crude petroleum, refining and different types of petroleum products and their applications.Fractional distillation (principle and process), cracking (Thermal andcatalytic cracking). Reforming petroleum and non petroleum fuels (LPG ,CNG , LNG , biogas) ,fuels derived from biomass , fuel from waste ,synthetic fuels (gaseous and liquids).	9
IV	Batteries: Primary and secondary batteries- Characteristics of Battery. Working of following batteries:Alkaline cells,Pb- acid, Nickel-cadmium battery, Li ion battery, Solid state electrolyte batteryand solar cell.	9
V	Fuel Cell Technology: Introduction and overview of fuel cell technology- difference between batteries and fuel cells- fuel cell- principle, components and types-mechanism and applications of solid oxide fuel cells, molten carbonate fuel cells, alkaline fuel cells, polymer electrolyte membrane fuel cells and direct methanol fuel cells.	9
	TOTAL	45

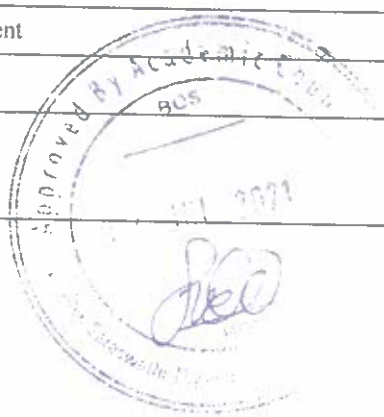
Text Book(s):
1. B. K. Sharma: Industrial Chemistry, Goel Publishing House, Meerut.

Reference Book(s):
1. E. Stochi: Industrial Chemistry, Vol-1,Ellis Horwood Ltd., UK
2. P. C.Jain and M. Jain: Engineering Chemistry, DhanpatRai&Sons, Delhi.

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos



Course Designer
S.Sudha, Assistant Professor, Department of Chemistry, STC

BOS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Acquire knowledge of renewable and non-renewable energy sources	K3
CO2	Discuss on solar energy and petrol chemical industry.	K2
CO3	Know the importance of batteries and fuel cells	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- V

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
19BCH5S10	Basics of Pharmaceutical Science	Skill based course	Concept (B)	25	--	--	2

Preamble: This course will help students to understand the Pharmaceutical chemistry.

Prerequisites: To have basic knowledge of drug chemistry

UNIT	COURSE CONTENTS	HOURS
I	**Drugs Terminology:** Drugs, pharmacy, pharmacology, pharmacognosy, theraupties, toxicology, chemotherapy, pharmacopoeia - first aid - bleeding for blood, maintain breathing, Cuts, Abrasions and Bruises, Fractures, Burns and Fainting. First aid box for accidents.	5
II	**Antibiotics:** Introduction, classification – based on biological action,chemical structure-Biosynthesis and degradation of penicillin. an account of semi synthetic penicillin, different types of penicilium, chloroamphenicol , Streptomycin and tetra cyclins-synthesis , assay and uses- SAR of penicilium.	5
III	**Analgesic and Antipyretics:** Analgesic -Norcotic analgesics, syntheticanalegesics -pethidine and methadone, Narcotic antasonist, Nalarphine,Nonnarcotic -antipyretic analgsesics. Pyrazole, salicylic acid, p-aminophenol derivatives-asprin and abuprofen, ketoprofen, naproxen	5
IV	**Anasthetics:** Definition, Classification of anesthetics, Ethers,Halohydrocarbons, Chloroform Halo ethane, Ferqusen principle- Intravenousanesthetics. Structure of thiopental sodium – Local anesthetics – cocaine-source and structure – preparation and uses of procaine. AmethocanieandBenzocaine. Antiseptics and Disinfectants – phenol co-efficient. Phenoliccomponenttransquilizers –definition and example.	5
V	**Poison Investigation**: Definition- kinds of poisons-Aceidentalsuicidalandomicidal death – action of poison – general condition that controlaction of poison – general condition that control action of poison Hints ofInvestigation. Industrial gases and volatile poison, synthetic gases – Carbondisulphide – petroleum distillate, aromatic compounds, chlorinated hydrocarbons.	5
	TOTAL	**25**

Text Book(s):
1.Lakshmi S, Pharmaceutical chemistry 2011.
2.Jaya Shree Ghosh, A Text book of Pharmaceutical Chemistry, 3rd ed., S.Chand & Company Ltd., New Delhi (2008)

Reference Book(s):
1.Thiagarajan, Pharmaceutical Chemistry, Educational Publishers
2.G.R. Chatwal, Synthetic Drugs, Himalaya Publishing House, Bombay, 2nd Edn., (1988)

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos
Course Designer **S.Sudha,** Assistant Professor, Department of Chemistry,STC BOS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Understanding the principles and functioning of drugs	K2
CO2	Explain the importance and functioning of antibiotics	K2
CO3	Know the importance and functioning of Analgesic and Antipyretics,anesthetics, Antiseptics and Disinfectants	K2
CO4	Study the impact of poisons	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

BOS

14 JUL 2021

SEMESTER- VI

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH6C11	Physical Chemistry – II	Core	Concept (B)	60	-	--	5

Preamble: This course aims to acquire knowledge and understanding of Analytical and PhysicaChemistry.

Prerequisites: Basic understanding about the qualitative and quantitative analysis of chemicals.

UNIT	COURSE CONTENTS	HOURS
I	**Electrical properties of molecules:** Introduction-polarisability-polarisation of a molecule in an electric field- Clausius- Mosotti equation-Bond moments and the molecular dipole moment-Dipole moments and molecular structure – Dipole moments of Tri atomic (AB_2)Planar, tetra atomicAB_3) & symmetric polyatomic molecules- Distinction between Cis& Trans isomers. Magnetic properties of molecules- magnetic permeability-molecular interpretation of diaand para magnetism- magnetic susceptibility-Guoy's Method	12
II	**Chemical Kinetics I** Rate of reaction- rate laws - rate constant – order and molecularity of reactions-Difference between Order and Molecularity of a Reaction – Factors influencing the rate of a reaction – Derivations of rate constants for Zero, first and second order reactions – Fractional order reactions – Half-life period – Pseudo first order reactions and examples	12
III	**Chemical Kinetics II** Methods of determination of order of a reaction (Integration, graphical, half-life, Oswald's dilution method, experimental). Steady state approximation - Chain reactions and explosion reaction Temperature dependence of reaction rates – Arrhenius parameters. Theories of reaction rates – collision theory of bimolecular gaseous reactions – limitations - Theory of absolute reaction rates. Lindemann's hypothesis of uni molecular reactions.	12
IV	**Catalysis:** General properties of catalytic reactions -Types - Homogeneous catalysis– Acid-base catalysis, kinetics of acid base catalysed reaction – enzyme catalysis – MichaelisMenten equation – Effect of temperature on enzyme catalysis - Heterogeneous catalysis – Langmuir – Hinshelwood mechanism, kinetics of surface reactions- uni molecular and bimolecular surface reactions – active centers- promoters and poisoning of catalysts.	12
V	**Photochemistry:**Absorption of light - Beer – Lamberts law – differences between thermal and photochemical reactions – Laws of photochemistry – Grothus Draper's law-Einstein's law of photochemical equivalence. Quantum Yield or efficiencies - Experiments– Determination of quantum yield – deviations in the law of photochemical equivalence. Photochemical Reactions: Kinds - Chain Reactions- Characteristics-Kinetics of photochemical chain reactions between H_2 and Br_2. Photo physical phenomena: Fluorescence, Phosphorescence, luminescence, chemiluminescence, Bioluminescence-Photosensitization.	12
TOTAL		60

Text Book(s):
1.Puri B.R., Sharma L.R., Pathania M.S., Principles of Physical Chemistry, (23rd edition) New Delhi, ShobanLal,

Nagin Chand & Co., (1993)
Reference Book(s): 1. Atkins P.W., Physical Chemistry, (7th edition) Oxford University Press, London (2009). Castellan G.W., Physical Chemistry, Third Edition, New Delhi, Orient Longmann (1987)
Learning Methods (*): Lecture/Assignment/ Seminar/Quiz/ Self-study
Focus of Course: Employability/ Entrepreneurship/ Skill Development
e-Resource/e-Content URL: www.engineering.unsw.edu.au www.internetchemistry.com/chemistry/industrial-chemistry.htm
Course Designer: Dr.N.Karpagam, Assistant Professor, Department of Chemistry, STC BOS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Acquiring the electrical properties of molecules	K3
CO2	Understand the concept of Chemical Kinetics	K2
CO3	Applying the concept of Catalysis	K3
CO4	Explain the concept Photochemistry	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- VI

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH6C20	Organic Chemistry – II	Core	Concept (B)	60	-	--	5

Preamble: This course aims to acquire an knowledge and understanding of organic chemistry of alkaloids, terpenoids,harmones, anthocyanins, chemotherapy, vitamins, organo metallic reagents

Prerequisites: Basic understanding about the Natural Products

UNIT	COURSE CONTENTS	HOURS
I	**Alkaloids:** Introduction, classification, isolation and biological functions ofalkaloids. General methods of preparation and structural elucidation ofConine, Piperine,Nicotine and Papaverin.	12
II	**Terpenoids:**Introduction, classification,isolation-isoprene rule-Structural determination and synthesis of Menthol, Geraniol and Citronellol, Alpha-Terpeneol and Dipentene.	12
III	**Anthocyanines:** Introduction- Structural elucidation and synthesis of Cyanine chloride. **Flavones:** Introduction- Structural elucidation and synthesis of Quercetin **Harmones-**Introduction,examples-importance- structural elucidation and synthesis of Adrenaline and Thyroxine	12
IV	**Vitamins:** Classification and Importance of Vitamins A, B, Cand D. structure and synthesisRetinol, Thiamine, Riboflavin and Ascorbic Acid.	12
V	**Chemotherapy:**Sulpha drugs-Sulphonamides–Synthesis– Mode of Action of Sulpha Drugs. Structure and uses of the Following: Antibiotics [Pencillin, Streptomycin, Tetracycline, Chloramphenicol– Antipyretics and Analgesics:Anasthetics – Local and General – Antiseptics and Disinfectants(Synthesis not required) –Structure and uses.	12
	TOTAL	60

Text Book(s):
1.Agarwal O. P. (1997): Chemistry of Natural Products, Vol 1&IIGoel Publishing House, Meerut.
2.GurdeepChatwal and S.K Anand, (2001): Chemistry of Natural Products, Himalaya Publishing Co, New Delhi.

Reference Book(s):
1.Organic Chemistry (Vol II), I.L. Finar

Learning Methods (*): Lecture/Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: www.engineering.unsw.edu.au

www.internetchemistry.com/chemistry/industrial-chemistry.html

Course Designer
Dr.A.Shanmugapriya, Assistant Professor, Department of Chemistry, STC

BOS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Know about the chemistry of alkaloids	K2
CO2	Acquiring the knowledge of terpenoids	K3
CO3	Understand the chemistry of anthocyanins, flavones and Harmones	K2
CO4	Expalin the chemistry of vitamins and chemotherapy	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

Approved By Academic BOS

SEMESTER- VI

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH6C30	Spectral and Analytical techniques	Core	Concept (B)	60	-	--	5

Preamble: This course aims to acquire knowledge and understanding of chromatographic and spectralmethods of chemical analysis

Prerequisites: Basic understanding about the atomic structure

UNIT	COURSE CONTENTS	HOURS
I	**Chromatographic Techniques:** Principles of chromatography— partition co-efficients – Adsorbents – choice of adsorbents –process of elution of choice of solvents. Adsorption chromatography, partition chromatography, column chromatography, paper chromatography, Radial paper chromatography –Thin layer chromatography. Rf values importance of Rf values - factors affecting Rf values. Gas chromatography-principle experimental techniques and instrumentation of Gas chromatography. Application of Gas Chromatography. Principle, instrumentation and experimental techniques of HPLC. Ion Exchange chromatography – Principle, Ion Exchange resins - cation and anion Exchanger, Experimental Technique and application.	12
II	**Molecular Spectroscopy** Fundamentals of Spectroscopy – Electromagnetic Radiation and itsCharacteristics. Various Regions of Spectrum. Types of Changes Induced by the Interaction ofRadiation with Matter. **UV visible spectroscopy**: Theory of electronic spectroscopy, types of electronic transitions, Chromophore and auxochrome concept- absorption intensity shifts- Beer-Lambert's law - conditions — Frank-Condon principle – Pre dissociation. Application of UV Visible spectroscopy.	12
III	**Microwave or rotational spectroscopy:** Theory of Rotational Spectra – Selection Rules – Applications of Microwave spectroscopy – Calculation of Inter atomic distance – Moment of Inertia-effcet of distortion. **IR spectroscopy**: Molecular vibration – modes of vibration of linear and non-linear molecules (CO_2, H_2O) – stretching and bending vibrations – selection rules – calculation of force constant – isotope effect – Applicationsof IR spectra – (finger printing and Hydrogen bonding only).	12
IV	**NMR Spectroscopy** Simple instrumentation – signals in NMR spectrum – Chemical shift – characteristic chemical shift values of various protons and carbons –NMRsolvents- TMS as standard-. Number of splitting and area of the peaks – coupling constants – interpreting the NMR spectra of simple organic molecules (Ethlyene, Ethanol, Acetaldehyde, Acetone and Toluene.)	12
V	**ESR spectroscopy**: Principle and applications to methyl and naphthyl radicals. Mass spectroscopy– principle-simple instrumentation – Fragmentation pattern – m/z values of various fragments – Nitrogen rule – McLafferty rearrangement - Interpreting the mass spectra of some organic molecules like Ethyl Benzene, n-Butane, Ethanol,Benzyl alcohol,	12

	Phenol ,Cyclohexanone,	
	TOTAL	**60**

Text Book(s):
1.Sharma Y R, Elements of Organic Spectroscopy, S Chand Publishers, New Delhi (2010)
2.Puri B.R., Sharma L.R., Pathania M.S., Principles of Physical Chemistry, (23rd edition) New Delhi, ShobanLal, Nagin Chand & Co., (1993)

Reference Book(s):
1.Kalsi. L., Organic Spectroscopy, New Delhi, New Age International Company (1998).

Learning Methods (*): Lecture/Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: www.engineering.unsw.edu.au
www.internetchemistry.com/chemistry/industrial-chemistry.htm

Course Designer:
Dr.A.Shanmugapriya,Assistant Professor, Department of Chemistry, STC

BOS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Learn the basic Principles of Chromatography Technqiues	K3
CO2	Understand UV and Molecular Spectroscopy	K2
CO3	Explain IR and Microwave or Rotational spectra	K2
CO4	Acquire knowledge on NMR and Raman Spectroscopy	K3
CO5	Understand ESR and Mass Spectrometry	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- VI

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
19BCH6C40	Dye chemistry	Core Elective	Concept (B)	60	--	--	5

Preamble: To assimilate the importance and applications of Dye chemistry

Prerequisites: Basic knowledge about need for dyes and organic chemistry

UNIT	COURSE CONTENTS	HOURS
I	**Colour and Chemical Constitution** Colour, Relationship of colour observed to the wavelength of light Absorbed – Terms used in colour chemistry – Chromophore, Auxochrome, Chromogen, Bathochromic, Hypsochromic shifts. Theories-quinonoid theory,valence bond theory and molecular orbital Theory. **Classification of Dyes:** Classification according to chemical constitution and their mode of application to fibres.	12
II	**Pre-Treatments** An outline of sizing, De-sizing, scouring and bleaching of cotton,Rayon, Synthetics and their Blends. Degumming, Bleaching, soaking, andweighinf of silk. Scouring and bleaching of wool. Pretreatments forpolyester and its blends- Rope washing, machine, Dupart, J.-Box(Preliminary Ideas Only). **Direct Dyes:** Mechanism of Dyeing of Direct Dyes,Application tocellulosic materials, Assistance used and their function, After – Treatments for Direct Dyes shades and Application on wool and silk.	12
III	**Vat Dyes:** Classification of Vat Dyes based on the method of application. Principles of application of Vat Dyes – Vatting. Dyeing Rate and Extend of Dyeing,Exhausting in Vat Dyeing, oxidation, after treatments- stripping agents and correctness of faultydyeing shades, Methods of dyeing Vat dyes. Solubilised Dyes-Dyeing process s-Fastness properties. **Acid Dyes:** Definitions – Examples – Chemical Constitution – Classification – Molecular Split – Aggregated – Leveling Dyes – Milling – Super Milling Dyes – Mechanism of Dyeing – Effect of Electrolyte – Effect of Temperature – Dye Bath Assistants used.	12
IV	**Basic Dyes:** Definition– Examples – Dissolution Chemical Classes – Nature of affinity to Cellulosic and protein fibres-Natural Mordants – Synthetic MordantslikeTaminol – BM, Resistonl- O. Topping of DirectDyeing with Basic Dyes. **Mordant Dyes:** Definitions – Examples– Natural mordant Dyes– Mechanism of Dyeing-Synthetic mordant Dye-Chemical Classes – Method of application – Chrome mordant methods (Sweet, Sour Methods) **Reactive Dyes:** Definition–Types of reactive dyes-Examples- Mechanism of dyeing of cold and hot brand reactive dyes-Reactivity and affinity of reactive Dyes-Dyeing of cold Brand reactive dyes. Jigger dyeing- Padding Methods: Padcure (Dry) Steam Process, Pad(Silicate) Batch Process.	12

	Dyeing of hot brand Reactive Dyes- Jigger dyeing, Pad-Batch, Pad-Dry(Steam) process. Vinyl sulphonereactive dyes (Introduction-Example only).	
V	**Azoic Dyes**: Definition–Example–Mechanism of dyeing (Diazotization & Development) – Napthols – Low, Medium , High & Still High Substantivity. Napthols (Example - Method of dissolution – Electrolytes – Fast bases –Temperature of Diazotization – Development or coupling – Dispersing agentsin the developing bath-Active stabilisation methods – sulphates or chloridesofDiazonium salts – complex salts of Diazonium compounds – Stabilized withAromaticsulphonates – Passive stabilisation methods. **Methods of Printing**: Hand block- Screen- Roller or machine printing–style of printing – direct- discharge – resist. white resist, colored resist –discharge – white discharge- colored discharge pigment printing - binders.	12
TOTAL		60

Text Book(s):
1. Dyes and their intermediates E.N.Abrahart, Edward Arnold.
2. A Textbook of synthetic dyes, O.D.Tyagi&M.Yadav, Anmol Publications, New Delhi.

Reference books:
I.V. A. Shenai - Chemistry of Dyes and Principles of Dyeing Vol I To Vol VII, Arise Publishers& Distributers, New Delhi.
2.Textile colouring, M.G. Mahadevan, Abihishek Publications, Chandigarh
3. Synthetic dyes,GurdeepR.Chatwal, Himalya Publishing House, Delhi.
4, Synthetic textile, MeenakshiRastogi,Sonali Publications, New Delhi.

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos

Course Designer: Dr.N.Karpagam, Assistant Professor, Dept of Chemistry, STC BOS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Gain basic knowledge in color theory, Classify the dyes according to their chemical constitutions	K2
CO2	Know about pre-treatment techniques	K2
CO3	Application of various type of dyes	K3

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- VI

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH6C41	Gravimetric Analysis and Physical Chemistry lab	Core lab -3	Practical	-		90	5

Preamble: This course aims to equip the students with skills in carrying out analytical (both qualitative and quantitative) experiments.

Prerequisites: Basic understanding about the chemical reactions.

UNIT	COURSE CONTENTS	HOURS
I	PHYSICAL CHEMISTRY EXPERIMENTS Determination of the rate constant of the acid catalysedhydrolysis of an ester. Kinetics of persulphate-iodide reaction Determination of Transition Temperature of a given salt. Determination of molecular weight of the substance- Rast method. Determination of C.S.T. of the phenol water system. Effect of added impurity on C.S.T. of Phenol – H_2O system and determination of the concentration of the given electrolyte solution. Determination of Cell Constant of a given Conductivity Cell. Determination of equivalent conductance of a strong electrolyte. Determination of dissociation constant of a weak electrolyte.	
II	GRAVIMETRIC ESTIMATIONS Determination of water of hydration in hydrated Barium Chloride. Estimation of Barium as Barium Sulphate. Estimation of Lead as Lead Chromate. Estimation of Barium as Barium Chromate. Estimation of Calcium as Calcium Mono oxalate. Estimation of Nickel as Ni-DMG complex Estimation of Magnesium as Magnesium Oxinate	

Reference Books

1.Svehla, G. Vogel's Qualitative Inorganic Analysis, Pearson Education, 2012.
2.Basic principles of practical chemistry, V. Venkateswaran, R. Veeraswamy, A. R. Kulandaivelu, Sultan Chand and Sons,2nd edition,1997.

Learning Methods (*): Practical

Focus of Course: Employability/ Entrepreneurship/ **Skill Development**

e-Resource/e-Content URL:

Course Designer:
S.Sudha,Assistant Professor, Department of Chemistry, STC

BOS Chairman

JUL 2021

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Have analytical (both qualitative and quantitative) and Psychomotor skills.	K3/K4

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- VI

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH6C50	**Dye chemistry lab**	Core lab -4	Practical	-		30	2

Preamble: To enable the students to acquire quantitative skills in dyeing and printing technology

Prerequisites: Basic understanding about the dye chemistry

UNIT	COURSE CONTENTS	HOURS
I	Dyeing of direct dyes on cotton fibre. Effect of temperature on direct dyeing. Effect of added electrolyte on direct dyeing. Dyeing of reactive dyes on cotton fibre. Dyeing of acid dyes on wool. Dyeing of direct dyes on viscose rayon. Dyeing of reactive dyes on viscose rayon.	

Reference Books

1.Basic principles of practical chemistry, V. Venkateswaran, R. Veeraswamy, A. R.Kulandaivelu, Sultan chand and sons,2nd edition, 1997.

Learning Methods (*): Practical

Focus of Course: Employability/ Entrepreneurship/ **Skill Development**

e-Resource/e-Content URL:

Course Designer:
S.Sudha, Assistant Professor, Department of Chemistry, STC

BOS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Acquire quantitative skills in dyeing and printing technology	K3/K4

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S		L	S	S	S

S- Strong; L- Low; M-Medium

Approved by Academic Council
BOS
Sree Saraswathi

SEMESTER- VI

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCHGSA0	Clinical biochemistry	Skill based course	Concept (B)	25	--	--	2

Preamble: This course will help students to understand the chemistry of proteins, carbohydrates and lipids. Familiarize the structure, function of DNA & RNA, and understand blood and urine analysis.

Prerequisites: To have basic knowledge of bio molecules

UNIT	COURSE CONTENTS	HOURS
I	*Carbohydrates:* Biological importance of carbohydrates, Metabolism,Cellular currency of energy (ATP), Glycolysis, Alcoholic and Lactic acidfermentations, Krebs cycle.	5
II	Proteins: Classification, biological importance; Primary and secondary andtertiary structures of proteins: α-helix and β- pleated sheets, denaturation of proteins *Enzymes:* Nomenclature,Characteristics (mention of Ribozymes), Classification; Active site,Mechanism of enzyme action, Stereospecificity of enzymes, Coenzymes and cofactors, Enzyme inhibitors	5
III	Lipids: Classification. Biological importance of triglycerides andphosphoglycerides and cholesterol. Biological functions and underlying applications of Liposomes. Lipoproteins. Properties, functions of steroid hormones. Peptide hormone and their types.	5
IV	**Structure of DNA**(Watson-Crick model) and RNA, Genetic Code, Biologicalroles of DNA and RNA: Replication, Transcription and Translation,Introduction to Gene therapy. ***Enzymes***: Nomenclature, classification, effect of pH, temperature on enzymeactivity, enzyme inhibition.	5
V	**Clinical Analysis of Body Fluids:** **Blood:**Composition and functions of blood, blood groups, blood coagulation. Bloodcollection and preservation of samples. Anaemia, Regulation, estimation andinterpretation of data for urea, blood sugar,creatinine and cholesterol. **Urine**: Collection and preservation of samples. Formation of urine. Composition and estimation of constituents of normal and pathological urine	5
	TOTAL	25

Text Book(s):
1.Talwar, G.P. & Srivastava, M. *Textbook of Biochemistry and Human Biology*, 3rd Ed.PHI Learning.
2.Thomas M. Devlin: Textbook of Biochemistry

Reference Book(s):
1.T.G. Cooper: Tool of Biochemistry.
2.Alan H Gowenlock: Varley's Practical Clinical Biochemistry.

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos
Course Designer: **Dr.A.Shanmugapriya,** Assistant ProfessorDepartment of Chemistry,STC BOS Chairman

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Explain the carbohydrate chemistry	K2
CO2	Understand the biochemistry of proteins and lipids	K2
CO3	Know DNA & RNA and their functions	K2
CO4	Ability to perform urine and blood analysis	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- III

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH3A11	Allied chemistry I	Allied – I	Concept (B)	45	-	--	3

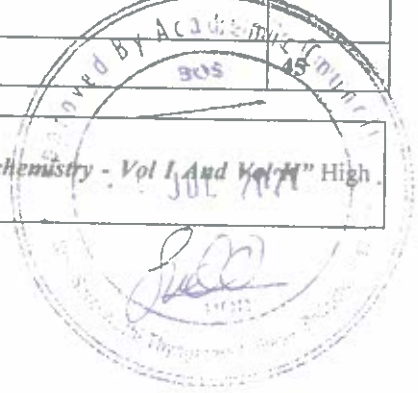
Preamble: This course helps the students from other major programmes to understand the key concepts of chemistry

Prerequisites: Higher secondary level chemistry

UNIT	COURSE CONTENTS	HOURS
I	**Theories of Chemical Bonding**: Ionic, and Covalent, Bonds, sigma and pi molecules-CH_4, C_2H_4, C_2H_2 and C_6H_6. **Molecular orbital theory**: Bonding, antibonding and non- bonding orbitals- molecular orbitals- MO configuration of H_2, He_2, N_2, O_2 and F_2. Bond order- diamagnetism and paramagnetism. **Metallic Bonding:** Free electron Theory-Valance Bond Theory Band or Zone Theory-Semiconductors.Imperfections in crystal-Schottky defects, Frenker defects and F-centres.	9
II	**Interhalogen compounds**: ICl, BrF_3, $IF_5$and IF_7–preparation, properties. Basic properties of Iodine **Compounds of Sulphur**: Sodium hydrosulphite. Peracids of sulphur-H_2SO_5 and $H_2S_2O_8$-preparation, properties, structure and uses. **Coordination Chemistry**: Nomenclature–Theories of Werner, Sidgwick and Pauling. Chelation Examples(Structure and biological function of EDTA, Hemoglobin, Chlorophyll. Applications in qualitative and quantitative Analysis. **Silicones**: Synthesis, properties and uses of silicones.	9
III	**Fuel Gases:** Definitions- classification- characteristics of a good fuel- Calorific value-preparation, properties and uses of Natural Gas, Water Gas, Carburated Water Gas, Producer Gas and Oil Gas. **Fertilizers:** Need for fertilizers- classification- characteristics- Manufacture and uses of Urea, Ammonium sulphate, Ammonium nitrate, Potassium nitrate, NPK fertilizer, Super phosphate of Lime, Triple super phosphate.	9
IV	**Types of Organic Reactions and Reagents**:Common Electrophiles,Nucleophiles and Free Radicals. Isomerism: Geometrical and Optical Isomerisms – Optical Isomerism in Lactic and Tartaric acids – Resolution. Geometrical Isomerism in Dichloroethyelene, Maleic and Fumaric acid. **Aromatic Compounds**: Electrophilic substitution in benzene–Mechanism of Nitration, Halogenation, Alkylation, Acylation and Sulphonation reactions. Isolation, preparation, properties and uses of naphthalene.	9
V	**Amino Acids**: Classification, Preparation and properties. Preparation of peptides. **Proteins**: Classification, properties and bilogical functions. **Carbohydrates**: Classification, preparation and properties of Glucose and Fructose. Discussion on open chain, ring structures of glucose and fructose, Glucose – Fructose inter conversion.	9
Total		45

Text Book(s):

1.**Dr. V. Veeraiyan and N. N. Samiappan** (1999),*"Text book of allied chemistry - Vol I And Vol II"* High Mount Pub House Chennai 1st edition,



2. **Dr.S.Sundaram, Dr.R.Gopalan,** ***"Allied chemistry"*** Sultan Chand & Sons, New Delhi.

Reference Book(s):

1. **B. S. Bahl, ArunBahl** (2010),***"Advanced Organic Chemistry"***, S.Chand& Co, New Delhi.
2. **B.R. Puri& L.R. Sharma, *"ShobanlalNagin Principles of Inorganic Chemistry"***, Vishal Publishing
3. **B. R. Puri, L. R. Sharma and M. S. Pathania,** ***"Elements of Physical Chemistry".*** Vishal Publishing Jalandar, 2nd edition.

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos

Course Designer:
S.Sudha
Assistant Professor and Head
Department of Chemistry (UG) , STC

BOS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL
CO1	Explain the theories of chemical bonding and molecular structure	K2
CO2	Understand the basics of inter halogen compounds and S compounds, Coordination chemistry, silicones and diboranes	K2
CO3	Gather basic knowledge of energy fuel gases and fertilizers	K2
CO4	Understand the types of organic reactions and reagents	K2
CO5	Explain the basics of amino acids, proteins and carbohydrates.	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

JUL 2021

SEMESTER- IV

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH4A11	Allied Chemistry-II	Allied	Concept (B)	45	-	-	3

Preamble: This course helps the students from other major programmes to understand the key concepts of chemistry.

Prerequisites: Higher secondary level chemistry

UNIT	COURSE CONTENTS	HOURS
I	**Halogen containing compounds:** Important chloro hydrocarbons used as Solvents and Pestisides(Dichloro methane,Chloroform,CCl_4,DDT)-ChloroFluroCarbons(CFCs)-properties and uses. **Heterocyclic compounds:** Pyrrole,Furan, Thiophone, Pyridine, Preparation, properties and uses. **Synthetic Polymer:** Teflon.Alkyl Resins, Polyesters Epoxy Resin—General treatment.	9
II	**Dyes:** Colour and constitution –Chromophore-Auxochrome-Classification of dyes based on their applications- Synthesis of dyes like Methyl Orange,Malachite Green, Indigo and Alizarin **Vitamins:** Diseases caused by the deficiency of vitamin A,B1,B2, C and D. Sources of these vitamins and their biological functions. **Chemotheraphy:** Preparation, uses and mode of action of Sulpha drugs, structure and uses of penicilline and chloromycetin.	9
III	**Energetics:** Definition of first law of thermodynamics- types of systems, reversible, irreversible, isothermal and adiabatic processes. Spontaneous processes, Enthalphy, Bond energy, need for the second law, Carnot cycle and carnot theorem. Entropy and its significance,Free energy change.	9
IV	**Photochemistry:** Laws of Photochemistry(Lambert's law,Beer-Lambert's law,Grotthus-Draper Law, Stark -Einstein' Law), Quantum yield and its applications-Fluorescence and phosphorescence. **Electrochemistry:**Kohrausch law, measurement of conductance, P^H determination, conductometric titrations, hydroelectric salts, pH and buffer in living systems. **Galvanic cells:** EMF, standard electrode potential, Reference electrodes, Electrochemical series,its applications . Principles of electroplating.	9
V	**Water Quality:** Introduction-Sources and uses of water-Quality of normal water- water in human body-hardness of water-types-softening of water –Ion-exchange processes – treatment of water for municipal purposes-desalination of Brackish water –Electro dialysis –Reverse osmosis method.	9

Text book(s):

1. **Dr. V. Veeraiyan and N. Samiappan**(1999),*" Text book of allied chemistry vol I and vol II "*, High mount pub house chennai 1st edition
2. **Dr.S.Sundaram, Dr. R. Gopalan, "*Allied chemistry*"**,SultanChand &Sons, New Delhi.

Reference book(s):

1. **B.R. Puri, L.R. Sharma, M.S. Pathania** (2004) "*Principles of Physical chemistry*", VishalPublishinghCo., New Delhi,
2. **Arun bahl and b. S. Bahl,** (2008) "*Advanced organic chemistry*", s. Chand, new Delhi,
3. **B.R. Puri, Sharma** (2011), " *Inorganic chemistry*", Miestone revised edition
4. **Jain and Jain, "*Engineering Chemistry*"**

Focus of Course: Employability/ Entrepreneurship/ Skill Development	
e-Resource/e-Content URL: *--NPTEL Videos and You tube	
Course Designer: **S.Sudha** **Assistant Professor, Department of Chemistry, STC**	**Chairman /BoS**

Course Outcomes (COs)		
On successful completion of this course the students will be able to:		
CO NUMBER	**COURSE OUTCOME (CO) STATEMENT**	**BLOOMS TAXONOMY KNOWLEDGE LEVEL**
CO1	Understand the halogen compounds, heterocyclic compounds, proteins and synthetic polymers	K2
CO2	Understand basics about dyes, vitamins hormones andchemotherapy	K2
CO3	Gather basic knowledge of energetic and chemical kinetics	K2
CO4	Understand the basics of chromatography, photochemistry and electrochemistry	K2
CO5	Explain the concepts in water Quality Parameters	K2

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER- IV

COURSE CODE	COURSE NAME	TYPE	COURSE CATEGORY	LECTURE (L)	TUTORIAL (T)	PRACTICAL (P)	CREDIT
18BCH4A20	Allied Chemistry Laboratory	Allied	Practical (Annual pattern)	-	-	90	2

Preamble: This course aims to equip the students with skills in carrying out volumetric analysis, organic mixture qualitative analysis and organic preparations.

Prerequisites: Basic understanding about the volumetric law and organic reactions

UNIT	COURSE CONTENTS	HOURS
I	Titrimetry: • Estimation of Sodium Hydroxide using standard Carbonate. • Estimation of Hydrochloric Acid using Standard Oxalic Acid. • Estimation of Sulphuric Acid using Standard Oxalic Acid. • Estimation of Temporary and Permanent Hardness of water. • Estimation of Ferrous Sulphate – Standard Mohr salt Solution. • Estimation of Oxalic Acid – Standard Ferrous Sulphate. • Estimation of Potassium Permanganate – Standard Sodium Hydroxide. • Estimation of Calcium using EDTA – Standard Magnesium Sulphate.	
II	Organic Qualitative Analysis: Reaction of Phenols, Acids, Aromatic primary Amine, Aldehydes, Diamide, Dextrose, Systematic Analysis of Organic Compounds containing one functional group.	

Text Books

1. Venkateswaran V, Veerasamy R. and Kulandaivelu A.R., (1997), "*Basic principles of Practical Chemistry*" 2nd edition, Sultan Chand & sons, New Delhi.
2. Sundaram, Krishnan, Raghavan, (1996),"*Practical Chemistry (Part II)*",S. Viswanathan Co. Pvt.

References

1. Furniss B.S., Hannaford A.J., Smith P.W. G., Tatchell A.R, (2005)," *Vogels Text Book of Practical Organic Chemistry*", 5th Edn., Harlow, Longman.
2. Ganapragasam N.S. and Ramamurthy G., (1998)" *Organic Chemistry – Lab manua*", S. Viswanathan Co. Pvt.

Learning Methods (*): Practical

Focus of Course: Employability/ Entrepreneurship/ **Skill Development**

e-Resource/e-Content URL:

Course Designer:
Ms. S.Sudha
Assistant Professor,Department of Chemistry (UG) , STC

Chairman-BoS

Course Outcomes (COs)

On successful completion of this course the students will be able to:

CO NUMBER	COURSE OUTCOME (CO) STATEMENT	BLOOMS TAXONOMY KNOWLEDGE LEVEL

CO1	Carry out volumetric analysis	K3/K4
CO2	Carry out systematic qualitative analysis of organic substance.	K3/K4

Mapping the Programme Outcomes

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S

S- Strong; L- Low; M-Medium

SEMESTER -III

Course Code	Course Name	Type	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BCH3N11	Chemistry in everyday life -1	NME 1	27	-	-	2

Preamble: To acquire basic knowledge about chemistry in day- to -day life

Prerequisites: Basic understanding about the Chemistry

SYLLABUS:CHEMISTRY FOR EVERYDAY LIFE -1

Unit	Course contents	Hours
I	DRUGS AND DISEASES: Clinical chemistry – antibiotics, antiseptics, antipyretics – definitions, examples (common drugs available in the market) – incurable diseases – causes forolio, diabetes, AIDS, cancer – signs and symptoms – vaccination – protein misfolding and disease – common drugs banned in India – effects of using banned drugs – effects of steroidal injections.	5
II	PERFUMES, EXPLOSIVES, AND DYES: Perfumes: historical significance – the olfactory system – categories – chemistry of ice cream making – chemistry of paint – chemistry of explosives – TNT, RDX, nitrocellulose, nitroglycerine (structure and properties only) – naturaldyes and synthetic dyes – types, advantages, applications – hair dye – petrochemicals.	5
III	CHEMICALS IN EVERYDAY PRODUCTS: Advantages and disadvantages of the following: monosodium glutamate (aginomotto) – lycopene (in tomato) – umami, the fifth tasteand glutamate – caffeine and theobromine (in chocolates) – polyphenols (in tea) – docosahexanoic acid (in fish) – thiols (in onion) – polycyclic aromatic hydrocarbons (formed during cooking meat) – constituents of talcum powder and pulmonary fibrosis – ingredients oftooth paste – melatonin (in anti-ageing product).	5
IV	CHEMICAL BASIS PF EVERYDAY PHENOMENA: Chemical basis of everyday phenomena – reasoning: kitchen gas burner burns yellow when a pot of boiling water overflows– cosmetic creams feel cool when applied to skin – seashells vary in color – old paintingsdiscolor over time – hair color products remove gray on hair – disappearing inks disappear –water does not relieve the burning sensation of chilly.	6
V	KNOWING CHEMISTRY FOR BETTER LIFE: Food adulteration – consumption of alcohol and its ill effects – PAH from oil – balanced diet – iodized salt – fluoride tooth paste – saturatedand unsaturated fat - cholesterol (LDL and HDL).	6
	TOTAL	27

Reference Book(s):

1.Karukstis K.K., and Hecke G.R.V., "Chemistry connections: the chemical basis of everyday phenomena" Elsevier Science and Technology books, 2nd edition, 2003.
2.Grace Ross Lewis, "1001 Chemicals in everyday products", John Wiley and sons, 3rd edition, 2001

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos

Course Designer:
S.Sudha, Assistant Professor, STC

BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	Introduce to the students about the chemistry connections of everyday life.	K2
CO2	Create interest in learning chemistry concepts in day- to- day activities.	K2
CO3	Relate what the student studies in the subjects to practical life.	K2
CO4	Learn about various certification marks on food items.	K3
CO5	Explain the importance of traditional food items	K2

Mapping with Program Outcomes and Program Specific Outcomes:

COs/Pos	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S –Strong; L –Low; M –Medium

SEMESTER - IV

Course Code	Course Name	Category	Lecture (L)	Tutorial (T)	Practical (P)	Credit
19BCH4N20	Chemistry for everyday life -II	NME-2	27	-	-	2
Preamble: To acquire basic knowledge about chemistry in day to day life						
Prerequisites: Basic understanding about the chemistry for everyday						

SYLLABUS-CHEMISTRY FOR EVERYDAY LIFE -II

Unit	Course contents	Instructional hours
I	**Plastics** – polythene, PVC, bakelite, polyesters, melamine formaldehyde resins - preparation, structures and uses only.	5
II	**Soil Nutrients and Food Additives** Fertilizers – Pesticides - Insecticides – Definition, Classification, Characteristics and Uses. Additives –Definition, Characteristics, Uses and Abuse of additives in foods and beverages.	5
III	**Dyes, Paints and Pigments** Dyes – Definition, Classification based on mode of application and structure, Applications. Paints – Definition, Ingredients, Characteristics, uses and drying process. Pigments -Varnishes - Definition, Characteristics, Types and Uses.	5
IV	**Soaps, Detergents and Disinfectants** Soaps and Detergents - Definition, Ingredients, Classification, Characteristics and Uses. Disinfectants – Definition, Characteristics and Uses. Perfumes - Definition, Characteristics, Raw materials and perfumes used in soaps - Cosmetics.	6
V	**Air**-Components and their importance; photosynthetic reaction, air pollution, green house effect and their impact on our life style.	6
	Total	27

Reference Book(s):

1. K.Bagavathi Sundari (2006), Applied Chemistry, MJP Publishers.
2. Des W.Connell (2016). Basic Concepts of Environmental Chemistry, Second edition, Taylor & Francis Group.
3. Ley E.Manahan (2009), Fundamentals of Environmental Chemistry, Third Edition, CRC Press, Taylor & Francis Group.

Learning Methods (*): Lecture/ Assignment/ Seminar/Quiz/ Self-study

Focus of Course: Employability/ Entrepreneurship/ Skill Development

e-Resource/e-Content URL: NPTEL videos

Course Designer: Mrs.S.Sudha,
Assistant Professor, STC

BoS Chairman

Course Outcomes (COs)

On successful completion of this course the students will be able to

CO Number	Course Outcome (CO) Statement	Blooms Taxonomy Knowledge Level
CO1	To gain the Knowledge of Polymer, Source and Uses	K2
CO2	To understand the occurrence, source, types, uses and demerits of the industrial products	K2
CO3	To gain the knowledge of the implementation of fundamental chemistry concepts in the manufacture of commercial products for the society	K2
CO4	To analyze the structural relationship of the commercial materials with the effect of applications and the biological implications of micronutrients	K2
CO5	To understanding the knowledge about Air pollution	K2

Mapping with Program Outcomes and Program Specific Outcomes:

COs/POs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	S	S	L	L	S	S	S
CO2	L	M	M	S	S	L	L	S	S	S
CO3	L	M	M	S	S	L	L	S	S	S
CO4	L	M	M	S	S	L	L	S	S	S
CO5	L	M	M	S	S	L	L	S	S	S

S –Strong; L –Low; M –Medium

CURRICULUM STRUCTURE OF UG PROGRAMMES

(2021-22 Batch Onwards)

PART - I

a. Tamil Or b. Hindi Or c. Malayalam Or d. French

PART - II

English : English Paper I, II, III & IV

PART - III

1. Core
2. Allied
3. Electives

PART - IV

1. Environmental Studies, Value Education and Human Rights
2. Non -Major Electives
3. Skill Based Courses
4. **Extra Credit Courses**
   Professional English for Physical Sciences. Summer Project, Job Oriented Course, MOOC courses

PART - V

Extension Activities

1. NSS / Sports

Internship & Field Work for Psychology/Social Work

Course Category / Assessment Components	Internship
Component -1 Attendance	10
Component -2 Work Diary/IC	10
Component -3 Report/Record	10
Component -4 Prof. Knowledge& Initiatives/ Viva voce	20
Total Marks	**50**

SKILL BASED TASKS FOR THEORY / PRACTICAL COURSES:

- FLOWCHARTS
- MINIATURES
- DEMONSTRATION
- SNAP TALK
- VIVA VOCE
- CLASS PRESENTATION [ORAL/POSTER]
- BUSINESS PLAN
- GROUP DISCUSSION
- SIMULATION EXERCISE
- CASE STUDY
- GAMES
- PUZZLES
- MODELS
- PAPER PRESENTATION
- ARTICLE REVIEW
- DEBATE
- SEMINAR
- REPORTS
- PORTFOLIOS
- QUESTIONNAIRE
- PUBLICATION
- SURVEY
- MINI PROJECT [INDIVIDUAL / GROUP]
- USP COMPONENT [UNIQUE TO THE COURSE]

2. Mark Preparation Format

Sl.No.	Name	Reg.No.	Rubrics Evaluation				
			Component 1	Component 2	Component 3	Component 4	Total

3. Pattern of Examinations: The college follows semester pattern. Each academic year consists of two semesters and each semester ends with the End Semester Examinations. A student should have a minimum of 75% attendance out of 90 working days to become eligible to sit for the examinations.

4. Internal Examinations: The questions for every examination shall have equal representation from the units of syllabus covered. The question paper pattern and coverage of syllabus for each of the internal (CIA) tests for UG programs are as follows.

Internal Assessment Test

i. First Internal Assessment Test

Syllabus : First Two Units
Working Days : On completion of 30 working days, approximately
Duration : Two Hours
Max. Marks : 50

EXAMINATIONS SYSTEM UNDER AUTONOMY

1. OBE ASSESSMENT COMPONENT MATRIX

Theory

Course Category	UG	UG/PG			UG	UG	PG
Assessment Components	Language	Concept	Application	Analysis	Skill Based Course	Value Based Course	IDC
Component -1 CIA – Test	30	30	30	30	15	45	50
Component -2 UG – Attendance / PG – Seminar	5	5	5	5	5	5	-
Component -3 Assignments	5	5	5	5	5	-	-
Component -4 Skill Based Task	10*	10*	10*	10*	5#	-	-
Total Marks	**50**	**50**	**50**	**50**	**30**	**50**	**50**

Note:
 # - Skill based task – 1 task
*** - Skill based tasks – 2 tasks for UG, – 3 tasks for PG**

Practical

Course Category / Assessment Components	UG/PG		Skill Based
Component -1 CIA – Test	30	15	15
Component -2 Lab Performance	5	2.5	5
Component -3 Observation	5	2.5	5
Component -4 Skill Based Task	10*	5#	5#
Total Marks	**50**	25	30

Note:
 # - Skill based task – 1 task
*** - Skill based tasks – 2 tasks for UG, – 3 tasks for PG**

Project & Internship

Course Category / Assessment Components	Project	Summer Internship	Project
Component -1 Review I	15	25	30
Component -2 Review II	15	25	30
Component -3 Report Submission	10	-	20
Component -4 Model Viva voce	10	-	20
Total Marks	**50**	**50**	**100**

ii. Second Internal Assessment Test

Syllabus : Third and Fourth Units
Working Days : On completion of 65 working days, approximately
Duration : Two Hours
Max. Marks : 50

iii. Model Examinations

Syllabus : All Five Units
Working Days : On completion of 85 working days, approximately
Duration : Three Hours
Max. Marks : 100 (or) 75

CIA Assessment (for CIA-I and CIA-II) - UG

Bloom's Category Level	Sections	Marks			Description
K1= Remember	Section A 5 Questions * 1 Marks	5			Multi choice Questions
K1= Remember K2= Understand K3= Apply	Section B 3 Questions (out of 5 questions) * 5 Marks (Open choice type)	15			Open choice type Questions (250 words)
		K1	K2	K3	
		2	2	1	
K1= Remember K2= Understand K3= Apply	Sections C 3 Questions * 10 Marks (either or type)	30			Either or types Questions (500 words)
		K1	K2	K3	
		2	2	2	
	Total	50			

For the internal assessment test, the question paper pattern shall be as given below.

UG: CIA TEST – I & II

[FOR 2 UNITS - 2 HOURS – 50 MARKS]

[FOR CORE/ELECTIVE/ALLIED/SKILL BASED COURSES]

SECTION A

[05 MULTIPLE CHOICE QUESTIONS]
[ALL 5 FROM K1 LEVEL]:
(MINIMUM TWO QUESTION SHALL BE ASKED FROM EACH UNIT)

05 x 01= 05 MARKS

SECTION B

[250 WORDS – OPEN CHOICE TYPE – 3 OUT OF 5 QUESTIONS]
[2 QUESTIONS FROM K1 LEVEL]
[2 QUESTIONS FROM K2 LEVEL]
[1 QUESTION FROM K3 LEVEL]:
(MINIMUM TWO QUESTION SHALL BE ASKED FROM EACH UNIT)

03 x 05 = 15 MARKS

SECTION C

[500 WORDS – EITHER OR TYPE – 3 QUESTIONS]
[ALL 3 ARE FROM K1,K2& K3 LEVEL RESPECTIVELY]:
(MINIMUM TWO QUESTION SHALL BE ASKED FROM EACH UNIT)

03 x 10 = 30 MARKS

[FOR 2 UNITS - 2 HOURS – 50 MARKS]

SBC - General Intelligence and Reasoning, Verbal Reasoning – I and Verbal Reasoning II

SECTION A

[50 MULTIPLE CHOICE QUESTIONS]
[ALL 50 FROM K1 LEVEL]: **50 x 01= 50 MARKS**
(MINIMUM TWENTY TWO QUESTIONS SHALL BE ASKED FROM EACH UNIT)

Model & Semester ExaminationsAssessment - UG for 100 marks

Bloom's Category Level	Sections	Marks	Description
K1= Remember	Section A 10 Questions * 1 Marks	10	Multi choice Questions
K1= Remember K2= Understand K3= Apply	Section B 5 Questions (out of 7 questions)* 6 Marks (Open choice type)	30 K1 K2 K3 2 3 2	Open choice type Questions (250 words)
K1= Remember K2= Understand K3= Apply	Sections C 5 Questions * 12 Marks (either or type)	60 K1 K2 K3 4 4 2	Either or types Questions (500 words)
	Total	**100**	

Model & Semester ExaminationsAssessment - UG for 75 marks

Bloom's Category Level	Sections	Marks	Description
K1= Remember	Section A 10 Questions * 1 Marks	10	Multi choice Questions
K1= Remember K2= Understand K3= Apply	Section B 5 Questions (out of 7 questions)* 5 Marks (Open choice type)	25 K1 K2 K3 2 3 2	Open choice types Questions (250 words)
K1= Remember K2= Understand K3= Apply	Sections C 5 Questions * 8 Marks (either or type)	40 K1 K2 K3 4 4 2	Either or types Questions (500 words)
	Total	**75**	

UG: MODEL & SEMESTER EXAMINATIONS
[FOR CORE/ELECTIVE/ ALLIED COURSES]
[FOR 5 UNITS – 3 HOURS – 100 MARKS]

SECTION A

[10 MULTIPLE CHOICE QUESTIONS]
[ALL 10 FROM K1 LEVEL]: **10x01= 10 MARKS**
(Two each from all units)

SECTION B

[250 WORDS – OPEN CHOICE TYPE – 5 OUT OF 7 QUESTIONS]
[2 QUESTIONS FROM K1 LEVEL]
[3 QUESTIONS FROM K2 LEVEL]
[2 QUESTIONS FROM K3 LEVEL]: **05 x 06 = 30 MARKS**
(Minimum One question shall be asked from each unit)

SECTION C

[500 WORDS – EITHER OR TYPE – 5 QUESTIONS]
[2 QUESTIONS FROM K1 LEVEL]
[2 QUESTIONS FROM K2 LEVEL]
[1 QUESTION FROM K3 LEVEL]: **05 x 12 = 60 MARKS**
(Two each from all units)

UG: MODEL & END SEMESTER EXAMINATIONS
[FOR SKILL BASED COURSES / ALLIED & NME]
[FOR 5 UNITS – 3 HOURS – 75 MARKS]

SECTION A

[10 MULTIPLE CHOICE QUESTIONS]
[ALL 10 FROM K1 LEVEL]: **10x01= 10 MARKS**
(Two each from all units)

SECTION B

[250 WORDS – OPEN CHOICE TYPE – 5 OUT OF 7 QUESTIONS]
[2 QUESTIONS FROM K1 LEVEL]
[3 QUESTIONS FROM K2 LEVEL]
[2 QUESTIONS FROM K3 LEVEL]: **05 x 05 = 25 MARKS**
(Minimum One question shall be asked from each unit)

SECTION C

[500 WORDS – EITHER OR TYPE – 5 QUESTIONS]
[2 QUESTIONS FROM K1 LEVEL]
[2 QUESTIONS FROM K2 LEVEL]
[1 QUESTION FROM K3 LEVEL]: **05 x 08 = 40 MARKS**
(Two each from all units)

SBC - General Intelligence and Reasoning, Verbal Reasoning – I and Verbal Reasoning II
Section A

[75 MULTIPLE CHOICE QUESTIONS]
[ALL 75 FROM K1 LEVEL]: **75 x 01= 75 MARKS**
(MINIMUM TWELEVE QUESTIONS SHALL BE ASKED FROM EACH UNIT)

Outcome Based Education Assessment Pattern (Internals)
2021–22 batch onwards

InternalsSetup : Theory – 50 marks (UG/PG)

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
CIA Test – I	50	7.5
CIA Test – II	50	7.5
Model Examination	100	15
Assignment	5	5
Attendance	5	5
Skill Based Task	5	10
Total Marks		**50**

InternalsSetup : Theory – 30 marks (UG)

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
CIA Test – I	50	3
CIA Test – II	50	3
Model Examination	100	9
Assignment	5	5
Attendance	5	5
Skill Based Task	5	5
Total Marks		**30**

InternalsSetup : Value Based Course – 50 marks (UG)

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
CIA Test – I	50	10
CIA Test – II	50	10
Model Examination	100	25
Assignment	-	-
Attendance	5	5
Skill Based Task	-	-
Total Marks		**50**

InternalsSetup : *Practical – 50 marks*

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
CIA Test – I	50	7.5
CIA Test – II	50	7.5
Model Examination	100	15
Lab Performance	5	5
Observation	5	5
Skill Based Task	10	10

Total Marks		50

InternalsSetup : *Practical – 25 marks*

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
CIA Test – I	50	3.5
CIA Test – II	50	3.5
Model Examination	100	8
Lab Performance	2.5	2.5
Observation	2.5	2.5
Skill Based Task	5	5
Total Marks		**25**

InternalsSetup : *Practical – 30 marks*

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
CIA Test – I	50	3
CIA Test – II	50	3
Model Examination	100	9
Lab Performance	5	5
Observation	5	5
Skill Based Task	5	5
Total Marks		**30**

InternalsSetup : *Practical– 50 marks*

Name of the Examinations	Examination Conduction Marks	Marks to convert as Final Mark
Review – I	15	15
Review – II	15	15
Report Submission	10	10
Model Viva-voce	10	10
Total Marks		**50**

External Examinations:

The external examinations for theory courses will be conducted for 50% marks for all UG and PG degree programs, (In case of Total mark is 75, External will be 45 marks). The external theory examinations will be conducted only after the completion of 90 working days in each semester.

Normally, the external practical examinations will be conducted before the commencement of theory examinations. Under exceptional conditions these examinations may be conducted after theory examinations are over. The external evaluation will be for 50%(In case of Total mark is 75, External will be 45 marks) of each practical course.

The **External Assessment marks forPractical Examinations** are based on the following criteria. The assessment is for 50 % marks of each practical course.

Programmes (2*20) 40

(Algorithm 10 marks, Key and execution10 marks)

Record 10

Total 50

The **External Assessment marks forSkill BasedPractical Examinations** are based on the following criteria. The assessment is for 45 marks of each practical course.

Programmes (2*20)	40
(Algorithm 08 marks, Key and execution12 marks)	
Record	05

Total	**45**

The **External Assessment marks forNon Major ElectivePractical Examinations** are based on the following criteria. The assessment is for 50 marks.

Programmes (2*21)	42
(Algorithm 7 marks, Key and execution 14 marks)	
Record	8

Total	**50**

The **External Assessment marks for Project and Summer Internship [Inclusive of Psychology & Social Work]** are based on the following criteria. The assessment is for 50 marks.

a)Evaluation	30
b)Viva	20

Total	**50**

The **External Assessment marks for Project** are based on the following criteria. The assessment is for 100 marks.

a)Evaluation	60
b)Viva	40

Total	**100**

The external viva voce examinations for project works also will be conducted after completion of theory examinations. The external assessment is for 100 % marks of the project work.

The **External Assessment mark for project evaluation / summer internship [50 marks]** is based on the following criteria.

a)Assessment	30
b)Viva	20

Total	**50**

The **External Assessment mark for project evaluation / summer internship [100 marks]** is based on the following criteria.

a)Assessment	60
b)Viva	40

Total	**100**

End Semester Examinations Question Paper Pattern - I

Syllabus	: All Five Units
Working Days	: On completion of a minimum of 90 working days.
Duration	: Three Hours
Max. Marks	: 100

Question Paper Pattern

For the **End SemesterExternalTheoryExaminations for 100 marks** the question paper pattern shall be the same **for all UG & PG programmes.**

Section – A (10 X 1 = 10 Marks)

Answer the following questions

Multiple Choice questions

1	Unit I
2	Unit I
3	Unit II
4	Unit II
5	Unit III
6	Unit III
7	Unit IV
8	Unit IV
9	Unit V
10	Unit V

Section – B (5 X 6 = 30 Marks)
Answer any 5 out of 7 of the following questions
Answers should not exceed 250 words

11.	Unit – I/II/III/IV/V
12.	Unit –I/II/III/IV/V
13.	Unit – I/II/III/IV/V
14.	Unit – I/II/III/IV/V
15.	Unit – I/II/III/IV/V
16.	Unit – I/II/III/IV/V
17.	Unit – I/II/III/IV/V

Section – C (5 X 12 = 60 Marks)
Answer either (a) or (b) from all questions
Answers should not exceed 500 words

18.	a)	Unit – I	Or
	b)	Unit – I	
19.	a)	Unit II	Or
	b)	Unit II	
20.	a)	Unit III	Or
	b)	Unit III	
21.	a)	Unit IV	Or
	b)	Unit IV	
22.	a)	Unit V	Or

b) Unit V

End Semester Examinations Question Paper Pattern - II

Syllabus : All Five Units
Working Days : On completion of a minimum of 90 working days.
Duration : Three Hours
Max. Marks : 75

Question Paper Pattern

For the **End SemesterExternalTheoryExaminations (for 75 marks)**, the question paper pattern shall be the same **for all UG programmes [Skill Based Courses & NME].**

Section – A (10 X 1 = 10 Marks)

Answer the following questions
Multiple Choice questions

1 Unit I
2 Unit I
3 Unit II
4 Unit II
5 Unit III
6 Unit III
7 Unit IV
8 Unit IV
9 Unit V
10 Unit V

Section – B (5 X 5 = 25 Marks)

Answer any 5 out of 7 of the following questions

Answers should not exceed 250 words

11. Unit – I/II/III/IV/V
12. Unit –I/II/III/IV/V
13. Unit – I/II/III/IV/V
14. Unit – I/II/III/IV/V
15. Unit – I/II/III/IV/V
16. Unit – I/II/III/IV/V
17. Unit – I/II/III/IV/V

Section – C (5 X 8 = 40 Marks)

Answer either (a) or (b) from all questions

Answers should not exceed 500 words

18. a) Unit I Or
    b) Unit I
19. a) Unit II Or
    b) Unit II
20. a) Unit III Or
    b) Unit III
21. a) Unit IV Or
    b) Unit IV

22. a) Unit V Or

b) Unit V

Essential conditions for the Award of Degree / Diploma / Certificates:

1. Pass in all components of the degree, i.e., Part–I, Part–II, Part–III, Part – IV and Part–V individually is essential for the award of degree.
2. First class with Distinction and above will be awarded for part III only. Ranking will be based on marks obtained in Part – III only.
3. GPA (Grade Point Average) will be calculated every semester separately. If a candidate has arrears in a course, then GPA for that particular course will not be calculated. The CGPA will be calculated for those candidates who have no arrears at all. The ranking also will be done for those candidates without arrears only.
4. The improvement marks will not be taken for calculating the rank. In the case of courses which lead to extra credits also, they will neither be considered essential for passing the degree nor will be included for computing ranking, GPA, CGPA etc.
5. The grading will be awarded for the total marks of each course.
6. Fees shall be paid for all arrears courses compulsorily.
7. There is provision for re-totaling, Xerox copy and revaluation for UG and PG Programmes on payment of prescribed fees.

Classification of Successful Candidates [Course-wise]

RANGE OF MARKS (In percent)	GRADE POINTS	GRADE	DESCRIPTION
90 - 100	9.0 - 10.0	O	OUTSTANDING
80 - 89	8.0 - 8.9	D+	EXCELLENT
75 - 79	7.5 - 7.9	D	DISTINCTION
70 – 74	7.0 - 7.4	A+	VERY GOOD
60 – 69	6.0 - 6.9	A	GOOD
50 – 59	5.0 - 5.9	B	AVERAGE
40 – 49 #	4.0 - 4.9	C	SATISFACTORY
00 – 39	0.0	U	RE-APPEAR
ABSENT	0.0	U	ABSENT

Reappearance is necessary for those who score below 50% Marks in PG **; those who score below 40% Marks in UG*:

only applicable for UG programs

Individual Courses

C_i= Credits earned for course "i" in any semester
G_i= Grade Point obtained for course "I" in any semester
'n' refers to the semester in which such courses were credited.

GRADE POINT AVERAGE [GPA] = $\Sigma C_i G_i$

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$$GPA = \frac{\Sigma Ci}{\text{Sum of the credits of the courses in a semester}}$$

Sum of the multiplication of grade points by the credits of the courses

Classification of Successful Candidates (Overall):

CGPA	GRADE	CLASSIFICATION OF FINAL RESULT
9.5 to 10.0	O+	First Class - Exemplary *
9.0 and above but below 9.5	O	
8.5 and above but below 9.0	D++	First Class with Distinction *
8.0 and above but below 8.5	D+	
7.5 and above but below 8.0	D	
7.0 and above but below 7.5	A++	First Class
6.5 and above but below 7.0	A+	
6.0 and above but below 6.5	A	
5.5 and above but below 6.0	B+	Second Class
5.0 and above but below 5.5	B	
4.5 and above but below 5.0	C+ #	Third Class
4.0 and above but below 4.5	C #	
0.0 and above but below 4.0	U	Re-appear

"*" The candidates who have passed in the first appearance and within the prescribed semester of the Programme (Major, Allied, Inter Departmental and Elective Course alone) are eligible.

"#" Only applicable to U.G. Programme

$$\textbf{CUMULATIVE GRADE POINT AVERAGE [CGPA]} = \frac{\Sigma n \Sigma_i Cn_i Gn_i}{\Sigma n \Sigma_i Cn_i}$$

$$CGPA = \frac{\text{Sum of the multiplication of grade points by the credits of entire program}}{\text{Sum of the credits of the Courses of the entire Program}}$$

In order to get through the examination, each student has to earn the minimum marks prescribed in the internal (wherever applicable) and external examinations in each of the theory course, practical course and project viva. Normally, the ratio between internal and external marks is 50:50. There is no passing minimum for internal component. The following are the minimum percentage and marks for passing of each course, at UG and PG levels for external and aggregate is as follows:

S.No	Program	Passing Minimum in Percent	
		External (50)	Aggregate (100)
1	UG Degree	40% (20)	40% (40)
2	PG Degree	50% (25)	50% (50)

However, the passing minimum marks may vary depending up on the maximum marks of each course. The passing minimum at different levels of marks is given in the following table:

S.No	UG & PG Maximum Marks			Passing minimum for UG			Passing minimum for PG		
	Int.	Ext.	Total	Int.	Ext.	Agg. 40%	Int.	Ext.	Agg. 50%
1	50	50	100	-	20	40	-	25	50
2	30	45	75	-	18	30	-	-	-
3	50	-	50	20	-	20	25	-	25
4	25	25	50	-	10	20	-	13	13
5	-	50	50	-	20	20	-	25	25
6	100	100	200	-	40	80	-	50	100
7	-	100	100	-	40	40	-	50	50

Reappearance

The students having arrears shall appear in the subsequent semester (external) examinations compulsorily. The candidates may be allowed to write the examination in the same syllabus for 3 years only. Thereafter, the candidates shall be permitted to write the examination in the revised / current syllabus depending on various administrative factors. There is no re-examination for internals.

Criteria for Ranking of Students:

1. Marks secured in core, elective and Inter Disciplinary Course (Part III) courses will be considered for PG Programs and marks secured in Core, Elective, Inter Departmental and Allied Courses (Part-III) will be considered for UG programs, for ranking of students.
2. Candidate must have passed all courses prescribed chosen / opted in the first attempt itself.
3. Improvement marks will not be considered for ranking but will be considered for classification.

External Examination Grievances Committee:

Those students who have grievances in connection with examinations may represent their grievances, in writing, to the chairman of examination grievance committee in the prescribed Performa. The Principal will be chairman of this committee.

SREE SARASWATHI THYAGARAJA COLLEGE (AUTONOMOUS)
THIPPAMPATTI, POLLACHI - 642 107

Student Grievance Form

(Forms Available at Utility Stores)

Date:
Place:

From
Register No : .....,
Name : .....,
Class : .....,
SreeSaraswathiThyagarajaCollege,
Pollachi – 642 107

To
The Principal / Examination-in-charge,
SreeSaraswathiThyagarajaCollege,
Pollachi – 642 107

Through:

1. Head of the Department,
   Department of .....,
   SreeSaraswathiThyagaraja College,
   Pollachi – 642 107
2. Dean of the Department
   Faculty of .....,
   SreeSaraswathiThyagaraja College,
   Pollachi – 642 107

Respected Sir / Madam,

Sub: ..... - reg.

NATURE OF GRIEVANCE

.....
.....
.....

Thanking you,

Yours Truly,

Signature

Forwarded by:

HOD with comments / recommendation

.....

2. Dean with comments / recommendation

.....

3. Signature and Directions of the Principal

.....

4. Controller of Examinations:

.....