

CURRICULUM AND SYLLABUS
(R 2015)
CHOICE BASED CREDIT SYSTEM
(Applicable to the batches admitted from July, 2015)
B.Sc – CHEMISTRY
I – VI SEMESTERS

SEMESTER I

Part	Category	Sub code	Sub Name	L	T	P	C
Theory							
Part I	HS	BAL 101	Tamil –I	4	0	0	4
		BAL 102	French – I				
		BAL 103	Hindi - I				
Part II	HS	BEH 101	English - I	4	0	0	4
Part III	MC	BCI 101	Core - 1 General Chemistry - I	3	2	0	4
	MC	BCI 102	Core -2 General Chemistry - II	3	2	0	4
	NMC	BMA103	Allied - I - Maths - I	3	2	0	4
	EEC		Library	0	0	1	0
Practical							
	MC	BCI 1L1	Core -3 - Chemistry Major Lab.	0	0	4	2
Total number of periods: 28				Total numbers of credits: 22			

SEMESTER II

Part	Category	Sub code	Sub Name	L	T	P	C
Theory							
Part I	HS	BAL201	Tamil – II	3	0	0	3
		BAL202	French - II				
		BAL203	Hindi – II				
Part II	HS	BEH 201	English - II	3	0	0	3
Part III	MC	BCI 201	Core - 4 - General Chemistry - III	3	2	0	4

	MC	BCI 202	Core - 5 - General Chemistry - IV	3	2	0	4
	NMC	BMA203	Allied - II Maths	3	2	0	4
Part IV	HS	BCI 204	Environmental Studies	2	0	0	2
	EEC	BBC 206	Value Education	2	0	0	2
Practical							
	MC	BCI 2L1	Core - 6 -Major Practical - II	0	0	4	2
Total number of periods: 29				Total numbers of credits: 24			

SEMESTER III

Part	Category	Sub code	Sub Name	L	T	P	C
Theory							
Part I	HS	BAL 301	Tamil – III	3	2	0	4
		BAL 303	Hindi – III				
		BAL 302	French - III				
Part II	HS	BEH 301	English - III	3	2	0	4
Part III	MC	BCI 301	Core - 7 - General Chemistry - 5	3	2	0	4
	NMC	PBS 302	Second Allied – I - Physics Paper - 1	3	2	0	4
Part IV	NME	BCI 3E1 - Non Major Elective I					
		BAL001	Basic Tamil – I, for those who studied other language under Part I	2	0	0	2
		BAL002	Special Tamil – I, for those who studied Tamil under Part I				
Practical							
	MC	BCI 3L1	Core -8 - Major Practical - 3	0	0	4	2
	NMC	PBS3L2	Second Allied - II - Physics Lab.	0	0	4	2
Total number of periods: 32				Total numbers of credits: 22			

SEMESTER IV

Part	Category	Sub code	Sub Name	L	T	P	C
Theory							
Part I	HS	BAL 401	Tamil – IV	2	2	0	3
		BAL 403	Hindi - IV				
		BAL 402	French - IV				
Part II	HS	BEH 401	English - IV	2	2	0	3
Part III	MC	BCI 401	Core - 9 -General Chemistry - 6	3	2	0	4

	NMC	PBS 402	Second Allied – III - Physics Theory	3	2	0	4
Part IV	NME	BCI 4E2 - Non Major Elective (NME) II					
		BAL003	Basic Tamil – II, for those who studied other language under Part I	2	0	0	2
		BAL004	Special Tamil – II, for those who studied Tamil under Part I				
	SBE	BCI 4E3	Skill Based Elective I	2	0	0	2
Practical							
	MC	BCI 4L1	Core 10 - Major Practical - 4	0	0	4	2
	NMC	PBS4L2	Second Allied - IV - Physics Lab.	0	0	4	2
Total number of periods: 30				Total numbers of credits: 22			

SEMESTER V

Part	Category	Sub code	Sub Name	L	T	P	C
Theory							
Part III	MC	BCI 501	Core - 11 - Organic Chemistry - I	3	2	0	4
	MC	BCI 502	Core - 12 - Inorganic Chemistry - I	4	0	0	4
	MC	BCI 503	Core - 13 - Physical Chemistry - I	3	2	0	4
	ME	BCI 5E6	Major Elective - I	4	0	0	4
Part IV	SBE	BCI 5E4	Skill Based Elective – II	2	0	0	2
	SBE	BCI5E5	Skill Based Elective – III	2	0	0	2
Practical							
	MC	BCI 5L1	Core - 1 4 Major Practical - 5	0	0	4	3
	MC	BCI5L2	Core - 1 5 Major Practical - 6	0	0	4	3
Total number of periods: 30				Total numbers of credits: 26			

SEMESTER VI

Part	Category	Sub code	Sub Name	L	T	P	C
Theory							
Part III	MC	BCI 601	Core - 16 -Organic Chemistry - II	3	2	0	4

	MC	BCI 602	Core - 17 - Inorganic Chemistry - II	3	2	0	4
	ME	BCI 6E7	Major Elective - II	4	0	0	4
Part IV	EEC	BCI 6V1	Extension Activities	0	0	2	1
Practical							
Part III	MC	BCI 6L1	Core - 18 - Major Practical - 7	0	0	6	3
Part III	EEC	BCI 6P1	PROJECT	0	0	10	8
Total number of periods: 32				Total numbers of credits: 24			

SUMMARY OF CURRICULUM STRUCTURE AND CREDIT & CONTACT HOUR DISTRIBUTION

S.No	Sub Area	Credit as per Semester						No. of Credit	% of Credit
		I	II	III	IV	V	VI		
1	Humanities and Social Studies (HS)	8	8	8	6	0	0	30	21.90
2	Major Core (MC)	10	10	6	6	18	12	62	42.33
3	Non Major Core (NMC)	4	4	6	6	0	0	20	14.60
4	Major Elective (ME)	0	0	0	0	4	4	8	05.84
5	Non Major Elective (NME)	0	0	2	2	0	0	4	02.92
6	Skill Based Elective (SBE)	0	0	0	2	4	0	6	04.38
7	Employability Enhancement Course (EEC), Project Work, Seminar, Internship, Term Paper, etc.	0	2	0	0	0	8	10	08.03
	Total Credit	22	24	22	22	26	24	140	
	Total Contact Hour	28	29	32	30	30	36	185	

LIST OF ELECTIVES

MAJOR ELECTIVE – I (BCI5E6)

Sub Code	Sub Name	L	T	P	C
BCI001	Analytical Chemistry	4	0	0	4
BCI002	Polymer Chemistry	4	0	0	4
BCI003	Biochemistry	4	0	0	4

MAJOR ELECTIVE – II (BCI6E7)

Sub Code	Sub Name	L	T	P	C
BCI004	Kinetic & Spectroscopic Methods In Chemistry	4	0	0	4
BCI005	Industrial Chemistry	4	0	0	4
BCI006	Food Chemistry and Technology	4	0	0	4

NON MAJOR ELECTIVE (NME) I - BCI3E1

Sub Code	Sub Name	L	T	P	C
BAL001	Basic Tamil – I for those who studied other language under Part I	2	0	0	2
BAL002	Special Tamil – I for those who studied Tamil under Part I	2	0	0	2

NON MAJOR ELECTIVE (NME) II – BCI 4E2

Sub Code	Sub Name	L	T	P	C
BAL003	Basic Tamil – II for those who studied other language under Part I	2	0	0	2
BAL004	Special Tamil – II for those who studied Tamil under Part I	2	0	0	2

LIST OF SKILL BASED ELECTIVES (Choose any three courses – one in semester IV & two in semester V): BCI4E3, BCI5E4 & BCI5E5

S.NO	Sub Code	Sub Name	L	T	P	C
1	BBA011	BPO Management	1	0	2	2
2	BBE002	Desk Top Publishing	1	0	2	2
3	BCA001	Computer Application	1	0	2	2

4	BCA002	Graphical and Web Design	1	0	2	2
5	BCA003	Multimedia	1	0	2	2
6	BCA004	Networking and Maintenance	1	0	2	2
7	BCA006	Web Designing	1	0	2	2
8	BSC001	Animation	1	0	2	2
9	BSC002	Computer Hardware and Networking	1	0	2	2
10	BSC003	Computer Programming	1	0	2	2
11	BSC004	Computer Technology	1	0	2	2

SEMESTER – I

BAL101	தமிழ் – I		L	T	P	C					
	Total Contact Hours – 45		3	0	0	3					
	Prerequisite course – +2 Level Tamil										
	Course Coordinator Name& Department : முனைவர். த. கிறிஸ்டல் ரெஜி & தமிழ்த்துறை										
COURSE OBJECTIVES : இருபதாம் நூற்றாண்டு இலக்கியத்தை அறியச் செய்தல்											
COURSE OUTCOMES (COs)											
CO1	பாரதியார், பாரதிதாசன், கவிமணி ஆகியோரின் மரபுக்கவிதைகளை அறிவர்										
CO2	கண்ணதாசன், அப்துல்ரகுமான், நா.முத்துக்குமார் ஆகியோரின் புதுக்கவிதைகளை அறிவர்										
CO3	இருபதாம் நூற்றாண்டு உரைநடை கட்டுரைகளை அறிவர்										
CO4	இருபதாம் நூற்றாண்டு சிறுகதைக்கலையின் நுட்பத்தை அறிவர்										
CO5	இக்கால இலக்கிய வரலாற்றைப் பற்றி அறிவர்										
CO6	இருபதாம் நூற்றாண்டு இலக்கியத்தைப் பற்றி அறிவர்										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	M						H	M	M
	CO2	H	M								
	CO3	H	M								
	CO4	H	M								
	CO5	H	M								
	CO6	H	M								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)
		✓								
4	Approval	Academic Council Meeting								

அலகு 1

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மரபுக்கவிதைகள்: பாரதியார் - தேசிய கீதங்கள் - தமிழ் நாடு - செந்தமிழ் நாடு, தமிழ் பாரதிதாசன் - தமிழ் - இன்பத் தமிழ், எங்கள் தமிழ்
கவிமணி தேசிக விநாயகம் பிள்ளை - வாழ்க்கைத் தத்துவங்கள், வாழ்க்கை நிலையாமை

அலகு 2

9

புதுக்கவிதைகள்: கண்ணதாசன் - அழகை, பிறப்பின் வருவது யாதெனக் கேட்டேன்!
அப்துல் ரகுமான் - கல்லின் காயம், பாருக்குள்ளே நல்ல நாடு
நா.முத்துக்குமார் - வளர்தலும் வளர்தல் நிமித்தமும், கை நீட்டினால் தண்ணீர் வரும் குழாய்

அலகு 3

9

கட்டுரைகள்: திரு.வி.கலியாணசுந்தரனார் - பாஷை வளர்வதெப்படி
அறிஞர் அண்ணா - வீட்டிற்கோர் புத்தகசாலை
வ.சுப. மாணிக்கம் - தேசிய மறை திருக்குறள்

அலகு 4

9

சிறுகதைகள்: வ.வே.சு. ஐயர் - குளத்தங்கரை அரசமரம் - 'தமிழ்ச் சிறுகதையின் தந்தை - தமிழின் முதல் சிறுகதை'
மௌனி - அழியாச்சுடர் - 'தமிழ்ச் சிறுகதையின் திருமூலவர்'
புதுமைப்பித்தன் - காஞ்சனை - 'தமிழ்ச் சிறுகதையின் மன்னன்'

அலகு 5

9

இக்கால இலக்கிய வரலாறு: இருபதாம் நூற்றாண்டு கவிதை இலக்கிய வரலாறு
இருபதாம் நூற்றாண்டு உரைநடை இலக்கிய வரலாறு
இருபதாம் நூற்றாண்டு சிறுகதை இலக்கிய வரலாறு

பாட நூல்கள்:

1. தி.சா.ராஜா, "பாரதியார் & பாரதிதாசன் கவிதைகள்", வானவில் பிரசுரம், 1977
2. சி.தேசிக விநாயகம் பிள்ளை, "கவிமணி கவிதைகள்", பூம்புகார் பதிப்பகம், 2011
3. கண்ணதாசன், "கவிஞர் கண்ணதாசன் கவிதைகள்", கண்ணதாசன் பதிப்பகம், 2012
4. அப்துல் ரகுமான், "கவிக்கோ கவிதைகள்", நேஷனல் பப்ளிஷர்ஸ், 2013
5. நா.முத்துக்குமார், "கவிதைகள்-அனா ஆவன்னா, பட்டாம்பூச்சி பதிப்பகம், 2016

6. இராமச்சந்திரன், "திரு.வி.க.வின் தேசபக்தன் கட்டுரைகள்",புவனேஸ்வரி பதிப்பகம்,2001

7. அண்ணா, 'சொற்பொழிவு-வீட்டிற்கோர் புத்தகசாலை', முத்தமிழ் நிலையம், 2008

பார்வை நூல்கள்:

1. ந.வேலுசாமி, "திருக்குறளை தேசிய நூலாக அறிவிக்க வேண்டும்", Coral Publisher, 2017

2. வ.வே.சு.ஐயர், "குளத்தங்கரை அரசமரம்", வ.உ.சி.நூலகம், 2007

3. மௌனி, "மௌனி படைப்புகள்", காலச்சுவடு பதிப்பகம், 2010

4. புதுமைப்பித்தன், "காஞ்சனை", அன்னம் பதிப்பகம், 2013

பாடநெறி ஒருங்கிணைப்பாளர்

துறைத்தலைவர்

BEH101	ENGLISH I							L	T	P	C
	Total Contact Hours – 60							4	0	0	4
	Prerequisite course – + 2 level English										
	Course Coordinator Name & Dept: Mrs. SHEEBA - English										
COURSE OBJECTIVES:- To use English effectively for study purpose and enable the learner to communicate appropriately in real life situation.											
COURSE OUTCOMES (COs)											
CO1	Remember and recall the words according to the given context.										
CO2	Understand the necessity of grammar in Communication										
CO3	Apply the plots and themes discussed										
CO4	Analyze the various characters involved										
CO5	Evaluate the characters and summarizes the prescribed literature										
CO6	Create essays by evaluating the literary techniques and devices used.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PS O1	PSO2	PS O3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
		✓									
4	Approval	Academic Council Meeting									

UNIT I –POETRY**12**

Lucy Gray William Wordsworth – Author biography – Summary – Critical Analysis - Ulysses
Alfred Lord Tennyson– Author biography – Summary – Critical Analysis - The Road Not Taken
– Robert Frost – Author biography – Summary – Critical Analysis

UNIT II – ONE ACT PLAYS**12**

The Boy Comes Home - A.A.Milne – Author biography – Summary – Critical Analysis - The
Referee - W.H.Andrews and Geoffrey Dearmer – Author biography – Summary – Critical
Analysis

UNIT III- SHORT STORIES**12**

The Unicorn in the Garden – James Thurber – Author biography – Summary – Critical Analysis
- The Avenger – Anton Chekov – Author biography – Summary – Critical Analysis - The Gift
of the Magi - O.Henry – Author biography – Summary – Critical Analysis

UNIT IV –PROSE B**12**

Six Thinking Hats - Edward de Bono– Author biography – Summary – Critical Analysis - My
Early Days Abdul Kalam – Author biography – Summary – Critical Analysis- I Have a Dream
Martin Luther King– Author biography – Summary – Critical Analysis.

UNIT V – GRAMMAR**12**

Introduction to Basics of Communication Definitions, Types Listening Speaking Reading
Writing

TEXT BOOKS:

1. Six Thinking Hats by Edward de Bono, Little Brown and Company, 1985
2. My Early Days by Abdul Kalam, October 7, 2013

REFERENCE BOOKS:

1. English for Communication by Board of Editors, Emerald
2. Roche Marc, “Advanced English Writing Skills: Master class for English Language,
Roche Publishing ESL, 2019
3. Strings of Gold (Part- II) Edited by Prof. Jasbir Jain (MacMillan), 2007

Course Coordinator**HOD**

BCI101	CORE- 1 - GENERAL CHEMISTRY - I					L	T	P	C		
	Total Contact Hours - 75					3	1	0	4		
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name & Department:- –Dr. G. Gurumoorthy / Chemistry										
COURSE OBJECTIVES :- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly											
COURSE OUTCOMES (COs)											
CO1	Remember the fundamental concept of periodic properties.										
CO2	Understand about the theoretical concepts of organic Chemistry										
CO3	Understand the properties and uses of Hydrocarbons and Alkynes										
CO4	Apply the Kinetic theory of gases, postulates and importance of real gases										
CO5	Apply the Real Gases deviation from ideal behaviour.										
CO6	Analyze the preporties of colloids particle by electrical double layer and zeta potential.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

UNIT I - ALKALI METALS & ALKALINE EARTH METALS

15

Alkali metals : Comparative study of the properties of Alkali metals **Manufacture of NaOH – properties and uses of it** – preparation, properties and uses of washing soda, baking soda, Sodium thiosulphate - **Alkaline earth Metals** : Comparative study of the properties of Alkaline earth metals; anomalous behavior Extraction of Calcium – properties and uses ; Preparation,

properties and uses of calcium carbide and superphosphate of lime; Diagonal relationship of the elements Li – Mg - **Carbon group**: Allotropic forms of Carbon; graphite; Preparation, properties and structure of hydrocyanic acid - **Silicon** ; Preparation, properties, structure and uses of silica – water glass – silanes – carborundum.

UNIT II : HYDROCARBONS I

15

Theoretical Principles of Organic Chemistry: Polar effects: Inductive and electromeric effects – mesomerism and resonance – **effect on chemical reactivity – principles for writing down VB resonance structures – resonance energy – steric inhibition of resonance** – hyperconjugation - Hydrogen bonds: effect on physical properties - **Aliphatic Hydrocarbons I** - Alkanes: general methods of preparation – chain isomerism; The reactions of halogens with methane , nitration, sulphonation, oxidation, isomerisation and thermal decomposition of alkanes.

UNIT III: HYDROCARBONS II

15

Aliphatic Hydrocarbons II: Alkenes: general methods of preparation of alkenes involving dehydration of alcohols, dehalogenation – **orientation in E₂ elimination – cyclic mechanism – Wittig reaction – addition reactions with hydrogen, hydrogen halides** – heterolytic mechanism – Markownikoff rule – Peroxide effects – hydration of alkenes – hydroboration – hydroxylation with KMnO₄ – ozonolysis – addition polymerization by free radical mechanisms – isomerisation of alkenes. Alkynes: Preparation of alkynes – acidity of alkynes – formation of acetylides – vinylation – hydration – polymerization of acetylene - Dienes : Structure and Properties of dienes : – stability of conjugated and isolated dienes – electrophilic addition to conjugated dienes – 1,4 addition – 1,4 addition versus 1,2 addition – free radical addition to conjugated dienes: orientation and reactivity - Diels-Alder reaction – free radical polymerization of dienes;

UNIT IV: GASEOUS STATE AND REAL GASES

15

Gaseous State : Ideal Gases: Kinetic theory of gases – postulates – kinetic gas equation – derivation of Boyles law, Charles' law and Avogadro's law from it. Maxwell's distribution of molecular velocities – average velocity, most probable velocity and root mean square velocity – collision diameter, collision number, collision frequency and mean free path. **Real Gases**: Equations of states for real gases – Van der Waals equation, Dieterici equation, Berthelot equation, Clausius equation - **The principle of Corresponding States – reduced equation of state - Inter molecular forces – types – London forces – interaction energy – nature of Van der Waals interactions.**

UNIT V: COLLOIDAL STATE AND MACROMOLECULES

15

Colloidal state: Classification of colloids – properties – electrical properties – electrical double layer – zeta potential – coagulation and protection - Hardy-Schulze rules – flocculation value – gold number electrokinetic properties – electrophoresis – electro osmosis – Donnan membrane equilibrium. **Particle size determination by light scattering method – surfactants – types – micelles. Gels – preparative methods – types – thixotropy.** **Macromolecules**: Classification – degree of polymerization – number average and weight average molecular weights – determination of molecular weights of macromolecules by viscometry and osmotic pressure methods.

TEXT BOOKS

1. J. D. Lee, Concise Inorganic Chemistry, 5th ed., Blackwell Science, London, 1996.
2. F. A. Cotton, G. Wilkinson and P. L. Guas, Basic Inorganic Chemistry, 3rd ed., John Wiley, 1994.
3. B. Y. Paula, Organic Chemistry, 3rd Edition, Pearson Education, Inc. (Singapore), New Delhi, reprint, 2002.
4. S.K. Dogra and S. Dogra, Physical Chemistry Through Problems, New age international, 4th edition 1996.

REFERENCE BOOKS

5. J. E. Huheey, E. A. Keiter and R. L. Keiter, Inorganic Chemistry, 4th ed., Harper Collins, New York, 1993.
6. D. F. Shriver and P. W. Atkins, Inorganic Chemistry, 3rd ed., W. H. Freeman and Co, London, 1999.
7. Jerry March, Advanced Organic Chemistry, 4th Edition, John Wiley And Sons, New York, 1992.
8. S. H. Pine, Organic Chemistry, 5th Edition, McGraw Hill International Edition, Chemistry Series, New York, 1987.
9. Gilbert. W. Castellan, Physical Chemistry, Narosa publishing house, third edition 1985.

Course Coordinator

HOD

BCI102	CORE- 2 - GENERAL CHEMISTRY - II					L	T	P	C		
	Total Contact Hours - 75					3	1	0	4		
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name & Department:- – Mrs. S. Vinitha / Chemistry										
COURSE OBJECTIVES:- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Remember the basic properties and uses of alkali and alkaline earth metals										
CO2	Understand about the basic principles in organic chemistry										
CO3	Understand the bonding and antibonding by VB and MO theory										
CO4	Apply the some simple inorganic molecules to find the shapes by VSPER theory										
CO5	Apply the qualitative ideas of free electron, valence bond and band theories.										
CO6	Analyze the properties of p- type and n - type semiconductors.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

UNIT.- I: BASIC CONCEPTS

15

Atomic weight - equivalent weight- molecular weight -mole concept- stoichiometry - Periodic properties- atomic radii- ionic radii- covalent radii- ionisation potential- electron affinity and electronegativity.

UNIT II: PERIODIC PROPERTIES

15

Atomic spectra and quantum theory of energy - black body radiation - photoelectric effect - Compton effect - Bohr model of the hydrogen atom - wave particle duality - Heisenberg

uncertainty principle - Quantum numbers - shapes of atomic orbitals - Pauli's exclusion principle - singlet and triplet electronic states - Aufbau principle - electronic configuration of atoms.

UNIT III: CHEMICAL BONDING I

15

Covalent bond - nature of covalent bond and formation of σ and π bonds- hybridisation - bond energy - bond length - bond angle - electronegativity - polarity of bonds - dipole moment - VB and VSEPR theory - shapes of simple inorganic molecules and ions containing lone pairs and bond pairs - MO theories- bonding and antibonding orbitals - nonbonding orbitals - MO configurations of simple diatomic molecules (H_2 , He_2 , N_2 , O_2 , C_2 , B_2 , F_2 , CO , NO and their ions) - Comparison of VB and MO theories.

UNIT IV: CHEMICAL BONDING II

15

General characteristics of electrovalent compounds - Types of ions - size effects - radius ratio and its limitations - packing of ions in crystals - Lattice energy - Born - Haber cycle - **Polarising power and polarisability - Fajan's rules - hydration energy.**

UNIT V: SOLID STATE CHEMISTRY

15

Qualitative ideas of free electron, valence bond and band theories - defects in Solid state - p-type and n -type semiconductors - Hydrogen bonding: Its effect on the behaviour of molecules (both physical and chemical).

TEXT BOOKS

1. R. T. Morrison And R. N. Boyd, Organic Chemistry, 6th Edition, Printice-Hall Of India Limited, New Delhi, 1992.
2. T. W. Graham Solomons, Organic Chemistry, 6th edition, John Wiley and Sons, 1996.
3. B. Douglas, D. McDaniel and J. Alexander, Concepts and Models of Inorganic Chemistry, 3rd ed., John Wiley, 1994.
4. P.W. Atkins, Physical Chemistry, 7th edition, Oxford university press, 2001.

REFERENCE BOOKS

5. T. Moeller, Inorganic Chemistry: A Modern Introduction, Wiley, New York, 1990.
6. J. D. Lee, Concise Inorganic Chemistry, 5th Ed., Blackwell Science, London, 1996.
7. D. F. Shriver and P. W. Atkins, Inorganic Chemistry, 3rd Ed., W. H. Freeman and Co, London, 1999.
8. Sehan. N. Ege, Organic Chemistry, Structure And Reactivity, 3rd Edition, A.I.T.B.S., New Delhi, 1998.
9. Hendrickson, Cram And Hammond, Organic Chemistry, 3rd Edition, McGraw-Hill Kogakusha, Limited, 1970.
10. Francis A. Carey, Organic Chemistry, 3rd edition, Tata-McGraw Hill Publications, New Delhi, 1999.
11. Irving M. Klotz and Robert M. Rosenberg, Chemical Thermodynamics, John Wiley and sons, Inc. 1994.

Course Coordinator

HOD

BMA103		MATHEMATICS - I					L	T	P	C	
		Total Contact Hours – 60					4	1	0	4	
		Prerequisite course – Mathematics Studied in Higher Secondary studies									
		Course Coordinator Name & Department :- Dr.P.Sumathi & Mathematics									
COURSE OBJECTIVES :- Knowledge and understanding are fundamental to studying mathematics and form the base from which to explore concepts and develop problem-solving skills.											
COURSE OUTCOMES (COs)											
CO1	Understand about the importance of algebraic functions										
CO2	To explain about the theory of equation in mathematical derivation										
CO3	Study about the importance of the matrices										
CO4	To explain detail about the Trigonometric functions										
CO5	Study about the differential calculus using various concepts										
CO6	State and explain to the student to understand all concepts thoroughly.										
Mapping of Course Outcomes with Program outcomes (POs) (H/M/L indicates strength of correlation) H-High, M-Medium, L-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	H						H		
	CO2	H	H								
	CO3	H	M								
	CO4	H	M								
	CO5	M	M								
	CO6	H	H								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

UNIT-I : ALGEBRA

12

Partial Fractions, Binomial, Exponential and logarithmic Series (without Proof) -
Summation -Simple problems

UNIT-II : THEORY OF EQUATIONS**12**

Polynomial Equations with real Coefficients - Irrational roots - Complex roots, Transformation of equation by increasing or decreasing roots by a constant - Reciprocal equations - Newton's method to find a root approximately - Simple problems.

UNIT-III: MATRICES**12**

Symmetric - Skew-Symmetric - Orthogonal and Unitary matrices - Rank of a matrix - Consistency of equations - Eigen roots and Eigen vectors – Cayley Hamilton theorem (without proof)-Verification and computation of inverse matrix.

UNIT-IV: TRIGONOMETRY**12**

Expansions of $\sin n\theta$, $\cos n\theta$, $\sin n\theta$, $\cos n\theta$, $\tan n\theta$ - Expansions of $\sin \theta$, $\cos \theta$, $\tan \theta$ in terms of θ - Hyperbolic and inverse hyperbolic functions - Logarithms of complex numbers.

UNIT-V: DIFFERENTIAL CALCULUS**12**

Derivatives. n-th derivatives - Leibnitz theorem (without proof) and applications – Jacobians - Concepts of polar co-ordinates-Curvature and radius of curvature in Cartesian co-ordinates.

TEXT BOOKS

1. P.Duraipandian and S.Udayabaskaran, “Allied Mathematics, Vol. I & II”, Muhil Publishers, Chennai.(1997)
2. 1. P.Balasubramanian and K.G.Subramanian, , “Ancillary Mathematics. Vol. I & II”. Tata McGraw Hill, New Delhi. 1997
3. S.P.Rajagopalan and R.Sattanathan, “Allied Mathematics .Vol. I & II”, Vikas Publications, New Delhi. 2005
4. P.R.Vittal, “Allied Mathematics”, Margham Publications, Chennai. 2003

Books for Reference:

1. S. Narayanan and T.K. Manickavasagam Pillai – Ancillary Mathematics, S. Viswanathan Printers, 1986, Chennai.
2. Allied Mathematics by Dr. A. Singaravelu.

Course Coordinator**HOD**

BCI1L1	CORE- 3 - MAJOR PRACTICAL - 1						L	T	P	C	
	Total Contact Hours - 60						0	0	4	2	
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name & Department:- –Dr. G. Gurumoorthy / Chemistry										
COURSE OBJECTIVES:-											
To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Remember the need of chemistry practical and its toxicity										
CO2	Understand about the uses of experiments in our day today life										
CO3	Understand about its importance of chemical played important role										
CO4	Apply the detail about practical importance to be aware of the concepts from the basis.										
CO5	Apply the estimation of some inorganic ions by basic methods.										
CO6	Analyse the importance of handling and precision of experimental skills.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						L	H	
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

VOLUMETRIC ANALYSIS – I

1. Estimation of Magnesium using EDTA.
2. Estimation of Zinc using EDTA
3. Estimation of Total Hardness of water by EDTA method
4. Estimation of borax - Standard Sodium Carbonate
5. Estimation of Sodium Hydroxide -Standard Sodium Carbonate
6. Estimation of HCl –standard oxalic acid.

7. Estimation of ferrous sulphate – Standard FAS.

8. Estimation of oxalic acid – Standard oxalic acid.

Students must write short procedure for the given estimation in ten minutes during the Examination and submit the paper for evaluation.

Students must write short procedure for the given estimation in ten minutes during the Examination and submit the paper for evaluation.

REFERENCE BOOKS

1. Sundaram, Krishnan, Raghavan, Practical Chemistry (Part II), S. Viswanathan Co. Pvt., 1996.
2. B.S. Furniss, A.J. Hannaford, P.W. G. Smith, A.R. Tatchell, Vogel's Text Book of Practical Organic Chemistry. 5th Edn., Pearson Education, 2005.
3. N.S. Ganapragasam and G. Ramamurthy, Organic Chemistry – Lab manual, S.Viswanathan Co. Pvt., 1998.
4. Vogel's Text Book of Quantitative Chemical Analysis. 5th Edi., ELBS/Longman England, 1989.

Course Coordinator

HOD

SEMESTER – II

BAL201		தமிழ் - II					L	T	P	C	
		Total Contact Hours – 45					3	0	0	3	
		Prerequisite course – +2 Level Tamil									
		Course Coordinator Name& Department: முனைவர். த. கிறிஸ்டல் ரெஜி & தமிழ்த்துறை									
COURSE OBJECTIVES : சிற்றிலக்கியம் மற்றும் சமய இலக்கியத்தை அறியச் செய்தல்											
COURSE OUTCOMES (COs)											
CO1	தூது,பள்ளு,குறவஞ்சி என்ற சிற்றிலக்கியங்கள் பற்றி அறிவர்										
CO2	சைவ இலக்கியமான தேவாரம், திருவாசகம், அற்புதத்திருவந்தாதிப் பற்றி அறிவர்										
CO3	வைணவ இலக்கியமான நாலாயிர திவ்யப் பிரபந்தம் பற்றி அறிவர்										
CO4	பௌத்த, இசுலாம், கிறித்துவ சமய இலக்கியங்களைப் பற்றி அறிவர்										
CO5	சிற்றிலக்கியம் மற்றும் சமய இலக்கிய வரலாறு பற்றி அறிவர்										
CO6	சிற்றிலக்கியம் , சமய இலக்கியம் பற்றிய தெளிவான அறிவைப் பெறுவர்										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	M						H	M	M
	CO2	H	M								
	CO3	H	M								
	CO4	H	M								
	CO5	H	M								
	CO6	H	M								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
		✓									
4	Approval	Academic Council Meeting									

அலகு 1

9

அழகர் கிள்ளைவிடு தூது

- 1 - 20

முக்கூடற்பள்ளு

- நாட்டு வளம்

- 21,22,25,26,35

திருக்குற்றாலக் குறவஞ்சி

- குறத்தி மலைவளம் கூறுதல்

- 1 - 5

அலகு 2

9

அற்புதத்திருவந்தாதி

- 1 - 5

தேவாரம்

- திருவெண்காட்டுப் பதிகம் - திருஞானசம்பந்தர் - 1 - 10

திருவாசகம்

- திருச்சாழல்

- மாணிக்கவாசகர் - 1 - 10

அலகு 3

9

நாலாயிர திவ்யப் பிரபந்தம் - முதல் திருமொழி – பெரியாழ்வார் - 1 - 10
 நாலாயிர திவ்யப் பிரபந்தம் - திருப்பாவை - ஆண்டாள் - 1 - 10
 நாலாயிர திவ்யப் பிரபந்தம் - திருமாலை - தொண்டரடிப்பொடி ஆழ்வார் - 1 - 5

அலகு 4

9

ஆசிய ஜோதி - கருணைக் கடல் - அறவுரை கூறுதல் - 1 - 10
 பராபரக்கண்ணி - குணங்குடி மஸ்தான் சாகிபு - 1 - 20
 இயேசு காவியம் - பாடுகளின் பாதை - கண்ணதாசன்

அலகு 5

9

சிற்றிலக்கிய வரலாறு - சமய இலக்கிய வரலாறு

பாட நூல்கள்:

1. கதிர் முருகு, "அழகர் கிள்ளைவிடு தூது", சாரதா பதிப்பகம், 2011
2. கதிர் முருகு, "முக்கூடற் பள்ளு மூலமும் உரையும்", சாரதா பதிப்பகம், 2017
3. புலியூர்க் கேசிகன், "திருக்குற்றாலக் குறவஞ்சி", செண்பகா பதிப்பகம், 2010
4. தமிழமுதன், "அற்புதத்திருவந்தாதி", பாரி நிலையம், 2011
5. சோ.கந்தசாமி "பன்னிரு திருமுறை", உலகத் தமிழாராய்ச்சி நிறுவனம், 2008
6. த.கோவேந்தன், "நாலாயிரத்திவ்யப்பிரபந்தம் எளிய உரையும்", சாரதா பதிப்பகம், 2015
7. கமலா முருகன், "ஆசிய ஜோதி மூலமும் உரையும்", சாரதா பதிப்பகம், 2012
8. கமலா முருகன், "பராபரக்கண்ணி மூலமும் உரையும்", சாரதா பதிப்பகம், 2013
9. கண்ணதாசன், "இயேசு காவியம்", கண்ணதாசன் பதிப்பகம், 2014

பார்வை நூல்கள்:

1. சு.ஆனந்தன், "தமிழ் இலக்கிய வரலாறு", பாரி நிலையம், 2018
2. மா.ராசமாணிக்கனார், சமய இலக்கிய வரலாறு, காவ்யா பதிப்பகம், 2012
3. மு.பொன்னுசாமி, தமிழ் சிற்றிலக்கிய வரலாறு, பாரி நிலையம், 2008

பாடநெறி ஒருங்கிணைப்பாளர்

துறைத்தலைவர்

BEH201	ENGLISH II	L	T	P	C
	Total Contact Hours – 60	4	0	0	4
	Prerequisite course – + 2 level English				
	Course Coordinator Name & Dept.: Mr.S.KUMARESAN - English				
COURSE OBJECTIVES:- To have a better understanding of the English language skills and its implementation it in day to day life activities.					
	COURSE OUTCOMES (COs)				

CO1	Remember and recall the concepts of English language										
CO2	Understand the necessity of grammar in Communication										
CO3	Apply the plots and themes discussed										
CO4	Analyze the various characters involved										
CO5	Evaluate the characters and summarize the prescribed literature										
CO6	Create essays by evaluating the literary techniques and devices used.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO 1	PO2	PO3	PO4	PO5	PO 6	PO7	PSO 1	PSO 2	PS O3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/	
											✓
4	Approval	Academic Council Meeting									

UNIT 1: PROSE	12
The Refugee – K.A. Abbas 2. The Lion and the Lamb – Leonard Clark	
UNIT 2: POEMS 1	12
The Solitary Reaper – William Wordsworth 2. Gift – Alice Walker	
UNIT 3: SHORT STORIES 1	12
The Fortune-Teller – Karel Capek 2. The Postmaster – Rabindranath Tagore	
UNIT 4: ONE-ACT PLAYS 1	12

. The Death Trap – Saki (H.H. Munro) 2. The Dear Departed: A Comedy in One-Act – Stanley Houghton

UNIT 5: COMMUNICATIVE GRAMMAR 1

12

Seeking and giving information – statements and questions 2. Being informal – phrasal verbs 3. Expressing ability, possibility, etc – Modals and other devices Books Prescribed: Panorama: English for Communication by Board of Editors, Emerald.

TEXT BOOKS:

1. The Refugees by K.A.Abbas(A Short History of the English Novel by S. Diana Neill (Indian Reprint; Kalyani Publishers)
2. The Lion and the lamb by Leonard Clark,Penguin Publisher
3. The Death Trap by Saki, The Novels and Plays of Saki
4. The Dear Departed A Comedy in One-Act by Stanley Houghton
5. English for Communication by Board of Editors, Emerald.

REFERENCE BOOKS:

1. Strings of Gold (Part- II) Edited by Prof. Jasbir Jain (MacMillan)
2. Ten Twentieth Century Indian Poets (ed. R. Parthasarathy)

Course Coordinator

HOD

BCI201	CORE- 4 - GENERAL CHEMISTRY - III	L	T	P	C
	Total Contact Hours - 75	3	1	0	4
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department:- –Dr. G. Gurumoorthy / Chemistry				
COURSE OBJECTIVES:- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.					

COURSE OUTCOMES (COs)											
CO1	Remember the basic properties and uses of nitrogen group elements										
CO2	Understand the quantum mechanics of Black-body radiation and Planck's radiation law										
CO3	Understand the Conformational analysis of butane – gauche and anti forms and cyclohexane.										
CO4	Apply the Huckle’s rule to determine the structure of benzene .										
CO5	Apply the laws of thermodynamics, generalities and Zeroth law – kinds of energy										
CO6	Analyse the First law of thermodynamics, properties of energy changes and properties of system										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/ Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Appr oval		Academic Council Meeting								

UNIT I : Nitrogen Group

15

Nitrogen group: Chemistry of hydrazine, hydroxylamine, hydrazoic acid and sodium bismuthate - Detection of arsenic – reactions of arsenites and arsenates - Oxygen group – a comparative study of oxygen family elements and compounds. Preparation, properties and uses of thionic acids and peracids of sulphur - Halogens – oxides and oxyacids of halogens – basic nature of iodine – chemistry of astatine - Pseudohalogens – preparation and properties and uses of Cyanogen and thiocyanogen and – comparison with halogens - Rare gases – structures of XeF₄, XeF₆, XeOF₄ and XeO₃.

UNIT II: Bond Properties

15

Ionic Bond – formation of ionic bond and factors favouring its formation – lattice energy – Born-Haber cycle – characteristics of ionic compounds - Covalent bond – single and multiple bonds – characteristics of covalent compounds - VSEPR theory – shapes of simple inorganic molecules and ions containing lone pairs and bonds – polarizing power and polarisability - Transition from

ionic to covalent character and vice versa – Fajan's rules - Coordinate bond: characteristics of coordinate covalent compounds.

UNIT III: Alicyclic compounds

15

Nomenclature – methods of preparation of alicyclic compounds – Wurtz reaction – Diekmann ring closure - reaction of small ring compounds – cyclopropane and cyclobutane – Bayer's strain theory – heats of combustion and relative stabilities of cyclo alkanes – orbital picture of angular strain - Conformational analysis: Conformations of butane – gauche and anti forms - Conformations of cyclohexane – equatorial and axial forms – 1,2 diaxial interaction – fused ring systems – structure of cis and trans decalins.

UNIT IV: Aromatic Hydrocarbons and Aromaticity

15

Benzene – resonance and resonance energy – molecular orbital picture of benzene – **effect of substituents in benzene – classification of substituent groups** – electrophilic aromatic substitution – mechanism – nitration, sulphonation, halogenation, Friedel-Craft acylation and alkylation – ortho-para ratio – preparation and reactions of alkyl benzenes – ring and side chain halogenations - Coal tar distillation products – petroleum fractionation – cracking – synthetic petrol – Fischer-Tropsch synthesis – octane number – cetane number – flash point – smoke point – anti-knocking agents - Polynuclear aromatic hydrocarbons – synthesis and reactions of naphthalene – anthracene and phenanthrene.

UNIT V: Thermodynamics I

15

Types of systems – extensive and intensive variables – state and path functions –reversible and irreversible processes – zeroth law of thermodynamics. Statement of the first law of thermodynamics – **Joule mechanical equivalent of heat** – internal energy – work done in isothermal reversible and irreversible processes – enthalpy – relationship between C_p and C_v – Joule-Thomson effect – **Joule-Thomson coefficient** – inversion temperature - **Thermo chemistry:** Hess's law and its applications – heats of reaction at constant volume and constant pressure – standard enthalpies of formation – enthalpy of combustion – measuring it with bomb calorimeter – enthalpy of neutralization – integral and differential heats of solution and dilution – temperature effects on enthalpy of reactions – Kirchoff equation – bond dissociation energy and its calculation from thermochemical data.

Text books

1. S.H. Maron and J.B. Lando, Fundamentals of Physical Chemistry, Macmillan limited, New York, 1966.
2. B.R. Puri and L.R. Sharma, Principles of Physical Chemistry, Shoban Lal Nagin chand and Co. 33rd edition, 1992.
3. B. R. Puri, L. R. Sharma, K. C. Kalia, Principles of Inorganic Chemistry, Shoban Lal Nagin Chand and Co., 1996.
4. Bahl and Arun Bahl, Organic Chemistry, S. Chand and Sons, New Delhi, 2005.

Reference Books

5. B. R. Puri, L. R. Sharma, K. C. Kalia, Principles of Inorganic Chemistry, Shoban Lal Nagin Chand and Co., Delhi, 1996.

6. J. E. Huheey, E. A. Keiter and R. L. Keiter, Inorganic Chemistry, 4th ed., Harper Collins, 1993.
7. F. A. Cotton, G. Wilkinson, C. Murillo and M. Bochman, Advanced Inorganic Chemistry, 6th ed., John Wiley, New York, 1999.
8. T. Moeller, Inorganic Chemistry: A Modern Introduction, Wiley, New York, 1990.
9. R. T. Morrison and R. N. Boyd, Organic Chemistry, 6th Edition, Prentice-Hall Of India Limited, New Delhi, 1992.
10. B. Y. Paula, Organic Chemistry, 3rd Edition, Pearson Education, Inc. (Singapore), New Delhi, reprint, 2002.
11. T. W. Graham Solomons, Organic Chemistry, 6th edition, John Wiley and sons, 1996.
12. J. Rajaram and J.C. Kuriacose, Thermodynamics, Shoban Lal Nagin Chand and CO. 1986.
13. K. L. Kapoor, A Textbook of Physical chemistry, (volume-2 and 3) Macmillan, India Ltd, 1994.

Course Coordinator

HOD

BCI202	CORE- 5 - GENERAL CHEMISTRY - IV						L	T	P	C	
	Total Contact Hours - 75						3	1	0	4	
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name & Department:- – Mrs. S. Vinitha / Chemistry										
COURSE OBJECTIVES :- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Remember the basic concept of water technology and its applications.										
CO2	Understand the electronic configuration and general characteristics of transition elements										
CO3	Understand the inorganic compounds, Preparation, properties, structure and uses										
CO4	Apply the electronic configuration and oxidation states of transition metals and their compounds										
CO5	Apply the modern concepts of acids and bases by Arrhenius concept and Bronsted Lowry.										
CO6	Analyse the hard and soft acids and bases (HSAB) by theoretical basis of hardness and softness										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

UNIT – I: PERIODIC PROPERTIES

15

Atomic and ionic radii - factors influencing the magnitude of ionic radii - periodic variations of atomic and ionic radii - ionization energy - **factors affecting the magnitude of ionization potential and its periodic variations - applications** - electron affinity- factors influencing the magnitude of electron affinity - periodic variations - impact on chemical behavior- electronegativity -scales of

electronegativity - definition -periodic variations - correlation of ionization potential and electron affinity with electronegativity - applications in predicting and explaining the chemical behavior.

UNIT – II: TRANSITION ELEMENTS

15

Definition-electronic configuration - general characteristics of transition elements - comparison of the elements of first transition series (3d) with those of second(4d) and third(5d) series. Commercial forms of iron -manufacture of cast iron, wrought iron and steel - heat treatment of steels - classification of steels - passivity - rusting of iron and prevention of rusting.

UNIT – III: COMPOUNDS OF TRANSITION ELEMENTS

15

Preparation, properties, structure and uses of the following inorganic compounds titanium (IV) chloride – Ziegler Natta catalyst – vanadium pentoxide –potassium dichromate – potassium permanganate – Wilkinson’s catalyst –potassium ferrocyanide – potassium ferricyanide – sodium nitro pruside – cuprous chloride – cupric chloride – auric chloride –mercurous chloride – mercuric chloride – distinction between mercurous and mercuric salts.

UNIT – IV: INNER TRANSITION ELEMENTS

15

Lanthanides – comparative study of lanthanide elements with respect to electronic configuration – atomic and ionic radii – oxidation states – complex formation and magnetic properties – lanthanide contraction – position in the periodic table -occurrence – principles of separation methods. Actinides – comparative study of actinide elements – comparison of lanthanides and actinides – position in the periodic table – extraction of thorium and uranium – sources of nuclear fuels in India.

UNIT – V: MODERN CONCEPTS OF ACIDS AND BASES

15

Arrhenius concept – Bronsted Lowry definition – Lux Flood definition – solvent system definition – Lewis definition – Usanovich definition – A generalized Acid Base concept – Hard and Soft Acids and Bases (HSAB) – classifications – theoretical basis of hardness and softness – classification of solvents – nonaqueous solvents – liquid ammonia – liquid sulfur dioxide.

TEXT BOOKS

1. J. D. Lee, Concise Inorganic Chemistry, 5th ed., Blackwell Science, London, 1996.
2. F. A. Cotton, G. Wilkinson and P. L. Guas, Basic Inorganic Chemistry, 3rd ed., John Wiley, 1994.
3. B. Y. Paula, Organic Chemistry, 3rd Edition, Pearson Education, Inc.(Singapore), New Delhi, reprint, 2002.
4. S.K. Dogra and S. Dogra, Physical Chemistry Through Problems, New age international, 4th edition 1996.

REFERENCE BOOKS

5. J. E. Huheey, E. A. Keiter and R. L. Keiter, Inorganic Chemistry, 4th ed., Harper Collins, New York, 1993.
6. D. F. Shriver and P. W. Atkins, Inorganic Chemistry, 3rd ed., W. H. Freeman and Co, London, 1999.
7. Jerry March, Advanced Organic Chemistry, 4th Edition, John Wiley And Sons, New York, 1992.
8. S. H. Pine, Organic Chemistry, 5th Edition, McGraw Hill International Edition, Chemistry Series, New York, 1987.
9. Gilbert. W. Castellan, Physical Chemistry, Narosa publishing house, third edition 1985.

Course Coordinator

HOD

BMA203		MATHEMATICS –II					L	T	P	C	
		Total Contact Hours – 60					4	1	0	4	
		Prerequisite course – Mathematics Studied in Higher Secondary studies									
		Course Coordinator Name & Department :- Dr.P.Sumathi & Mathematics									
COURSE OBJECTIVES :- To identify methods appropriate for solving problems. Apply methods to specific problems.											
COURSE OUTCOMES (COs)											
CO1		Understand about the relation and functions									
CO2		To explain about the logic connectivity of the mathematical functions									
CO3		Study about the importance of vector analysis									
CO4		To explain detail about the steps involved in the differential equations									
CO5		Study about the differentiation									
CO6		State and explain to the student to understand all concepts thoroughly.									
Mapping of Course Outcomes with Program outcomes (POs) (H/M/L indicates strength of correlation) H-High, M-Medium, L-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	H						H		
	CO2	H	H								
	CO3	H	M								
	CO4	H	M								
	CO5	M	M								
	CO6	H	H								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

UNIT I - SETS, RELATIONS AND FUNCTIONS

12

Sets- Sets- representation of sets- Types of sets- Operation on sets- Venn diagram. Relation- Types of relation- Equivalence relation. Function- types of functions- Composite of two functions- Composite of three functions.

UNIT II - MATHEMATICAL CONNECTIVES LOGIC

12

Statements- Connectives- Conjunction- Disjunction- Negation- Tautology contradiction- Logical equivalence- tautological implications- arguments- validity of arguments – Normal forms – Principal disjunctive normal form - Principle conjunctive normal form.

UNIT III - VECTOR ANALYSIS

12

Scalar and Vector fields - Gradient, Divergence and Curl - Equations of motion in the vector notation - equations of motion (components) in Cartesian coordinates and spherical polar coordinates - equation of motion in the polar coordinates.

UNIT IV - - DIFFERENTIAL EQUATION

12

Differential Equation - Second order Differential Equation with constant coefficient. Problem based on R.H.S: e^{ax} , x^n , $\sin ax$, $\cos ax$.

UNIT V - DIFFERENTIATION

12

Simple problems only – Maxima and minima of functions of single variable – Radius of curvature (Cartesian co- ordinate) – Partial differentiation – Euler’s theorem.

TEXT BOOKS

1. Veerarajan. T, “Discrete Mathematics”, 7 th Edition, Tata McGraw hill, 2006.[Unit I & II]
2. [Kayalal Pachaiyappa](#) & [P.Duraipandian](#), “Vector Analysis”, S.Chand Publishing, 2014.
3. Smith &Bradley “Calculus”, 4th Edition, PHI 2007. [Unit IV – V]

Books for Reference:

1. S. Narayanan and T.K. Manickavasagam Pillai – Ancillary Mathematics, S. Viswanathan Printers, 1986, Chennai.
2. Allied Mathematics by Dr. A. Singaravelu.

Course Coordinator

HOD

BCI2L1	CORE- 6 - MAJOR PRACTICAL - 2					L	T	P	C		
	Total Contact Hours - 60					0	0	4	2		
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name & Department:- – Dr. G. Gurumoorthy / Chemistry										
COURSE OBJECTIVES:- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Remember the need of chemistry practical and its toxicity										
CO2	Understand about the uses of experiments in our day today life										
CO3	Understand about its importance of chemical played important role										
CO4	Apply the detail about practical importance to be aware of the concepts from the basis.										
CO5	Apply the estimation of some inorganic ions by basic methods.										
CO6	Analyse the importance of handling and precision of experimental skills.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs /Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						L	H	
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HSS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

VOLUMETRIC ANALYSIS - II

1. Estimation of Ferrous Ammonium Sulphate using Standard Ferrous Ammonium Sulphate.
2. Comparison of strengths of Ferrous Ammonium Sulphates using Standard Potassium permanganate .
3. Comparison of strengths Potassium permanganates using Standard Ferrous Ammonium Sulphates
4. Comparison of strengths of Ferrous Sulphates using Standard Potassium permanganate .
5. Estimation of Copper -Standard Copper sulphate
6. Estimation of Potassium dichromate -Standard Potassium dichromate
7. Estimation of Copper by EDTA method.
8. Estimation of ferrous iron using Diphenyl amine / N-Phenylanthranilic acid as indicator.

Students must write short procedure for the given estimation in ten minutes during the Examination and submit the paper for evaluation.

Students must write short procedure for the given estimation in ten minutes during the Examination and submit the paper for evaluation.

REFERENCE BOOKS

1. Sundaram, Krishnan, Raghavan, Practical Chemistry (Part II), S. Viswanathan Co. Pvt., 1996.
2. B.S. Furniss, A.J. Hannaford, P.W. G. Smith, A.R. Tatchell, Vogel's Text Book of Practical Organic Chemistry. 5th Edn., Pearson Education, 2005.
3. N.S. Ganapragasam and G. Ramamurthy, Organic Chemistry – Lab manual, S. Viswanathan Co. Pvt., 1998.
4. Vogel's Text Book of Quantitative Chemical Analysis. 5th Edi., ELBS/Longman England, 1989.

Course Coordinator

HOD

BCI204	Environmental Sciences				L	T	P	C			
	Total Contact Hours – 30				2	0	0	2			
	Prerequisite course –Higher Secondary studies										
	Course Coordinator Name & Department:- – Dr. G. Gurumoorthy / Chemistry										
COURSE OBJECTIVES :-											
To make the students learn about the science from the basic and understood all theoretical background with all concepts thoroughly to protect the habitat of biotic and abiotic ecosystem.											
COURSE OUTCOMES (COs)											
CO1	Remember the fundamental concept of environmental impact and importance of natural Resources										
CO2	Understand about the Ecosystem, Biodiversity and its conservation										
CO3	Understand the various environmental pollution, effects and prevention.										
CO4	Apply the environmental legislations and environmental production act.										
CO5	Apply the human rights, value education, environment and human health: women and child welfare, public awareness										
CO6	Analyze the local area, local polluted site and local simple ecosystem.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L	H			H		H		
	CO2	H	L	H			H				
	CO3	H	L	H			H				
	CO4	H	L	H			H				
	CO5	H	L	H			H				
	CO6	H	L	H			H				
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
		✓									
4	Approval		Academic Council Meeting								

Unit – I: Introduction to Environmental Sciences: Natural Resources:

6

Environmental sciences – relevance – significance – public awareness – forest resources – water resources – mineral resources – food resources – conflicts over resource sharing – exploitation – land use pattern – environmental impact – fertilizer – pesticide Problems - **case studies.**

Unit – II: Exosystem, Biodiversity and its conservation:**6**

Ecosystem – concept – structure and function – producers, consumers and decomposers – food chain – food web – ecological pyramids – energy flow – forest, grassland, desert and aquatic ecosystem – definition – genetic, species and ecosystem diversity – biodiversity – definition – genetic, species and ecosystem diversity – values and uses of biodiversity – biodiversity at global, national (india) and local levels – hotspots, threats to biodiversity – conservation of biodiversity – insitu and ex-situ.

Unit – III: Environmental Pollution and Management**6**

Environmental pollution – causes – effects and control measures of air, water, marine, soil, solid waste. Thermal, nuclear pollution and disaster management – floods, earth quake, cyclone and land slides, role of individuals in prevention of pollution – pollution case studies.

Unit – IV: Social issues – Human population:**6**

Urban issues – energy – water conservation – environmental ethics – global warming – resettlement and rehabilitation issues – environmental legislations – environmental production act. 1986 – air, water, wildlife and forest B.C.A.: **syllabus (CBCS) conservation act** - population growth and explosion – human rights and value education – environmental health – HIV/AIDS – role of it in environment and human health – women and child welfare – public awareness – case studies.

Unit – V: Field Work:

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

Text book:

1. K. Kumarasamy, A. Alagappa Moses and M. Vesanthy, 2004, Environmental Studies, Bharathidasan University Pub, 1, Trichy.
2. Rajamannar, 2004, Environmental Studies, EVR College Pub, Trichy.
3. S. Kalavathy, (ED.) 2004, Environmental Studies, Bishop Heber College Pub., Trichy.

Reference book:

1. Rajamannar, 2004, Environmental Studies, EVR College Pub, Trichy.
2. S. Kalavathy, (ED.) 2004, Environmental Studies, Bishop Heber College Pub. Trichy.
3. G. TylerMiller, Scott Spoolman, 2018, Environmental science, 16th edition.

Course Coordinator**HOD**

BBC206	VALUE EDUCATION					L	T	P	C		
	Total Contact Hours – 30					2	0	0	2		
	Prerequisite course – Higher Secondary level										
	Course Coordinator Name & Department:- Ms. G. Vinothini, Commerce										
COURSE OBJECTIVES											
To make the students learn about the features for life from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Recall the basic concept of human values, Social Value role of medias, Self-introspection – Self esteem										
CO2	Understand the duties and responsibilities of individuals and role of media										
CO3	Apply Salient features for life, : Truth, commitment,, honesty and integrity, forgiveness and love and also positive creative thinking										
CO4	Demonstrate Universal declaration of Human rights, peace and nonviolence – Dr. APJ Abdul Kalam’s ten points for enlightened citizenship.										
CO5	Analyze living and nonliving environmental balance, Ecological balance and conservations and enrichment										
CO6	Manipulate the awareness on Corruption, crime, terrorism, Alcoholism, Drug addiction, Dowry										
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	M	M					H		
	CO2	H	H	H		L					
	CO3	M	H	M	M						
	CO4	H	M	L							
	CO5	H	H	M			M				
	CO6	M	M	L							
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)	
		☐					✓				
	Approval	Academic Council Meeting									

UNIT I

6

Value education: Definition- relevance to present day – concept of human values – self introspection – Self esteem- duties and responsibilities of individuals- Social values- role of media in value building.

UNIT II

6

Salient features for life: Truth, commitment,, honesty and integrity, forgiveness and love, empathy and ability to sacrifice, care, unity and inclusiveness, Team work- positive creative thinking.

UNIT III**6**

Human rights: Universal declaration of Human rights- human rights violation – National integration – peace and non violence – Dr. APJ Abdul Kalam’s ten points for enlightened citizenship

UNIT IV**6**

Environment and Ecological balance: Interdependent of all being – living and non living – the binding of man and nature – Environmental conservations and enrichment.

UNIT V**6**

Social evils : Corruption – cyber crime, terrorism, Alcoholism, Drug addiction, Dowry – Domestic violence – untouchability – female infanticide – atrocities against women – How to tackle them.

TEXT BOOK

1. N. Arumugam, S. Mohana, Lr. Palkani- value based education- Saras Publication, 2009
2. DN Ghose, Value Education- dominant publishers, 2005
3. M.G. Chitakra, Education and Human values, A.P.H Publishing Corporation. New Delhi

REFERENCE BOOKS

- 1) For Life, for the future: Reserves and Remains – UNESCO Publications.
- 2) Values, A Vedanta kesari presentations, Sri Ramakrishna Math, Chennai

Course Coordinator**HOD**

SEMESTER – III

BAL301	TAMIL – III						L	T	P	C	
	Total Contact Hours – 45						3	0	0	3	
	Prerequisite course – TAMIL –II										
	Course Coordinator Name& Department :முனைவர்.ம.சித்ராகண்ணு & தமிழ்த்துறை										
COURSE OBJECTIVES :- காப்பிய இலக்கியம் மற்றும் நீதி இலக்கியத்தை அறியச் செய்தல்											
COURSE OUTCOMES (COs)											
CO1	ஐம்பெரும் காப்பியங்களை பற்றி அறிவர்										
CO2	பிற்கால காப்பியங்களை பற்றி அறிவர்										
CO3	முக்கால நீதி இலக்கியங்களை பற்றி அறிவர்										
CO4	பிற்கால நீதி இலக்கியங்களை பற்றி அறிவர்										
CO5	காப்பிய மற்றும் நீதி இலக்கிய வரலாற்றை பற்றி அறிவர்										
CO6	காப்பியம் மற்றும் நீதி இலக்கியங்களில் தெளிவான அறிவைப் பெறுவர்										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	M						H	M	M
	CO2	H	M								
	CO3	H	M								
	CO4	H	M								
	CO5	H	M								
	CO6	H	M								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
		✓									
4	Approval	Academic Council Meeting									

அலகு 1

9

சிலப்பதிகாரம்- இளங்கோவடிகள் - அடைக்கலக் காதை - 115-148, 201-219
மணிமேகலை - சீத்தலைச்சாத்தனார் - ஆபுத்திரன் திறம் அறிவித்த காதை -1 - 115
சீவக சிந்தாமணி- திருத்தக்கத் தேவர்- குணமாலையார் இலம்பகம் -851 - 860

அலகு 2

9

கம்பராமாயணம் - கம்பர் - அயோத்திய காண்டம் - கங்கைப் படலம் - 10
தேம்பாவணி - வீரமாமுனிவர் - நாட்டுப் படலம் - 10
சீறாப்புராணம்-உமறுப்புலவர்- -மானுக்குப் பிணை நின்ற படலம் - 1- 10

அலகு 3

9

திருக்குறள்	- திருவள்ளுவர் - கல்வி	-	1 - 10	
நாலடியார்	- பொருட்பால் - நட்பாராய்தல்	-	1 - 10	
இனியவை நாற்பது	- பூதஞ் சேந்தனார்	-	1 - 10	

அலகு 4

9

மூதுரை-அவ்வையார்-	1- 10	நன்னெறி - சிவப்பிரகாசர்	- 8,12,18,24,39
புதிய ஆத்தி சூடி	- பாரதியார்	- 1- 25	

அலகு 5

9

காப்பிய இலக்கிய வரலாறு , நீதி இலக்கிய வரலாறு

பாட நூல்கள்

1. ந.மு.வேங்கடசாமி நாட்டார், "சிலப்பதிகாரம்", ராமையா பதிப்பகம், 2010
2. வீரமாமுனிவர், "தேம்பாவணி மூலமும் உரையும்", சாரதா பதிப்பகம், 2014
3. கலைஞர் மு.கருணாநிதி, "திருக்குறள் கலைஞர் உரை", திருமகள் நிலையம், 2010

பார்வை நூல்கள்:

1. புலியூர்க் கேசிகன், "மணிமேகலை மூலமும் உரையும்", சாரதா பதிப்பகம், 2017
2. ஆசிரியர் குழு, "சீவக சிந்தாமணி மூலமும் உரையும்", சாரதா பதிப்பகம், 2015
3. சு.ஆனந்தன், "தமிழ் இலக்கிய வரலாறு", பாரி நிலையம், 2018
4. பத்மதேவன், "நாலடியார் மூலமும் உரையும்", கற்பகம் புத்தகாலயம், 2010
5. கதிர் முருகு, "நன்னெறி மூலமும் உரையும்", சாரதா பதிப்பகம், 2016
6. அ.சீனிவாசன், "பாரதியின் புதிய ஆத்திச்சூடி: ஒரு விளக்கவுரை" , 1999

Course Coordinator

HOD

BEH301	ENGLISH- III		L	T	P	C
	Total Contact Hours – 60		4	0	0	4
	Prerequisite course – + 2 level English					
	Course Coordinator Name & Dept: Mrs. B.JANUA SHERLY – English					
COURSE OBJECTIVES:- To enhance the reading, writing, listening and speaking of the English language skills..						
COURSE OUTCOMES (COs)						
CO1	Remember and recollect the value of LSRW skills.					

CO2	Understand the competence of the four modes of language skills.										
CO3	Apply the grammatical concepts and the correct usage of the English language.										
CO4	Analyze their personality traits and develop interpersonal skills for a better career in life										
CO5	Evaluate the knowledge and write resume official letters and reports										
CO6	Create and develop their ability as critical thinkers and readers.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
		✓									
4	Approval		47 th Academic Council Meeting								

UNIT 1 - LISTENING SKILLS

12

Types of Listening (Theory / Definition) - Tips for Effective Listening -Academic Listening (Lectures) - Listening to Radio and Television

UNIT 2 - TELEPHONE SKILLS

12

Basics of Telephone communication -How to handle calls- telephone manners -Leaving a message - Making requests -Greeting and Leave Taking over phone (etiquette) - Handling the situations especially trouble shooting Teleconference - handling Tele interviews for Call Centers

UNIT 3 - WRITING SKILLS

12

Standard Business letter - Report writing- Email drafting and Etiquettes - Preparing Agenda and writing minutes for meetings - Making notes on Business conversations

UNIT 4 - CAREER SKILLS

12

Applying for job -Cover letters -Resume and Effective Profiling - Interviews - Group discussions

UNIT 5 – PERSONAL SKILLS

12

Empathy (Understanding third person's point of view) -Intrapersonal skills -Interpersonal skills- Problem solving

TEXT BOOKS:

1. Improve Your IELTS Listening and Speaking Skill by Barry Cusack, 2007
2. Roche Marc, "Advanced English Writing Skills: Master class for English Language, Roche Publishing ESL, 2019

REFERENCE BOOKS:

1. Frederick H. Wentz, "A Workbook to Develop Skills For Employment", Create space Independent Pub, 2012
2. S. P. Dhanavel, "English and Soft Skills", Orient Black Swan, First edition, 2010
3. English for Communication by Board of Editors, Emerald

Course Coordinator

HOD

BCI301	CORE – 7 - GENARAL CHEMISTRY- V	L	T	P	C
	Total Contact Hours – 60	3	1	0	4
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department: - – Mrs. S. Vinitha / Chemistry				
COURSE OBJECTIVES :- To make the students learn about the chemistry from the basic and understood					

all theoretical background with all concepts understands thoroughly.

COURSE OUTCOMES (COs)

CO1	Remembaring knowledge about the properties and uses of the law of thermodynamics
CO2	Understand about the theoretical concepts of atomic structure
CO3	Understand the properties and uses of halogenated Hydrocarbons
CO4	Apply the concept about the copper groups in transition elements
CO5	Apply the importance of colloidal solution and liquids
CO6	Analys time applications of Chemistry in day today life.

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		47 th Academic Council Meeting								

UNIT I: THERMODYNAMICS II

15

Second law of thermodynamics: Need for the second law – Carnot cycle and statements of the second law – Carnot theorem and thermodynamic temperature scale. Concept of entropy – entropy changes during phase transitions – Trouton's rule – **significance of entropy – entropy as a criterion of natural processes** – Clausius inequality – entropy and disorder – entropy as a function of P, T and V – entropy of an ideal gas – entropy of mixing – thermodynamic equations of state – Maxwell's relations. Free energy concept: Maximum work and network – free energy functions – free energy as a criterion of natural processes – Gibbs-Helmholtz equations - The Third law: Nernst heat theorem – statement of the third law – **evaluation of absolute entropies from third law – apparent exceptions to the third law.**

UNIT II: INTRODUCTION TO ATOMIC STRUCTURE:**15**

Failure of classical mechanics – Plank's quantum theory – photoelectric effect – Bohr theory of hydrogen atom – hydrogen spectrum – Rydberg's constant – Sommerfeld theory – DeBroglie equation – wave-particle duality – diffraction of electrons – Heisenberg's uncertainty principle – Compton effect. An elementary introduction to the postulates of quantum mechanics – the concept of operators and observables – the Schrodinger wave equation and the significance of ψ and ψ^2 – the concept of orbitals and shapes of atomic orbitals.

UNIT III: HALOGENATED HYDROCARBONS**15**

Preparation of halo alkanes – Aliphatic nucleophilic substitution – mechanisms of S_N1 , S_N2 and S_Ni reactions – effect of structure on substrate, solvent, nucleophilic and leaving group; Grignard reagents and its synthetic uses - Elimination reactions – Hoffmann and Saytzeff eliminations – E1 and E2 mechanisms – stereochemistry of E2 reactions in acyclic systems - Elimination versus Substitution. Aromatic nucleophilic substitution – benzyne mechanism and intermediate complex mechanism – effect of substituent on reactivity.

UNIT IV: COPPER GROUP – A COMPARATIVE STUDY**15**

Alloys of copper – preparation and properties of CuCl and CuCl₂ – structure of Cu₂Cl₂ – chemistry of photography – preparation and properties of AuCl₃ – structure of AuCl₃ - Zinc group – a comparative study of zinc group elements - Extraction of mercury – properties and uses of mercury – amalgams – structure of mercurous ion.

UNIT – V: LIQUID AND COLLOIDAL STATES**15**

Liquid state: Properties of liquids – vapour pressure – Trouton's rule – surface tension – surface energy – excess pressure in a drop – surface active agents – viscosity – effect of temperature on viscosity – Reynolds number – refractive index – specific refraction – molar refraction – optical activity – structure of liquids. Colloidal state - classification of colloids – properties – electrical properties – electrical double layer – zeta potential – coagulation and protection – Hardy – Schulze rules – flocculation value – gold number electrokinetic properties – electrophoresis – electro osmosis – donnan membrane equilibrium - particle size determination by light scattering method – surfactants – types – micelles. Gels – preparative methods – types – thixotropy.

TEXT BOOKS

1. R. T. Morrison And R. N. Boyd, Organic Chemistry, 6th Edition, Printice-Hall Of India Limited, New Delhi, 1992.
2. T. W. Graham Solomons, Organic Chemistry, 6th edition, John Wiley and Sons, 1996.
3. B. Douglas, D. McDaniel and J. Alexander, Concepts and Models of Inorganic Chemistry, 3rd ed., John Wiley, 1994.
4. P.W. Atkins, Physical Chemistry, 7th edition, Oxford university press, 2001.

REFERENCE BOOKS

1. T. Moeller, Inorganic Chemistry: A Modern Introduction, Wiley, New York, 1990.
2. J. D. Lee, Concise Inorganic Chemistry, 5th Ed., Blackwell Science, London, 1996.
3. D. F. Shriver and P. W. Atkins, Inorganic Chemistry, 3rd Ed., W. H. Freeman and Co, London, 1999.
4. Sehan. N. Ege, Organic Chemistry, Structure And Reactivity, 3rd Edition, A.I.T.B.S., New Delhi, 1998.

Course Coordinator**HOD**

BCI3L1	CORE- 8 - MAJOR PRACTICAL - 3					L	T	P	C		
	Total Contact Hours – 60					0	0	4	2		
	Prerequisite course –										
	Course Coordinator Name & Department: -										
COURSE OBJECTIVES :- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Remember the knowledge about the need of chemistry practical and its toxicity										
CO2	Understand about the uses of experiments in our day today life										
CO3	Understand bout its importanceof chemical played important role										
CO4	Apply practical importance to be aware of the concepts from the basis.										
CO5	Evaluate the importance of handling and precision of experimental skills										
CO6	Analys the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		47 th Academic Council Meeting								

SYSTEMATIC ORGANIC ANALYSIS

SYSTEMATIC ANALYSIS OF MONO FUNCTIONAL ORGANIC COMPOUNDS

Analysis of Simple Organic compounds

(a) characterization of functional groups

(b) confirmation by preparation of solid derivatives / characteristic color reactions.

Note: Mono –functional compounds are given for analysis. In case of bi-functional compounds, students are required to report any one of the functional groups.

REFERENCES

1. N.S. Gnanapragasam and G. Ramamurthy, Organic Chemistry – Lab manual, S. Viswanathan Co. Pvt., 1998.
2. J.N. Gurthu and R. Kapoor, Advanced Experimental Chemistry (Organic), S. Chand and Co., 1987.
3. B.S. Furniss, A.J. Hannaford, P.W. G. Smith and A.R. Tatchell, Vogel's Text Book of Practical Organic Chemistry. 5th Edn., Pearson Education, 2005.

Course Coordinator

HOD

BPS302	ALLIED PHYSICS PAPER – I						L	T	P	C	
	Total Contact Hours – 45						5	0	0	4	
	Prerequisite course – Science / Mathematics Studied in Higher SecondaryStudies										
	Course Coordinator Name & Department: - Dr S. Anandhi / Physics										
COURSE OBJECTIVES :- To enhance the fundamental knowledge in Basic concepts of physics .To understand the concepts of Electrical and magnetic properties and study about various laws, circuits and analysis of different techniques											
COURSE OUTCOMES (COs)											
CO1	Remembering the basics of stress, strain, elastic constant, surface tension and viscosity										
CO2	To learn the oscillation of time period using beam and microscope										
CO3	To learn the Law of thermodynamic and adiabatic process										
CO4	Remembering Faradays law and thermoelectric effects and Analyze the different types of induction coils										
CO5	Evaluate the problems of electromagnetic circuits										
CO6	Understand the diffraction, grating, telescope and microscope and their applications										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	M	M		H			H		
	CO2			L		H					
	CO3	L	L	M	H	H					
	CO4	H		H		M					
	CO5	M	H	M		L					
	CO6	H	H	H	M						
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
							✓				
4	Approval		47 th Academic Council Meeting								

UNIT I - SIMPLE HARMONIC MOTION AND CIRCULAR MOTION

Composition of two Simple harmonic motions along a line and at right angles - Lissajous figures.
Uniform circular motion - Acceleration of a particle in a circle - centripetal and centrifugal forces - centrifuge - motion of a Bicycle and a car around a circle - Banking on curved tracks.

UNIT II- PROPERTIES OF MATTER

Elasticity: Elastic constants - Bending of beams - young's modulus by nonuniform bending - energy stored in a Stretched wire - torsion in a wire - determination of rigidity modulus by torsional pendulum - Static torsion.

Viscosity: Coefficient of viscosity - Poissuelle's formula - Comparison of viscosities - burette method - Stoke's law - Terminal velocity - viscosity of highly viscous liquids - lubrication. Surface tension: Molecular theory of surface tension - Excess pressure inside a drop and bubble - surface tension by drop weight method - interfacial surface tension.

UNIT III - HEAT AND THERMODYNAMICS

Kinetic theory of gases - Vanderwaal's equation of state - Derivation of critical constants - Low temperature - Joule-Kelvin effect - Theory and applications - Liquification of gases - Linde's process - adiabatic demagnetisation - laws of thermodynamics - entropy - change of entropy in reversible and irreversible processes.

SOUND Transverse vibration of a stretched string - Expression for the velocity of transverse waves - laws of transverse vibrations - A.C. Frequency measurement using sonometer - velocity of sound in a gas - ultrasonics - production and uses.

UNIT IV- ELECTRICITY AND MAGNETISM

Capacitor - energy of charged capacitors - Loss of energy due to sharing of charges - potentiometer - internal resistance of a cell and thermo emf measurement - Magnetic Field due to a current carrying conductor - Biot-Savart's law - field along the axis of a coil - force in a conductor carrying current in a magnetic field - Ballistic galvanometer - Circuit control and protective devices - switch - its types - fuses - circuit breaker - Relays.

UNIT V - GEOMETRICAL OPTICS Refraction - Normal refraction - Refractive index by microscope - by air cell - refraction at grazing incidence - grazing emergence in prisms - combination of two prisms to produce dispersion without deviation and deviation without dispersion - defects of images - coma, Distortion - Spherical and chromatic aberration in lenses.

BOOKS FOR STUDY AND REFERENCE:

1. Allied Physics by Dr.Dhanalakshmi Dr.Sabesan
2. Allied Physics by Kamalakkannan, Jayaraman.
3. Heat and thermodynamics by J.B. Rajam
4. Elements of properties of matter by Brij Lal and Subramanian
5. Mechanics by Narayanamoothy and others
6. Applied Electronics by R.S.Sedha.

Course Coordinator

HOD

BPS3L2	PHYSICS PRACTICAL I						L	T	P	C	
	Total contact Hours-30						0	0	4	2	
	Prerequisite- Science / Mathematics Studied in Higher Secondary Studies										
	Course Designed by-Department of Physics										
COURSE OBJECTIVES:-											
To gain the practical knowledge of measuring tools, bending of beams, time period of pendulum and surface tension of different liquids											
COURSE OUTCOMES (COs)											
CO1	Handling of basic practical tools such as vernier, screw gauge and microscope										
CO2	Developing technical skills										
CO3	Understand the concept of material science.										
CO4	Understand the equations with real coefficients of different modules										
CO5	To gain the knowledge of instrumentation techniques										
CO6	Verification of laws and concepts of physics										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	M	M		H			H		
	CO2			L		H					
	CO3	L	L	M	H	H					
	CO4	H		H		M					
	CO5	M	H	M		L					
	CO6	H	H	H	M						
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
							✓				
4	Approval		47 th Academic Council Meeting								

LIST OF EXPERIMENTS FOR ALLIED PRACTICAL – I

1. Non-Uniform bending – Pin and Microscope.
2. Uniform bending-scale and Telescope.
3. Surface tension and Interfacial Surface tension by Drop weight Method.
4. Surface tension by Capillary rise Method.
5. Coefficient of viscosity of liquid – Variable Pressure head Method.
6. Thermal conductivity of a bad conductor – Lee's disc Method.
7. Spectrometer – Refractive index of a solid prism.
8. Spectrometer – Grating – Normal incidence.
9. Newton's Rings – 'R' determination.
10. Air wedge – Thickness of the given thin wire.

REFERENCES :**TEXT BOOKS:-**

1. c.c ouseph, g.rangarajan- a text book of practical physics- s. viswanathan publisher- part i (1990)
2. c.c ouseph, c.rangarajan, r. balakrishnan- a text book of practical physics- s. viswanathan publisher-part ii (1996)

BOOKS FOR REFERENCE:-

- 1) s.l gupta and v.kumar- practical physics- pragati prakashan- 25th edition (2002).

Course Coordinator**HOD**

BAL001	BASIC TAMIL – I					L	T	P	C		
	Total Contact Hours – 45					3	0	0	3		
	Prerequisite course – +2 Level Tamil										
	Course Coordinator Name & Department :- ஸ்ரீதேவி & தமிழ்த்துறை										
COURSE OBJECTIVES :- தமிழ் மொழியின் அடிப்படைக்கூறுகள் பற்றி அறியச் செய்தல்											
COURSE OUTCOMES (COs)											
CO1	தமிழ் எழுத்துக்களை அறிவர்										
CO2	தமிழ் எழுத்துக்களில் உள்ள வேறுபாடுகளை அறிவர்										
CO3	சொல்லமைப்பு பற்றி அறிவர்										
CO4	சொற்களை உருவாக்கும் அறிவைப் பெறுவர்										
CO5	சொற்களை தொடராக மாற்றும் திறனைப் பெறுவர்										
CO6	எழுத்துக்கள், சொற்கள், தொடர்கள் பற்றி தெளிவான அறிவைப் பெறுவர்										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	M	H						M	H	M
	CO2	M	H								
	CO3	M	H								
	CO4	M	H								
	CO5	M	H								
	CO6	M	H								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
							✓				
4	Approval		Academic Council Meeting								

அலகு – 1

9

தமிழ் எழுத்து அறிமுகம் - உயிரெழுத்து - மெய்யெழுத்து - பெயர், முறை , வடிவம், ஒலி அளவு (மாத்திரை) - சுட்டு வினா எழுத்துக்கள் - எழுத்துக்களை கண்டறியும் பயிற்சி

அலகு – 2

12

உயிர்மெய் எழுத்துக்கள் - எண்ணிக்கை, பெயர், முறை , வடிவம், ஒலி அளவு (மாத்திரை) - எழுத்துக்களை அகரவரிசைப்படுத்துதல் - எழுத்து வேறுபாடு அறியும் பயிற்சி

அலகு – 3

12

சொல்லமைப்பு - ஒரேழுத்துச் சொற்கள், பல எழுத்துச் சொற்கள் - சொல்வகை - பெயர் வினை - சொற்பொருள் வேறுபாடு அறிதல் - சொற்களை உருவாக்கும் பயிற்சி

தொடர் அமைப்பு - சொற்கள் தொடராக அமையும் முறை - தொடர் வேறுபாடு - செய்தித் தொடர், வினாத் தொடர், உணர்ச்சித் தொடர், ஏவல் தொடர்- சொற்களை தொடரில் பயன்படுத்தும் பயிற்சி

பாட நூல்கள்

1. ஆறுமுகநாவலர், “தமிழ் இலக்கணம்”, பாரி நிலையம், 2012
2. கழகப் புலவர் குழுவினர், “நன்னூல் – எழுத்ததிகாரம்”, கழக வெளியீடு, 1996
3. கழகப் புலவர் குழுவினர், “நன்னூல் – சொல்லதிகாரம்”, கழக வெளியீடு, 1996

பார்வை நூல்கள்

1. பவணந்தி முனிவர், "நன்னூல் - எழுத்ததிகாரம்", முல்லை நிலையம், 1994
2. சோம.இளவரசு, "நன்னூல் சொல்லதிகாரம்", : மெய்யப்பன் பதிப்பகம் , 2012
3. கூழங்கைத்தம்பிரான், “நன்னூல்”, உலகத் தமிழாராய்ச்சி நிறுவனம், 1998

Course Coordinator**HOD**

BAL002	SPECIAL TAMIL – I					L	T	P	C		
	Total Contact Hours – 45					3	0	0	3		
	Prerequisite course – Tamil Under Part 1										
	Course Coordinator Name& Department :முனைவர்.ம.சித்ராகண்ணு & தமிழ்த்துறை										
COURSE OBJECTIVES :- பண்டைத் தமிழரின் நாகரிகமும் பண்பாடும் பற்றி அறியச் செய்தல்											
COURSE OUTCOMES (COs)											
CO1	தமிழரின் அரசியல், தொழில், சமூக அமைப்பு பற்றி அறிவர்										
CO2	தமிழர் திருமணமுறை, குடும்ப வாழ்வு பற்றி அறிவர்										
CO3	தமிழரின் உணவு, உடை, உறைவிடம் பற்றி அறிவர்										
CO4	தமிழரின் கல்வி, வானியல், விளையாட்டு, மகளிர், விழாக்கள் பற்றி அறிவர்										
CO5	சங்ககால மருத்துவம், கட்டடக்கலைப் பற்றி அறிவர்										
CO6	சங்ககால தமிழரின் நாகரிகம் பண்பாடு பற்றி தெளிவான அறிவைப் அறிவர்										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	M			H				H	M	M
	CO2	M			H						
	CO3	M			H						
	CO4	M			H						
	CO5	M			H						
	CO6	M			H						
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
							✓				
4	Approval		Academic Council Meeting								

அலகு 1

9

நாகரிகமும் பண்பாடும் - சங்க காலத்து அரசியல் நிலை - சங்ககாலத் தொழிற்பிரிவினரும் சமூக அமைப்பும்

அலகு 2

9

பண்டைத் தமிழர் திருமணமுறை , நல்லறம் - குடும்ப வாழ்வு பற்றிய தமிழர் கொள்கை - பண்டையத் தமிழரின் உணவு, உடை, உறையுள்

அலகு 3

9

பண்டைத் தமிழரின் கல்விநிலை - பண்டைத் தமிழரின் வானியல் அறிவு - பண்டைத் தமிழரின் விளையாட்டும் பொழுதுபோக்கும்

அலகு 4**9**

மகளிர் நிலை - சங்கத் தமிழரின் சமய வாழ்வு - சங்ககால விழாக்கள்

அலகு 5**9**

இந்திய நாகரீகத்தில் தமிழ்ப் பண்பாட்டுக்கூறுகள் - மருத்துவக் கலை - தமிழகக் கோயில் கட்டிடக்கலை வளர்ச்சி

பாட நூல்கள்

1. அ.தட்சிணாமூர்த்தி, "தமிழர் நாகரிகமும் பண்பாடும்", ஐந்திணைப் பதிப்பகம், 2010
2. பாவாணர், "பண்டைத் தமிழர் நாகரிகமும் பண்பாடும்", பூம்புகார் பதிப்பகம், 2012
- 3 கே.கே.பிள்ளை, "தமிழக வரலாறு மக்களும் பண்பாடும்", மணிவாசகர் பதிப்பகம், 2012

பார்வை நூல்கள்

1. நா. வானமாமலை, "தமிழர் பண்பாடும் தத்துவமும்", அலைகள் வெளியீட்டகம், 2011
2. பேரின்பன், "தமிழர் வரலாறு:சில கேள்விகளும் தேடல்களும்", அலைகள் வெளியீட்டகம், 2011
3. மா.இராசமாணிக்கனார், "தமிழக வரலாறும் தமிழர் பண்பாடும்", செண்பகா பதிப்பகம், 2012

Course Coordinator**HOD**

SEMESTER-IV

BAL401	TAMIL – IV					L	T	P	C		
	Total Contact Hours – 45					3	0	0	3		
	Prerequisite course – TAMIL –III										
	Course Coordinator Name& Department :முனைவர்.ம.சித்ராகண்ணு & தமிழ்த்துறை										
COURSE OBJECTIVES :- சங்க இலக்கியத்தைப் பற்றி அறியச் செய்தல்											
COURSE OUTCOMES (COs)											
CO1	எட்டுத்தொகையில் நற்றிணை, குறுந்தொகை, கலித்தொகை இலக்கியங்களை அறிவர்										
CO2	எட்டுத்தொகையில் புறநானூறு, பதிற்றுப்பத்து இலக்கியங்களை அறிவர்										
CO3	பத்துப்பாட்டு இலக்கியத்தில் பொருநராற்றுப்படை, பெரும்பாணாற்றுப்படை பற்றி அறிவர்										
CO4	பத்துப்பாட்டில் நெடுநல்வாடை, பட்டினப்பாலை, முல்லைப்பாட்டு பற்றி அறிவர்										
CO5	எட்டுத்தொகை, பத்துப்பாட்டு இலக்கிய வரலாற்றை அறிவர்										
CO6	சங்க இலக்கியத்தைப் பற்றிய உயரிய சிந்தனையைப் பெறுவர்										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	M						H	M	M
	CO2	H	M								
	CO3	H	M								
	CO4	H	M								
	CO5	H	M								
	CO6	H	M								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
		✓									
4	Approval		Academic Council Meeting								

அலகு 1

நற்றிணை

- 10, 110, 129

குறுந்தொகை

- 8, 25, 32

கலித்தொகை

- 6, 37, 51

அலகு 2

புறநானூறு

- 89, 109, 204

பதிற்றுப்பத்து

- 42,46,49(5ம் பத்து)

9

9

அலகு 3 **9**

பொருநராற்றுப்படை	-	151 - 213
பெரும்பாணாற்றுப்படை	-	5 - 15,
	-	170 - 184

அலகு 4 **9**

நெடுநல்வாடை	-	1 - 25
பட்டினப்பாலை	-	106 - 158
முல்லைப்பாட்டு	-	1 - 28

அலகு 5 **9**

எட்டுத் தொகை வரலாறு - பத்துப்பாட்டு வரலாறு

பாட நூல்கள்

1. வேங்கடராமன், "நற்றிணை மூலமும் உரையும்", உ.வே.சா நூல்நிலையம், 2013
2. புலியூர்க் கேசிகன், "குறுந்தொகை மூலமும் உரையும்", சாரதா பதிப்பகம், 2010
3. புலியூர்க் கேசிகன், "கலித்தொகை மூலமும் உரையும்", சாரதா பதிப்பகம், 2015

பார்வை நூல்கள்

1. புலியூர்க் கேசிகன், "புறநானூறு மூலமும் உரையும்", சாரதா பதிப்பகம், 2010
2. ஒளவை சு.துரைசாமிப் பிள்ளை, "பதிற்றுப்பத்து உரை", சாரதா பதிப்பகம், 2008
3. கதிர் முருகு, "பத்துப்பாட்டு மூலமும் உரையும்", சாரதா பதிப்பகம், 2010
4. ச.வே.சுப்ரமணியம், "சங்க இலக்கியம்", மணிவாசகர் பதிப்பகம், 2006

Course Coordinator**HOD**

BEH401	ENGLISH- IV	L	T	P	C
	Total Contact Hours – 60	4	0	0	4
	Prerequisite course – + 2 level English				
	Course Coordinator Name & Dept. :Ms.E.REKHA - English				
COURSE OBJECTIVES:- To focus on the balanced development of the English language communication skills.					
COURSE OUTCOMES (COs)					
CO1	Remember the basic concepts of English literature				
CO2	Understand the importance of the English language.				
CO3	Apply the themes and values by comprehending the given text.				
CO4	Analyse the grammar and the literary texts.				
CO5	Evaluate the characters and the genre prescribed.				
CO6	Create comprehensive essays efficiently.				

Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
		✓									
4	Approval		47 th Academic Council Meeting								

UNIT 1 - PROSE

12

Lalajee – Jim Corbett – Author Biography – Plot – Theme - Summary - Critical analysis; **Face of Judas** – Bonnie Chamberlin - Author Biography – Plot – Theme - Summary - Critical analysis.

UNIT 2 - POETRY

12

Laugh and Be Merry – **John Masefield** – Author Biography - Theme – Poetic devices – Annotations - Summary – Critical analysis; **Matilda** - **Hilaire Belloc**- Author Biography - Theme – Poetic devices – Annotations - Summary – Critical analysis.

UNIT 3: SHORT STORIES

12

Hunchback Sundari – **C.Raja Gopalachari** – Author Biography - Plot – Theme - Character sketch – Summary – Critical analysis; **The Eyes Are Not There** - **Ruskin Bond**- Author Biography - Plot – Theme - Character sketch – Summary – Critical analysis.

UNIT 4: ONE-ACT PLAYS

12

Macbeth Soliloquy – **Out, Out, Brief Candle** - **Shakespeare** – Author Biography - Plot – Theme - Character sketch – Summary – Critical analysis; **Julius Ceasar** - **Anthony's Funeral Speech** – Author Biography - Plot – Theme - Character sketch – Summary – Critical analysis.

UNIT 5: FUNCTIONAL ENGLISH

12

Wh – Questions - Pattern – Active and Passive voice – usage of passive voice – structure of passive verb; Modal verbs – Tenses.

TEXT BOOKS:

1. Corbett, “My India”, Rupa Publications India Pvt. Ltd., 2018
2. Stories of Innocent by C.Rajagopalachari, Bharathiya Vidya Bhavan, 2009

REFERENCE BOOKS:

1. Shakespeare – The Complete Work; Wilco Publishing House, Mumbai, India. 2005
2. Hilaire Belloc, “Matilda”, Random House UK, 1994
3. Shakespeare, “Macbeth”, Macmillan Publisher, 2014

Course Coordinator**HOD**

BCI401		CORE- 9 - GENERAL CHEMISTRY - VI					L	T	P	C	
		Total Contact Hours – 60					3	1	0	4	
		Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies									
		Course Coordinator Name & Department: - Mrs. K. Kalpana / Chemistry									
COURSE OBJECTIVES :- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Remember the knowledge about the properties and uses of coordination compounds										
CO2	Understand about the theoretical concepts of reactions of coordination compounds										
CO3	Understand properties and uses of alcohol, ether and carbonyl compounds										
CO4	Apply the detail about the concepts involved in carbonyl compounds										
CO5	Apply the importance of solution										
CO6	Analys the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						

4	Approval		47 th Academic Council Meeting
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UNIT I - COORDINATION COMPOUNDS:

15

Types of ligands and examples – IUPAC nomenclature of complex compounds – isomerism in coordination compounds. Stability constant – determination by Job's method (principle only) - Detection of complexes in solution - Metal carbonyls: preparation and properties of mononuclear carbonyls – EAN rule in carbonyls – bonding in carbonyls – **metal nitrosyls: classification, preparation and properties – bonding – brown ring compound** - Theories Of Coordination Compounds: Valence bond and crystal field theories – molecular orbital and ligand field theories (an elementary treatment) – high spin and low spin complexes (octahedral and tetrahedral) – crystal field stabilization energy – magnetic properties of coordination complexes (spin contribution only).

UNIT II - REACTIONS OF COORDINATION COMPOUND:

15

Unimolecular and bimolecular nucleophilic substitution reactions: S_N1, S_N2 and S_N1CB mechanisms – trans effect – definition, explanation and synthetic uses - Applications of complexes in quantitative analysis – estimation of nickel using DMG and aluminium using oxine – structure of EDTA and its complexes – complexometric titrations – principles and applications – biologically important coordination compounds – **chlorophyll, haemoglobin and vitamin B₁₂**.

UNIT III: ORGANIC REAGENTS

15

Alcohols: Synthetic methods – distinction between primary, secondary and tertiary alcohols – polyhydric alcohols: chemistry of glycol and glycerol – cleavage reactions with periodic acid, lead tetra acetate and osmium tetroxide – unsaturated alcohols: preparation and properties of allyl alcohol - **Ethers:** Synthesis and reactions of ethers – cleavage by acids – anisole and 1,4-dioxane – epoxides: preparation and properties - Thioalcohols and thioethers: General methods of preparation of thioalcohols – properties and uses of ethyl mercaptan – **general methods of preparation of thioethers – ethyl sulphide – mustard gas**.

UNIT IV: CARBONYL COMPOUNDS

15

Carbonyl group – polarization of C=O bond – reactivity of carbonyl group – acidity of α -hydrogen – nucleophilic addition to carbonyl bond – HCN, NaHSO₃, NH₃, alcohols and Grignard reagents: condensation with hydrazine, phenyl hydrazine, **semi carbazide – mechanism. Aldoximes and ketoximes** – mechanism of aldol, Perkin, Knoevenagel and benzoin condensations – mechanisms of Claisen, Reformatsky, Wittig, Cannizzaro and Dieckmann reactions – mechanisms of reduction with sodium borohydride, LiAlH₄. **Wolff-Kishner and MPV reductions** – mechanisms of haloform reaction and Michael addition.

UNIT V: SOLUTION

15

kinds of solutions and methods for expressing concentration – **molarity, molality, mole fraction, normality, mass fraction, parts per million** – ideal solutions – Raoult's law - solubility of gases in liquids – Henry's law - pressure – composition and temperature – composition diagrams – deviation from ideal behaviour for completely miscible liquid systems – fractional distillation – colligative properties - relation between colligative properties and molecular mass - abnormal molecular mass – van't Hoff factor. thermodynamic derivation of k_f and k_b .

TEXT BOOKS

1. S.H. Maron and J.B. Lando, Fundamentals of Physical Chemistry, Macmillan limited, New York, 1966.
2. B.R. Puri and L.R. Sharma, Principles of Physical Chemistry, Shoban Lal Nagin chand and Co. 33rd edition, 1992.

3. B. R. Puri, L. R. Sharma, K. C. Kalia, Principles of Inorganic Chemistry, Shoban Lal Nagin Chand and Co., 1996.
4. Bahl and Arun Bahl, Organic Chemistry, S. Chand and Sons, New Delhi, 2005.

REFERENCE BOOKS

5. B. R. Puri, L. R. Sharma, K. C. Kalia, Principles of Inorganic Chemistry, Shoban Lal Nagin Chand and Co., Delhi, 1996.
6. J. E. Huheey, E. A. Keiter and R. L. Keiter, Inorganic Chemistry, 4th ed., Harper Collins, 1993.
7. F. A. Cotton, G. Wilkinson, C. Murillo and M. Bochman, Advanced Inorganic Chemistry, 6th ed., John Wiley, New York, 1999.
8. T. Moeller, Inorganic Chemistry: A Modern Introduction, Wiley, New York, 1990.

Course Coordinator

HOD

BCI4L1	CORE-10-MAJOR PRACTICAL – 4					L	T	P	C		
	Total Contact Hours - 60					0	0	4	2		
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name & Department:- – Mrs. K. Kalpana / Chemistry										
COURSE OBJECTIVES :- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Remember the knowledge about the need of chemistry practical and its toxicity										
CO2	Understand about the uses of experiments in our day today life										
CO3	Understand and know about its importance of chemical played important role										
CO4	Apply the detail about practical importance to be aware of the concepts from the basis.										
CO5	Apply the importance of handling and precision of experimental skills										
CO6	Analys the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						

4	Approval		47 th Academic Council Meeting
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ANALYSIS OF A MIXTURE CONTAINING TWO CATIONS AND TWO ANIONS OF WHICH ONE WILL BE AN INTERFERING.

I.CATIONS TO BE STUDIED:

Lead, Copper, Bismuth, Cadmium, Iron, Zinc
Manganese, Cobalt, Nickel, Barium, Calcium, Strontium and Ammonium.

II.ANIONS TO BE STUDIED:

Carbonate, Sulphate, Nitrate, Chloride, Bromide, Borate, Oxalate and Phosphate.

REFERENCE BOOKS:

1. Sundaram, Krishnan, Raghavan, Practical Chemistry (Part II), S. Viswanathan Co. Pvt.,1996.
2. B.S. Furniss, A.J. Hannaford, P.W. G. Smith, A.R. Tatchell, Vogel's Text Book of Practical Organic Chemistry. 5th Edn., Pearson Education, 2005.
3. N.S. Ganapragasam and G. Ramamurthy, Organic Chemistry – Lab manual, S. Viswanathan Co. Pvt., 1998.
4. Vogel's Text Book of Quantitative Chemical Analysis. 5th Edi., ELBS/Longman England, 1989.
- 5.

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Course Coordinator **HOD**

BPS402	ALLIED PHYSICS PAPER – II					L	T	P	C		
	Total Contact Hours – 45					5	0	0	4		
	Prerequisite course – Science / Mathematics Studied in Higher Secondary Studies										
	Course Coordinator Name & Department:- Dr S. Anandhi / Physics										
COURSE OBJECTIVES:- This course is to high light the Modern Physics and digital Electronics To enhance the fundamental knowledge in Basic concepts of physics and to understand the concepts of Electrical and magnetic properties and study about various laws, circuits and analysis of different techniques											
COURSE OUTCOMES (COs)											
CO1	Understand the basic concepts of wave mechanics.										
CO2	To Learn about the principles of nuclear reactions.										
CO3	Acquire knowledge about the renewable and non-renewable energies.										
CO4	Understand the concepts of crystals and optical communication.										
CO5	Understand the basic concepts of electronics.										
CO6	Understand the basic concepts of utilization of commercial devices and some applications.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	M	M		H			H		
	CO2			L		H					
	CO3	L	L	M	H	H					
	CO4	H		H		M					
	CO5	M	H	M		L					
	CO6	H	H	H	M						

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)
							✓			
4	Approval	47 th Academic Council Meeting								

UNIT IELECTROSTATICS

Electrostatics Coulomb's inverse square law – Gauss theorem and its applications (Intensity at a point due to a charged sphere & cylinder) – Principle of a capacitor – Capacity of a spherical and cylindrical capacitors – Energy stored in a capacitor – Loss of energy due to sharing of charges - Capacitors in series and parallel – Types of capacitors.

UNIT II MAGNETISM

Magnetism Intensity of magnetization – Susceptibility – Types of magnetic materials – Properties of para, dia and ferromagnetic materials – Cycle of magnetization – Hysteresis – B-H curve – Applications of B-H curve – Magnetic energy per unit volume – Ferromagnets, ferrimagnets and their applications.

UNIT III ATOMIC PHYSICS

Atomic Physics Atom Models: Sommerfield's and Vector atom Models – Pauli's exclusion Principle – Various quantum numbers and quantization of orbits. X-rays: Continuous and Characteristic X-rays – Mosley's Law and importance – Bragg's law – Miller indices – Determination of Crystal Structure by Laue's Powder photograph method.

UNIT IV NUCLEAR PHYSICS

Nuclear Physics Introduction – Nucleus – Classification of Nuclei – Nuclear Size – Charge – Mass and Spin – Liquid drop model. Nuclear Radiations and their properties, particle accelerators – Betatron and Proton Synchrotron - Four types of reactions – Elementary particles and their classifications.

UNIT V DIGITAL ELECTRONICS

Digital Electronics Decimal – Binary – Octal and Hexa Decimal number systems and their Mutual Conversions – 1's and 2's complement of a Binary number and Binary arithmetic (Addition, Subtraction, Multiplication and Division) – Binary Subtraction by 1's and 2's complement method – Basic logic gates – AND, OR, NOT, NAND, NOR and EXOR gates –

NAND and NOR as universal building gates – Boolean Algebra – Laws of Boolean Algebra – De Morgan's Theorems – Their verifications using truth tables.

BOOKS FOR STUDY

1. R. Murugesan., Electricity and Magnetism. S. Chand & Co, New Delhi, Third Revised edition, 2001.
2. R. Murugesan, Kiruthiga Sivaprasath, Modern Physics., S. Chand & Co, New Delhi, First edition, 1984,.
3. R. S. Sedha, A text book of Digital Electronics, S. Chand & Co, New Delhi, First edition ,2004.

BOOKS FOR REFERENCE

1. Narayanamurthi, Electricity and Magnetism, The National Publishing Co, First edition, 1988.
2. J. B. Rajam, Atomic Physics., S. Chand & Company Limited, New Delhi, First edition, 1990.
3. B. N. Srivastava, Basic Nuclear Physic, Pragati Prakashan, Meerut, 2005.
4. Albert Paul Malvino, Digital principles and Applications, McGraw-Hill International Editions, New York, 2002.

Course Coordinator

HOD

BPS4L2	PHYSICS PRACTICAL II					L	T	P	C		
	Total contact Hours-30					0	0	4	2		
	Prerequisite- Science / Mathematics Studied in Higher Secondary Studies										
	Course Designed by-Department of Physics										
COURSE OBJECTIVES:- To gain the practical knowledge of measuring tools, bending of beams, time period of pendulum and surface tension of different liquids											
COURSE OUTCOMES (COs)											
CO1	Handling of basic practical tools such as vernier, screw gauge and microscope										
CO2	Developing technical skills										
CO3	Understand the concept of material science.										
CO4	Understand the equations with real coefficients of different modules										
CO5	To gain the knowledge of instrumentation techniques										
CO6	Verification of laws and concepts of physics										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	M	M		H			H		
	CO2			L		H					
	CO3	L	L	M	H	H					
	CO4	H		H		M					
	CO5	M	H	M		L					
	CO6	H	H	H	M						

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)
							✓			
4	Approval		47 th Academic Council Meeting							

ALLIED PRACICAL – II- LIST OF EXPERINCE

1. Logic Gates (AND, OR, NOT, NAND, NOR and EX-OR) Using IC's.
2. NAND and NOR as Universal Gates.
3. Verification of De-Morgan's Theorems.
4. Half –Adder and Half –Subtractor using logic gates.
5. Full Adder and Full Subtractor using logic gates.
6. Single Stage Amplifier.
7. Potentiometer-Measurement of Current.
8. Potentiometer-Calibration of low range voltmeter.
9. Carey Foster's Bridge- Specific Resistance.
10. Mathematical Operator-Addition, Subtraction using OP-Amp.

REFERENCES :

TEXT BOOKS:-

1. c.c ouseph, g.rangarajan- a text book of practical physics- s. viswanathan publisher- part i (1990)
2. c.c ouseph, c.rangarajan, r. balakrishnan- a text book of practical physics- s. viswanathan publisher-part ii (1996)

BOOKS FOR REFERENCE:-

1. S.L Gupta and V.K. kuumar- practical physics- pragati prakashan- 25th edition (2002).

Course Coordinator

HOD

BAL003	BASIC TAMIL – II					L	T	P	C		
	Total Contact Hours – 45					3	0	0	3		
	Prerequisite course – Basic Tamil – I										
	Course Coordinator Name & Department :- ஸ்ரீதேவி & தமிழ்த்துறை										
COURSE OBJECTIVES :- தமிழ் மொழியின் அடிப்படைக்கூறுகள் பற்றி அறியச் செய்தல்											
COURSE OUTCOMES (COs)											
CO1	தமிழ் மொழியின் சொல் வகை, திணை, பால் பாகுபாடு பற்றி அறிவர்										
CO2	அடுக்குத் தொடர், இரட்டைக் கிளவி, ண,ன,ர,ற,ள,ழ வேறுபாடு பற்றி அறிவர்										
CO3	பத்திகளை சுருக்கியும் , விரிவாக்கி எழுதும் அறிவைப் பெறுவர்										
CO4	சொற்களை கையாண்டு உரையாடுவது பற்றி பெறுவர்										
CO5	கட்டுரை, கடிதம் எழுதும் அறிவைப் பெறுவர்										
CO6	தமிழ் மொழியில் சரளமாக பேசும் எழுதும் திறனைப் பெறுவர்										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	M	H						M	H	M
	CO2	M	H								
	CO3	M	H								
	CO4	M	H								
	CO5	M	H								
	CO6	M	H								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)
							✓			
4	Approval		Academic Council Meeting							

அலகு – 1

12

- 1.1 தமிழ் மொழி அறிமுகம்
- 1.2 சொல் வகைகள்
- 1.3 திணை, பால் பாகுபாடு

அலகு – 2

12

- 2.1 அடுக்குத் தொடர், இரட்டைக் கிளவி
- 2.2 ஒரு ஓர் வேறுபாடு
- 2.3 ண,ன,ர,ற,ள,ழ வேறுபாடு

அலகு – 3

12

- 3.1 பத்தியிலிருந்து வினாக்களுக்குரிய விடைகளை கண்டறியும் பயிற்சி
- 3.2 சுருக்கி வரைதல்
- 3.3 விரிவாக்கி எழுதுதல்

அலகு – 4

9

- 4.1 உரையாடல்
- 4.2 கட்டுரை
- 4.3 மடல் வரைதல்

பாட நூல்கள்

1. மருதூர் அரங்கராசன், “தவறின்றித் தமிழ் எழுத”, ஐந்திணைப் பதிப்பகம், 2012
2. ஞா.தேவநேயப்பாவாணர், “உயர்தரக் கட்டுரை இலக்கணம்”, கௌரா பதிப்பகம், 2013
3. க. கயிலாயநாதன், “தமிழ் மொழி விளக்கம்”, முல்லை நிலையம், 2006

பார்வை நூல்கள்

1. பாரதிதாசன், "தவறின்றித் தமிழ் எழுத", நாம் தமிழர் பதிப்பகம், 2013
2. ஆசிரியர் குழு, "கடிதம் வரைதல்", லியோ பப்ளிகேஷன்ஸ், 2013
3. பாவாணர், "கட்டுரை வரைவது எப்படி?", தமிழ்மண் பதிப்பகம், 2012

Course Coordinator

HOD

BAL004	SPECIAL TAMIL – II					L	T	P	C			
	Total Contact Hours – 45					3	0	0	3			
	Prerequisite course – SPECIAL TAMIL – I											
	Course Coordinator Name& Department :முனைவர்.ம.சித்ராகண்ணு & தமிழ்த்துறை											
COURSE OBJECTIVES :- நாட்டுப்புற வாழ்வியலை பற்றி அறியச் செய்தல்												
COURSE OUTCOMES (COs)												
CO1	தாலாட்டு மற்றும் குழந்தைப் பாடல்கள் பற்றி அறிவர்											
CO2	தொழிற்பாடல், காதல் பாடல் , கொண்டாட்டப் பாடல்கள் பற்றி அறிவர்											
CO3	சங்ககால மக்களின் விடுகதை, நம்பிக்கை, சடங்குகள் பற்றி அறிவர்											
CO4	பழமொழிகள் , நாட்டுப்புற மருத்துவம், சமய வழிபாடுகள் பற்றி அறிவர்											
CO5	நாட்டுப்புற இலக்கிய வரலாறு பற்றி அறிவர்											
CO6	வாய்மொழி இலக்கியம் மூலம் சங்ககால மக்களின் வாழ்வியலை அறிவர்											
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low												
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	
2	CO1	H	M						H	M	M	
	CO2	H	M									
	CO3	H	M									
	CO4	H	M									
	CO5	H	M									
	CO6	H	M									
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)		
							✓					
4	Approval		Academic Council Meeting									

அலகு 1

9

தாலாட்டுப் பாடல் - குழந்தைப் பாடல் - விளையாட்டுப் பாடல்

அலகு 2

தொழிற்பாடல்கள் - காதல் பாடல்கள் - கொண்டாட்டப் பாடல்கள்

அலகு 3

9

விடுகதைகள் - நம்பிக்கைகள் - சடங்குகள்

அலகு 4

9

பழமொழிகள் - நாட்டுப்புற மருத்துவம் - சமய வழிபாடுகள்

அலகு 5

நாட்டுப்புற இலக்கிய வரலாறு

9

பாட நூல்கள்

1. சு.சக்திவேல், "நாட்டுப்புற இயல் ஆய்வு", மணிவாசகர் பதிப்பகம், 2015
2. சு.சண்முகசுந்தரம், "நாட்டுப்புற இலக்கிய வரலாறு", காவ்யா பதிப்பகம், 2017
3. நா. வானமாமலை, "தமிழர் நாட்டுப்பாடல்கள்", நியூ செஞ்சுரி புக் ஹவுஸ், 2014

பார்வை நூல்கள்

1. ஆறு.இராமநாதன், "நாட்டுப்புற பாடல் வகைகள்", புலமை வெளியீடு, 1982
2. சரசுவதி வேணுகோபால், "தமிழக நாட்டுப்புறவியல்", தாமரை வெளியீடு, 1981
3. கழனிபூரன், "நாட்டுப்புறவியல் கட்டுரைகள்", காவ்யா பதிப்பகம், 2014

Course Coordinator

HOD

SEMESTER – IV

BCI501	CORE- 11 - ORGANIC CHEMISTRY - I					L	T	P	C		
	Total Contact Hours - 60					3	1	0	4		
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name &Department: - – Dr. P. Paulraj / Chemistry										
COURSE OBJECTIVES: - To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Remember the knowledge about the properties and uses of carboxylic acid										
CO2	Understand about the theoretical concepts of tautomerisms										
CO3	Understand about the properties and uses of Nitro compounds										
CO4	Apply the detail about the phenolic groups and organic dyes										
CO5	Apply the importance of nomenclature of amine and phenols										
CO6	Analyze the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

UNIT I - CARBOXYLIC ACIDS:**15**

Nomenclature of Carboxylic acids– preparation and properties of formic, acetic and benzoic acid - Ionization of carboxylic acids – acidity constants – comparison of acid strength of substituted aliphatic acids – acid strength of substituted benzoic acids – **Hammett and Taft equation** - Dicarboxylic acids: Preparation and properties of oxalic, **malonic, succinic, glutaric and adipic acids** – action of heat – phthalic acid - Substituted carboxylic acids – Crotonic acid – Lactic acid and tartaric acids – salicylic acid.

UNIT II: ESTERS**15**

Malonic and aceto acetic esters – synthetic uses of malonic and aceto acetic esters - Tautomerism – definition – keto-enol tautomerism – **Identification of enol form and characteristic reactions of ketone and enol forms – estimation of enol form – amido-imido and nitro-acinitro tautomerisms** - Oils and fats – definition – distinction between oil and fats – classification of oils – hydrogenation of oils – acid value, saponification value, Iodine value and RM value – soaps and detergents – manufacture of soap – cleaning action of soap and synthetic detergents.

UNIT III: NITRO COMPOUNDS:**15**

Aliphatic nitro compounds: general methods of preparation and properties - Aromatic nitro compounds: Reduction of nitrobenzene in acidic, neutral and alkaline media. Conversion of nitrobenzene to ortho, para and meta dinitro benzenes – TNT.

UNIT IV: AMINES**15**

Aliphatic and aromatic amines: relative basic characters. Separation of amine mixtures – distinction between primary, secondary and tertiary amines, aliphatic and aromatic amines. Ring substitution in aromatic amines, diazotisation and its mechanism – coupling – synthetic uses of diazonium salt. Diazomethane and diazoacetic ester – preparation, structure and synthetic uses. Phenylene diamines. Sulphanilic acid, sulphanilamide, saccharin and chloramine-T - Amino acids and Proteins: Classification, preparation and properties of amino acids – Zwitterions isoelectric points – peptide synthesis – end group analysis.

UNIT V: PHENOLS:**15**

Acidity of phenols – explanation on the basis of resonance stabilization. Ring substitution of phenols – orientation of phenolic group towards electrophiles– coupling with diazonium salts – Kolbe's reaction, Reimer-Tiemann reaction, Gattermann reaction – Laderer-Manese, Hoesch reaction. Catechol, resorcinol, quinol, pyrogallol, phloroglucinol and hydroxy quinol. α and β -naphthol.

TEXT BOOKS

1. R. T. Morrison And R. N. Boyd, Organic Chemistry, 6th Edition, Printice-Hall Of India Limited, New Delhi, 1992.
2. T. W. Graham Solomons, Organic Chemistry, 6th edition, John Wiley and Sons, 1996.
3. B. Y. Paula, Organic Chemistry, 3rd Edition, Pearson Education, Inc.(Singapore), New Delhi, reprint, 2002.
4. Bahl and Arun Bahl, Organic Chemistry, S. Chand and Sons, New Delhi, 2005.

REFERENCE BOOKS

5. Jerry March, Advanced Organic Chemistry, 4th Edition, John Wiley And Sons, New York, 1992.
6. Hendrickson, Cram And Hammond, Organic Chemistry, 3rd Edition, McGraw-Hill Kogakusha, Limited, 1970.

7. Francis A. Carey, Organic Chemistry, 3rd edition, Tata-McGraw Hill Publications, New Delhi, 1999.
8. R. T. Morrison and R. N. Boyd, Organic Chemistry, 6th Edition, Printice-Hall Of India Limited, New Delhi, 1992.

Course Coordinator							HOD				
BCI502	CORE – 12 - INORGANIC CHEMISTRY - I						L	T	P	C	
	Total Contact Hours - 60						3	1	0	4	
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name &Department:- – Dr. P. Paulraj/ Chemistry										
COURSE OBJECTIVES:-											
To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Remember the knowledge about the introduction of nuclear chemistry										
CO2	Understand about the theoretical concepts involved in nuclear Chemistry										
CO3	Understand about the properties and uses of industrial chemistry										
CO4	Apply the detail about the organometallic concepts										
CO5	Apply the Organo metallic compounds to biological applications.										
CO6	Analyze the structure of nanoparticles:nano cluster, nano rod, nanotube (CNT) and nanowire.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

UNIT I: SOLID STATE CHEMISTRY II

15

Types of solids: crystalline, amorphous and poly crystalline – elements of crystal symmetry – unit cell – space lattice – types of lattice – crystal system – **Bragg's equation – X-ray diffraction and crystal structure – Laue's and powder method** – Miller indices – lattice energy and its determination by Born-Haber cycle – Born-Lande equation – Structure of inorganic solids –

limiting radius ratio – ionic solids of type AX – zinc sulphide, NaCl, CsCl – ionic solids of type AX₂ – CaF₂, rutile.

UNIT II: SOLID STATE CHEMISTRY II

15

Metallic bonding – theories of metallic bonding – electron gas, Pauling and band theories – Structure of alloys – substitutional and interstitial alloys – solid solutions – Hume-Rothery ratio – Defects in crystals – Frenkel and Schottky defects – metal excess and metal deficiency defects – Semi-conductors – extrinsic and intrinsic – n-type and p-type. Superconductivity.

UNIT III: TRANSITION METALS AND THEIR COMPOUNDS:

15

Group study of titanium, vanadium, chromium and manganese – general characteristics – electronic configuration and oxidation states – extraction of titanium and vanadium – chemistry of titanium (IV) and vanadium (V) compounds – Commercial forms of iron – manufacture of cast iron – properties – compounds of iron – potassium ferrocyanide, potassium ferricyanide, sodium nitroprusside and ferrocene. Cobalt: complexes of cobalt (II) and cobalt (III). Nickel – extraction – square planar complexes of nickel.

UNIT IV –NON CONVENTIONAL ENERGY SOURCES AND DEVICES

15

Nuclear fission and nuclear fusion reactions – differences between nuclear fission and nuclear fusion reactions – nuclear chain - Reactions – nuclear energy critical mass - super critical mass - sub - critical mass Light water nuclear reactor for power generation (block diagram only) – breeder reactor. Fuel cells – hydrogen – oxygen fuel cell - Batteries :Primary and secondary Batteries – differences between Primary and secondary Batteries - Secondary batteries :Lead–acid storage battery –working –uses.

UNIT V - SOME SPECIAL COMPOUNDS

15

Clathrates – examples – structure of quinol-water complex – characteristics - inorganic polymers – homo atomic and hetero atomic – borazines – silicones – composition – preparation, properties, structure and uses – metal alkyls – coordination polymers – phosphonitrilic polymers - Silicates – classification – disilicate anions – examples and structures of one, two and three dimensional silicates – beryls – asbestos – talc – mica – feldspar – zeolites and ultramarines.

TEXT BOOKS

1. J. D. Lee, Concise Inorganic Chemistry, 5th Ed., Blackwell Science, London, 1996.
2. F. A. Cotton, G. Wilkinson and P. L. Guas, Basic Inorganic Chemistry, 3rd ed., John Wiley, 1994.
3. B. Douglas, D. McDaniel and J. Alexander, Concepts and Models of Inorganic Chemistry, 3rd ed., John Wiley, 1994.
4. B. R. Puri, L. R. Sharma, K. C. Kalia, Principles of Inorganic Chemistry, Shoban Lal Nagin Chand and Co., 1996.

REFERENCE BOOKS

5. J. E. Huheey, E. A. Keiter and R. L. Keiter, Inorganic Chemistry, 4th ed., Harper Collins, New York, 1993.
6. D. F. Shriver and P. W. Atkins, Inorganic Chemistry, 3rd ed., W. H. Freeman and Co, London, 1999.
7. T. Moeller, Inorganic Chemistry: A Modern Introduction, Wiley, New York, 1990.
8. J. D. Lee, Concise Inorganic Chemistry, 5th Ed., Blackwell Science, London, 1996.

Course Coordinator

HOD

BCI503	CORE – 13 - PHYSICAL CHEMISTRY - I					L	T	P	C		
	Total Contact Hours - 60					3	1	0	4		
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name &Department:- – Dr. A. Manikandan/ Chemistry										
COURSE OBJECTIVES:- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Rememberthe knowledge about the properties and uses of Thermodynamic concepts										
CO2	Understand about the theoretical concepts of phase rule										
CO3	Understand properties and uses of electrochemistry										
CO4	Apply the detail about the electromotive force										
CO5	Apply the importance of corrosion and its control										
CO6	Analyze the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

UNIT I: THERMODYNAMICS IV:

15

Systems of variable composition – partial molar properties – chemical potential of component in an ideal mixture – Gibbs-Duhem equation variation of chemical potential with T, P and X - Chemical equilibrium – thermodynamic derivation of the law of mass action thermodynamic interpretation of the Le Chatelier principle – the reaction isotherm – Van't Hoff's equation and

isochore – Clausius-Clapeyron equation and its applications - Solutions: ideal and non-ideal solutions – activity and activity coefficients – Raoult's law and Henry's law and deviations - Dilute solutions and colligative properties – thermodynamic relationships – determination of molecular weights of solutes – abnormal molecular masses - **Nernst distribution law and applications.**

UNIT II: PHASE RULE

15

Phase equilibria: meaning of the terms phase, components and degrees of freedom – derivation of Gibbs Phase rule – phase equilibria of one component systems – water, CO₂ and sulphur systems - Two component systems: solid-liquid equilibria – simple eutectic Pb-Ag systems - **Efflorescence and deliquescence - Liquid-liquid mixtures:** partially miscible– liquid systems – phenol – water system – effect of impurities on CST – phenol-triethylamine–H₂O and nicotine-H₂O systems. Completely miscible mixtures fractional distillation – azeotropes temperature-composition diagrams – Immiscible liquids steam distillation.

UNIT III - ELECTROCHEMISTRY

15

Introduction – Comparison of Metallic conduction with Electrolytic conduction – Arrhenius Ionic Theory – Debye Huckel Theory of strong electrolytes – Relaxation Effect – Electrophoretic Effect – Activity and activity coefficient - Conductivity of Electrolytes – Specific conductivity – Equivalent conductivity – Molar conductivity – measurement of conductance – Cell constant – variation of specific conductance with dilution – **Variation of equivalent conductance with dilution** – Curves for HCl, NaCl, BaCl₂ and CH₃COONa – degree of ionization.

UNIT IV - ELECTROMOTIVE FORCE

15

Redox reactions – Electrode Potential – measurement of electrode potential – Nernst's equation for electrode potential – importance of electrode potential – electrochemical series – Electrochemical cell – representation of a Galvanic cell – Western Standard Cadmium cell – E.M.F. of an electrochemical cell – Concentration cell – applications – Reference electrodes – **Hydrogen electrode – metal-metal ion electrodes – calomel electrode – ion selective electrode – Glass electrode – quinhydrone electrode – Potentiometric Titrations.**

UNIT V - CORROSION AND ITS CONTROL

15

Dry or Chemical Corrosion – oxidation corrosion – corrosion by other gases – liquid metal corrosion – Wet or Electrochemical corrosion – Mechanism of Wet or Electrochemical corrosion – **Galvanic (or Bimetallic) Corrosion – Concentration cell corrosion** – Passivity – Galvanic series – Factors influencing corrosion – Corrosion control – (Protection Against Corrosion)

TEXT BOOKS

1. S.H. Maron and J.B. Lando, Fundamentals of Physical Chemistry, Macmillan limited, New York, 1966.
2. B.R. Puri and L.R. Sharma, Principles of Physical Chemistry, Shoban Lal Nagin chand and Co. 33rd edition, 1992.
3. P.W. Atkins, Physical Chemistry, 7th edition, Oxford university press, 2001.
4. S.K. Dogra and S. Dogra, Physical Chemistry Through Problems, New age international, 4th edition 1996.

REFERENCE BOOKS

5. Gilbert. W. Castellan, Physical Chemistry, Narosa publishing house, third edition 1985.
6. Irving M. Klotz and Robert M. Rosenberg, Chemical Thermodynamics, John Wiley and sons, Inc. 1994.
7. J. Rajaram and J.C. Kuriacose, Thermodynamics, Shoban Lal Nagin Chand and CO. 1986.

8. K. L. Kapoor, A Textbook of Physical chemistry, (volume-2 and 3) Macmillan, India Ltd, 1994.

Course Coordinator

HOD

BCI5L1	CORE 14–MAJOR PRACTICAL – 5	L	T	P	C
	Total Contact Hours - 60	0	0	4	2
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department:- – Dr. P. Paulraj/ Chemistry				

COURSE OBJECTIVES:-

To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.

COURSE OUTCOMES (COs)

CO1	Remember the knowledge about the need of chemistry practical and its toxicity
CO2	Understand about the uses of experiments in our day today life
CO3	Understand about the importance of chemical played on important role
CO4	Apply the detail about practical importance to be aware of the concepts from the basis.
CO5	Apply the importance of handling and precision of experimental skills
CO6	Analyze the real time applications of Chemistry in day today life.

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						L	H	
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

1. Conductometry-Acid-alkali titrations.
2. Conductometry-Precipitation titrations.
3. Conductometry-Displacement titrations.
4. Kinetics-Saponification of Ester-Determination of order of reaction.
5. Potentiometric titrations-Acid-alkali titrations.

6. Potentiometric titrations-Redox titrations.

REFERENCES:

1. Sundaram, Krishnan, Raghavan, Practical Chemistry (Part II), S. Viswanathan Co. Pvt., 1996.
 2. B.S. Furniss, A.J. Hannaford, P.W. G. Smith, A.R. Tatchell, Vogel's Text Book of Practical Organic Chemistry. 5th Edn., Pearson Education, 2005.
 3. N.S. Ganapragasam and G. Ramamurthy, Organic Chemistry – Lab manual, S. Viswanathan Co. Pvt., 1998
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Course Coordinator

HOD

BCI5L2	CORE 16–MAJOR PRACTICAL – 6					L	T	P	C		
	Total Contact Hours - 60					0	0	4	2		
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name &Department:- – Dr. P. Paulraj / Chemistry										
COURSE OBJECTIVES:- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Rememberthe knowledge about the need of chemistry practical and its toxicity										
CO2	Understand about the uses of experiments in our day today life										
CO3	Understand the importanceof chemical played on important role										
CO4	Apply the detail about practical importance to be aware of the concepts from the basis.										
CO5	Apply the importance of handling and precision of experimental skills										
CO6	Analyze the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						L	H	
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

Physical Chemistry Practical

1. Phase diagram – Naphthalene and biphenyl system.
2. Critical Solution Temperature – Determination of CST of phenol-water system and effect of impurity on CST – strength of sodium chloride.
3. Determination of Viscosity by Oswald Viscometer
4. To study the Adsorption of acid on Activated charcoal.
5. To determine the Concentration of KMnO_4 / $\text{K}_2\text{Cr}_2\text{O}_7$ by Colourimetry.
6. The Distribution coefficient of Benzoic acid distributed between water and kerosene
7. Determination of Equivalent conductance of a strong electrolyte
8. Determination of pH of a buffer solution potentiometrically using quinhydrone electrode
9. Determination of molecular weight - Rast's macro method
10. Determination of Equivalence Conductance of a strong Electrolyte

REFERENCES:

1. Sundaram, Krishnan, Raghavan, Practical Chemistry (Part II), S. Viswanathan Co. Pvt., 1996.
2. B.S. Furniss, A.J. Hannaford, P.W. G. Smith, A.R. Tatchell, Vogel's Text Book of Practical Organic Chemistry. 5th Edn., Pearson Education, 2005.
3. Experimental Physical Chemistry by R.C.Das&B.Behera.
4. N.S. Ganapragasam and G. Ramamurthy, Organic Chemistry – Lab manual, S. Viswanathan Co. Pvt., 1998.

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Course Coordinator

HOD

BCI505	ELECTIVE – I - ANALYTICAL CHEMISTRY						L	T	P	C	
	Total Contact Hours - 60						4	0	0	4	
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name &Department:- – Dr. P. Paulraj/ Chemistry										
COURSE OBJECTIVES:-											
To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Rememberthe knowledge about the properties and uses of analytical techniques										
CO2	Understand about the method of laboratory safety										
CO3	Understand the properties and uses of separation and purification techniques										
CO4	Aapply the detail about the thermo analytical methods										
CO5	Apply the importance of computer programming about the thermal analysis										
CO6	Analyze the real time applications of thermal materials for using atomic spectroscopy techniques.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
						√					
4	Approval		Academic Council Meeting								

UNIT-I: LABORATORY SAFETY

12

Laboratory Hygiene And Safety -
 Storage and handling of corrosive, flammable, explosive, toxic, carcinogenic and - poisonous chemicals - Simple First Aid Procedure For Accidents
 Acid in eye, alkali in eye, acid burns, bromine burns, poisoning, inhalation of gases, cut by glasses and heat burns - **Errors in chemical analysis, classification of errors, instrumental errors, personal errors, constant errors and proportional errors** - Correction of determinate errors - Random errors.
 Precision, accuracy and rejection of data questioned.

UNIT-II: EXTRACTION TECHNIQUES

12

Separation and Purification Techniques General principles involved in the separation of precipitates. Solvent extraction – Chromatography Principles in adsorption, partition and ion exchange, paper, thin layer, column, gas liquid chromatography. Electro-phoresis-Applications - Desiccants Vacuum drying, distillation, fractional distillation, steam distillation, **Azeotropic Distillation, crystallization and sublimation– Principles and Techniques.**

UNIT– III: ANALYTICAL METHODS I

12

Thermo analytical Methods - Principles involved in thermo gravimetric analysis and differential thermal analysis- instrumentation - Characteristics of TGA (CaC₂O₄, H₂O, CuSO₄, 5H₂O) and DTA curves (CaC₂O₄ .H₂O) - Factors affecting TGA and DTA curves - Thermometric titration of HCL Vs NaOH - Analytical Electrochemistry - Redox potential – measurement and application, interpretation of chemical behavior - **Electrolytic separations. Principles of electrode deposition. Electro-gravimetric (estimation of copper and silver.)**

UNIT– IV: ANALYTICAL METHODS II

12

Colorimetric Analysis **Laws of colorimeters–instrumentation. Nessler's and Photoelectric colorimetric method– operation and applications.** Estimation of Ni, Cu and Fe - Basic principles of flame photometry –Atomic absorption – Spectrophotometry – Estimation of Na, K and Ca - Organic Estimations Principle and methods to estimate glucose, ascorbic acid, phenol, aniline, ketone, oils and fats. Iodine value, saponification value, R.M value and acetyl value.

UNIT– V: ANALYTICAL TECHNIQUES

12

Introduction: Types of spectroscopy - Atomic spectroscopy – molecular spectroscopy – Explanation – differences between Atomic spectra – molecular spectra, Absorption spectrum and Emission spectrum, Photo physical laws - Lambert's law - Beer-Lambert's law –applications (determination of unknown concentration) - IR spectroscopy: Principle – instrumentation (block diagram only) – working - finger print region: UV-visible spectroscopy - Principle – instrumentation (block diagram only) – working – **estimation of iron by colorimetry.**

REFERENCE:

1. R.Gopalan, P.S.Subramanian and K. Rengarajan:-Elements of Analytical Chemistry, –Sultan Chand & sons, New Delhi.(1995)
2. B.K.Sharma; Instrumental Methods of chemical analysis, Goel Publishing House, Meerut (1999).
3. S.M.Khopkar ; Basic Concepts of Analytical Chemistry New Age International (P)Ltd, New Delhi (1998)
4. Gurdeep Chatwal, Sham Anand; Instrumental methods of Chemical Analysis, Himalaya Publishing House, Mumbai (1998).
5. D.A.Skoog & D.M.West; Fundamentals of Analytical Chemistry W.B.Saunders, New York, (1982).
6. K.V.Raman; Computers in chemistry Tata McGraw Hill Co., New Delhi (1993).

Course Coordinator

HOD

BCI505	ELECTIVE – I - POLYMER CHEMISTRY						L	T	P	C	
	Total Contact Hours - 60						4	0	0	4	
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name &Department:- – Dr. P. Paulraj/ Chemistry										
COURSE OBJECTIVES:- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Rememberthe knowledge about the properties and introduction of polymer										
CO2	Understand about the method of polymerization										
CO3	Understand the properties and uses of polymer degradation										
CO4	Apply the detail about the Industrial polymers										
CO5	Apply the importance of polymer processing										
CO6	Analyze the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
						√					
4	Approval		Academic Council Meeting								

UNIT 1 : INTRODUCTION TO POLYMER

12

Monomers, Oligomers, Polymers and their characteristics - Classification of polymers : Natural synthetic, linear, cross linked and network; plastics, elastomers, fibres, Homopolymers and Copolymers - Bonding in polymers : Primary and secondary bond forces in polymers ; cohesive

energy and decomposition of polymers - Determination of Molecular mass of polymers: **Number Average molecular mass (Mn) and Weight average molecular mass (Mw) of polymers** and determination by (i) viscosity (ii) Light scattering method (iii) Gel Permeation Chromatography (iv) osmometry and ultracentrifuging.

UNIT 2 : KINETICS AND MECHANISM FOR POLYMERIZATION 12

Chain growth polymerization : Cationic, anionic, free radical polymerization, Stereo regular polymers : Ziegler Natta polymers - Polycondensation-non catalysed, acid catalysed polymerization, molecular weight – distribution - Step growth polymers

Self study: Degrees of polymerization

UNIT 3 : TECHNIQUES OF POLYMERIZATION 12

Bulk, Solution, Emulsion, Suspension, Melt polycondensation, solution polycondensation interfacial and gas phase polymerization - Types of Polymer Degradation, Thermal degradation, mechanical degradation, photodegradation, Photo stabilizers.

Self study: Solid and gas phase polymerization

UNIT 4 : INDUSTRIAL POLYMERS: 12

Raw material, preparation, fibre forming polymers, elastomeric material - Thermoplastics : Polyethylene, Polypropylene, polystyrene, Polyacrylonitrile, Poly Vinyl Chloride, Poly tetrafluoro ethylene, nylon and polyester - Thermosetting Plastics : Phenol formaldehyde and expoxide resin - Elastomers : Natural rubber and synthetic rubber - Buna - N, Buna-S and neoprene - Conducting Polymers : Elementary ideas ; examples : **poly sulphur nitriles, poly phenylene, polypyrrole and poly acetylene.**

UNIT 5 : INTRODUCTION TO POLYMER PROCESSING : 12

Compounding: Polymer Additives: Fillers, Plasticizers antioxidants and thermal stabilizers fire retardants and colourants - Processing Techniques: Calendaring, die casting, compression moulding, injection moulding, blow moulding, extrusion moulding and reinforcing.

TEXT BOOKS :

1. V.R. Gowariker, Polymer Science, Wiley Eastern, 1995.
2. G.S. Misra, Introductory Polymer Chemistry, New Age International (Pvt) Limited, 1996.
3. F. N. Billmeyer, Textbook of Polymer Science, Wiley Interscience, 1971.
4. A. Kumar and S. K. Gupta, Fundamentals and Polymer Science and Engineering, Tata McGraw-Hill, 1978.

Course Coordinator

HOD

BCI505	ELECTIVE – I - BIOCHEMISTRY					L	T	P	C		
	Total Contact Hours - 60					4	0	0	4		
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name &Department:- – Dr. M. Kumar / Chemistry										
COURSE OBJECTIVES:-											
To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Rememberthe knowledge about the introduction of amino acid and proteins										
CO2	Understand about the method of enzymes										
CO3	Understand the properties and uses of lipids										
CO4	Apply the detail about the carbohydrates										
CO5	Apply the importance of nucleic acid										
CO6	Analyze the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
						√					
4	Approval		Academic Council Meeting								

UNIT 1: AMINO ACIDS AND PROTEINS

12

Living Cell – Plant and Animal cell - Cell membrane – organelles – functions of major subcellular components – Anabolism and catabolism and their relation to metabolism. **Amino acids** – classification – Synthesis of α -amino acids and their identification - Peptide bond- stereochemistry, synthesis of peptides by solution and solid phase techniques. **Proteins** – classification – properties-3D structure-determination of amino acid sequence –denaturation and renaturation of protein molecules - Separation and purification of proteins – dialysis – gel filtration – electrophoresis - Catabolism of amino acids: Transamination, oxidative deamination, decarboxylation. The urea cycle and other possibilities of detoxification of ammonia.

UNIT 2: ENZYMES**12**

Nomenclature, classification and properties-specificity, factors influencing enzyme action. Mechanism of enzyme action – Lock and Key model and induced fit models. Coenzymes – cofactors – prosthetic groups of enzymes (TPP, NAD, NADP, FAD, ATP) - Their importance in enzyme action - Mechanism of inhibition (competitive, non- and uncompetitive and allosteric) - Immobilization of enzymes. Enzyme specificity,

UNIT 3: LIPIDS**12**

Classification - neutral lipids, Phospho lipids (lecithines, cephalins, plasmalogens) and glycolipids – importance, synthesis and degradation - Fatty acids – saturated, unsaturated fatty acids, EFA. Properties – Hydrolysis-acid number, saponification number. Auto-oxidation (Rancidity), addition reactions-Iodine value, Polenske number, Reichert-Meissl number, acetyl number. Hydrogenation Cholesterol – biosynthesis. Bile salts derived from cholesterol - Metabolism: Oxidation of glycerol – α -oxidation of fatty acids; biosynthesis of lipids – synthesis of fatty acids and synthesis of triglycerides.

UNIT 4: CARBOHYDRATES**12**

Classification – reducing and non-reducing sugars. Glucose: structure-conformation – Stability - Carbohydrates of the cell membrane – starch, cellulose and glycogen. (Structure and utility) - Metabolism: Glycolysis and its reversal; TCA cycle. Relation between glycolysis and respiration. Principles of bioenergetics, electron transport chain and oxidative phosphorylation.

UNIT 5 NUCLEIC ACIDS**12**

Nucleosides and nucleotides – purine and pyrimidine bases. Nucleic acids Difference between DNA and RNA. Classification of RNA - Biosynthesis of DNA: Replication. Biosynthesis of mRNA: Transcription - Genetic code – mutations and mutants. DNA repair. Biosynthesis of proteins - DNA sequencing and PCR, recombinant DNA technology, DNA polymorphism.

TEXT BOOKS

1. Lehninger, Principles of Biochemistry, Fourth Edition, by David L. Nelson and Michael M. Cox, Worth Publishers, New York, 2005.
2. L. Veerakumari, Biochemistry, MJP publishers, Chennai, 2004.
3. Lubert Stryer, Biochemistry, W. H. Freeman and company, New York, 1975.
4. Robert L. Caret, Katherine J. Denniston, Joseph J. Topping, Principles and Applications of organic and biological chemistry, WBB publishers, USA, 1993.
5. J. L. Jain, Biochemistry, Sultan Chand and Co. 1999
6. A. Mazur and B. Harrow, Text book of biochemistry, 10th Edition, W.B. Saunders Co., Philadelphia, 1971.
7. Paula Yurkanis Bruice, Organic chemistry, 3rd Edition, Pearson Education, Inc. (Singapore), New Delhi, reprint, 2002.
8. P. W. Kuchel and G. B. Ralston, Shaum Series, Theory and Problems of Biochemistry, McGraw-Hill Book Company, New York, 1988.

Course Coordinator**HOD**

SEMESTER - VI

BCI601	CORE – 16 - ORGANIC CHEMISTRY- II						L	T	P	C	
	Total Contact Hours - 60						3	1	0	4	
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name &Department:- – Dr. P. Paulraj/ Chemistry										
COURSE OBJECTIVES:- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Rememberthe knowledge about the introduction of the natural products										
CO2	Understand about the method of molecular rearrangement										
CO3	Understand the properties and uses of stereochemistry										
CO4	Apply the detail about the carbohydrates										
CO5	Apply the importance of heterocyclic chemistry										
CO6	Analyze the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

UNIT I: NATURAL PRODUCTS

12

Terpenes: classification – isoprene rule – geraniol, nerol and menthol - Alkaloids: general methods of isolation and general methods of structural determination – conine, piperine and

nicotine - Vitamins: source and biological importance of vitamins A₁, B₁ and C. Structural elucidation of vitamins A₁ and C.

UNIT II: MOLECULAR REARRANGEMENTS

12

Pinacol-pinacolone, Wagner-Meerwein, Beckmann, Benzidine, Hoffmann, Curtius, **Benzilic acid, Claisen, Fries**, Cope and oxy cope rearrangements - Reagents in organic synthesis: Lithium aluminium hydride and sodium borohydride – reduction of carbonyl compounds and carboxylic acids. Selenium dioxide – oxidation of carbonyl compounds. Aluminiumisopropoxide (MPV reduction). **Wilkinson catalyst** – **hydrogenation of alkenes and alkynes**. Tetra carbonyl nickel – carbonylation of alkenes, alkynes.

UNIT III: STEREO CHEMISTRY

12

Elements of symmetry and conditions for optical activity – asymmetric center – chirality – achiral molecule – meaning of (+) and (-); D and L notations – racemization, resolution, Walden inversion – asymmetric synthesis. **Vant Hoff rule of optical super position and Fredenberg rule of shift** - Projection formulae – Fisher, Flying wedge, Sawhorse and Newmann projection formulae – Cahn-Ingold-Prelog rules – R and S notations of optical isomers with one asymmetric carbon – erythro and threo representations - Optical activity in biphenyls, allenes and spiranes - Geometrical isomerism – cis-trans, syn-anti, E-Z notations – maleic and fumaric acid, ketoximes – methods of distinguishing geometrical isomers (Dipole moment, dehydration, Cyclization) – method determining the configuration of geometrical isomers.

UNIT IV: CARBOHYDRATES

12

Classification, chemistry and constitution of glucose and fructose – determination of ring size – Haworth projection formula – configuration of monosaccharides – epimerisation, chain lengthening and chain shortening of aldoses – inter conversion of aldoses and ketoses - Disaccharides – chemistry and structure of maltose, lactose and sucrose - **Starch and cellulose (structural elucidation not necessary).**

UNIT V: HETEROCYCLIC COMPOUNDS

12

Introduction – molecular-orbital structure and aromatic characteristics of pyrrole, furan, thiophene and pyridine – methods of synthesis - chemical reactions with particular emphasis on the mechanism of electrophilic substitution – comparison of basicity of pyridine, piperidine and pyrrole. Condensed five and six membered heterocycles – preparation of indole, quinoline and isoquinoline with special reference to Fisher Indole, **Skraup and Bischler Napieralski** synthesis.

TEXT BOOKS

1. R. T. Morrison And R. N. Boyd, Organic Chemistry, 6th Edition, Printice-Hall Of India Limited, New Delhi, 1992.
2. T. W. Graham Solomons, Organic Chemistry, 6th edition, John Wiley and Sons, 1996.
3. B. Y. Paula, Organic Chemistry, 3rd Edition, Pearson Education, Inc.(Singapore), New Delhi, reprint, 2002.
4. Bahl and Arun Bahl, Organic Chemistry, S. Chand and Sons, New Delhi, 2005.

REFERENCE BOOKS

5. Jerry March, Advanced Organic Chemistry, 4th Edition, John Wiley And Sons, New York, 1992.
6. S. H. Pine, Organic Chemistry, 5th Edition, McGraw Hill International Edition, Chemistry Series, New York, 1987.
7. Sehan. N. Ege, Organic Chemistry, Structure And Reactivity, 3rd Edition, A.I.T.B.S., New Delhi, 1998.
8. Hendrickson, Cram And Hammond, Organic Chemistry, 3rd Edition, McGraw-Hill Kogakusha, Limited, 1970.

Course Coordinator

HOD

BCI602	CORE – 17 - INORGANIC CHEMISTRY - II						L	T	P	C	
	Total Contact Hours - 60						3	1	0	4	
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name &Department:- – Dr. P. Paulraj/ Chemistry										
COURSE OBJECTIVES:- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Remember the knowledge about the introduction of nuclear chemistry										
CO2	Understand about the theoretical concepts involved in nuclear Chemistry										
CO3	Understand the properties and uses of industrial chemistry										
CO4	Apply the detail about the organometallic concepts										
CO5	Apply the importance of acids and bases.										
CO6	Analyze the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

UNIT I - NUCLEAR CHEMISTRY I

15

Nuclear forces – nuclear bonding and stability – nuclear shell structure theory – nuclear fluid theory – magic numbers – isotopic constitution of elements – separation of isotopes – gaseous diffusion, electromagnetic, distillation, electrolytic and chemical exchange methods – whole number rule and packing fraction – atomic masses – deviation of atomic masses from whole number – isobars, isotones and isomers.

UNIT II - NUCLEAR CHEMISTRY II

15

Natural radioactivity – radioactive emanations – disintegration theory – rate of disintegration – half-life period – average life period – modes of decay – n/p ratio – group displacement law – detection and measurement of radioactivity – radioactive equilibrium – radioactive disintegration series – **Geiger-Nuttal rule – age of earth - Nuclear transformation** – artificial transmutation of elements – classification of nuclear reactions – nuclear fission – atomic bomb – nuclear fusion – hydrogen bomb – nuclear reactors – **atomic power projects in India** – radio carbon dating – radioactive waste disposal.

UNIT III - INDUSTRIAL CHEMISTRY

15

Gaseous fuels – natural, gobar, coal, water gas, semi water gas and producer gas. **LPG – industrial gases** – manufacture and industrial uses of H₂, O₂, N₂ and dry ice. Fossil fuels – **varieties of coal – petroleum refineries in India** – petrochemicals – manufacture of petrochemicals from methane. Industrial organic synthesis of methyl alcohol, industrial alcohol, 1,3-butadiene and formaldehyde. Explosives and chemical weapons – characteristics and classification – nitro cellulose, PETN, DNB, TNT, EDNA and lead azide. Paints – characteristics – classification – constituents – requirements of a good paint – setting of paints. Pigments – characteristics and uses – white, red, lithopone and black.

UNIT IV: BIOLOGICAL MOLECULES

15

Organo metallic complexes – olefinic complexes – anion of zeises salt – structure and bonding of acetylinic complexes and allylic complexes of transition metals - Bioinorganic molecules – haemoglobin, chlorophyll, cytochrome-c, ferridoxin – structural aspects and their role in electron transfer reactions - Mechanism and synthetic uses of: Palladium complex: Wacker oxidation - Rhodium complex: Wilkinson catalyst - **Cobalt complex: hydroformylation of alkenes.**

UNIT V –NANOCHEMISTRY

15

Basics - distinction between molecules, nanoparticles and bulk materials; size-dependent properties. nanoparticles: nano cluster, nano rod, nanotube(CNT) and nanowire. Synthesis: precipitation, thermolysis, hydrothermal, solvothermal, electrodeposition, chemical vapour deposition, laser ablation; Properties and applications

TEXT BOOKS

1. J. D. Lee, Concise Inorganic Chemistry, 5th ed., Blackwell Science, London, 1996.
2. F. A. Cotton, G. Wilkinson and P. L. Guas, Basic Inorganic Chemistry, 3rd ed., John Wiley, 1994.
3. B. Douglas, D. McDaniel and J. Alexander, Concepts and Models of Inorganic Chemistry, 3rd ed., John Wiley, 1994.
4. B. R. Puri, L. R. Sharma, K. C. Kalia, Principles of Inorganic Chemistry, Shoban Lal Nagin Chand and Co., 1996.

REFERENCE BOOKS

1. J. E. Huheey, E. A. Keiter and R. L. Keiter, Inorganic Chemistry, 4th ed., Harper Collins, New York, 1993.
2. D. F. Shriver and P. W. Atkins, Inorganic Chemistry, 3rd Ed., W. H. Freeman and Co, London, 1999.
3. B. R. Puri, L. R. Sharma, K. C. Kalia, Principles of Inorganic Chemistry, Shoban Lal Nagin Chand and Co., Delhi, 1996.
4. F. A. Cotton, G. Wilkinson, C. Murillo and M. Bochman, Advanced Inorganic Chemistry, 6th ed., John Wiley, New York, 1999.

Course Coordinator

HOD

BCI6L1	CORE - 19 - MAJOR PRACTICAL - VI						L	T	P	C	
	Total Contact Hours - 60						6	0	0	3	
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name &Department:- – Dr. A. Manikandan / Chemistry										
COURSE OBJECTIVES:- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Rememberthe knowledge about the need of chemistry practical and its toxicity										
CO2	Understand about the uses of experiments in our day today life										
CO3	Understand the importanceof chemical played on important role										
CO4	Apply the detail about practical importance to be aware of the concepts from the basis.										
CO5	Apply the importance of handling and precision of experimental skills										
CO6	Analyze the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						L	H	
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

GRAVIMETRIC ANALYSIS:

1. Estimation of Lead as lead chromate.
2. Estimation of Barium as barium chromate.
3. Estimation of Nickel as Nickel -DMG complex.
4. Estimation of Copper as copper (I) thiocyanate
5. Estimation of Magnesium as magnesiumoxinate

6. Estimation of Barium as barium sulphate.
7. Estimation of Iron as Iron (III) oxide.

PREPARATION OF ORGANIC COMPOUNDS (SINGLE STAGE)

1. Para-bromo actenalide from acetanilide (bromination)
2. Para-nitroactenalide from acetanilide (nitration)
3. 2,4,6-tribromo aniline from aniline (bromination)
4. Benzophenone oxime from benzophenone (addition)O-
5. Chlorobenzoic acid from anthranilic acid (Sandmayer reaction)
6. Salicyclic acid from methylsalicylate (Hydrolysis)

References

1. N.S. Gnanapragasam and G. Ramamurthy, Organic Chemistry – Lab manual, S. Viswanathan Co. Pvt., 1998.
2. J.N. Gurthu and R. Kapoor, Advanced Experimental Chemistry (Organic), S. Chand and Co., 1987.
3. B.S. Furniss, A.J. Hannaford, P.W. G. Smith and A.R. Tatchell, Vogel's Text Book of Practical Organic Chemistry. 5th Edn., Pearson Education, 2005.

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Course Coordinator

HOD

BCI603	ELECTIVE – 2 - KINETIC & SPECTROSCOPIC METHODS IN CHEMISTRY					L	T	P	C		
	Total Contact Hours - 60					3	1	0	4		
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name &Department:- – Dr. P. Paulraj/ Chemistry										
COURSE OBJECTIVES:- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Rememberthe knowledge about the introduction of chemical kinetics										
CO2	Understand about the theoretical concepts of catalyst										
CO3	Understand the properties and uses of molecular spectroscopy										
CO4	Apply the detail about the spectral techniques										
CO5	Apply the importance of photochemistry										
CO6	Analyze the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
						√					
4	Approval		Academic Council Meeting								

UNIT I: CHEMICAL KINETICS

15

Concept of rate of reactions – factors influencing rate of reaction – Rate law, rate constant, order and molecularity of reactions – differential and integral forms of rate equations for zero, first and second order reactions – **third and fractional order reactions (no derivation)** – half life period – pseudo first order reactions - Methods for the determination of order of reactions – integration

method, differentiation method, graphical method, half-life method, and Oswald's isolation method - Experimental methods involved in the following kinetics of reactions: titrimetry, monometry, polarimetry, dilatometry and spectrophotometric techniques with examples - Effect of temperature on rates of reactions – temperature coefficient – Arrhenius equation – activation energy – calculation of Arrhenius parameters. Simple collision theory and its limitations – an elementary treatment of activated complex theory and its thermodynamic formulation – Unimolecular reactions – Lindemann hypothesis – thermal chain reactions – **hydrogen-bromine reaction.**

UNIT II - CATALYSIS

15

Acid-base catalysis – types and mechanisms – primary salt effect in ionic reactions - Enzyme catalysis – Characteristics of enzymes – factors affecting enzyme catalysis – derivation of Michaelis-Menton equation - Surface Chemistry – mechanism of catalytic action – unstable intermediate compound formation theory – adsorption or contact theory. Catalytic promoters and poisons - Adsorption isotherms – derivation of Freundlich and Langmuir adsorption isotherms – use of B.E.T. isotherm in surface area determination (derivation not required).

UNIT III - MOLECULAR SPECTROSCOPY I

15

Various types of spectra and the energy changes - Microwave spectroscopy – theory of rotational spectra of diatomic molecules – Stark effect – symmetric top molecules and asymmetric top molecules – isotopic effect – applications. calculation of bond length – its limitations - Infrared spectroscopy – theory of vibration-rotation spectra – types of vibration – force constant - Raman spectroscopy – Raman effect – theory – pure rotational Raman spectra – vibrational Raman spectra – comparison of IR and Raman spectra – **structural determinations of simple molecules.**

UNIT IV - MOLECULAR SPECTROSCOPY II

15

UV and Visible spectroscopy – Vibrational Coarse structure – Frank Condon Principle – **The Fortrat diagram – Pre-dissociation** - NMR spectroscopy – basic principles – chemical shift and spin-spin coupling – coupling constant – **chemical shift reagents.** ESR spectroscopy – basic principles – hyperfine splitting - Mass spectrometry – basic principles of mass spectrum – molecular peak, base peak, metastable peak – fragmentation – nitrogen rule – **determination of molecular formulae with examples – identification of alcohols, aldehydes, aromatic hydrocarbons.**

UNIT V – PHOTOCHEMISTRY

15

Classification of photochemical reactions – Characteristics of photochemical reactions – comparison with thermochemical reactions – Laws of photochemistry – quantum yield – examples of reactions of simple and high quantum yield – primary and secondary processes – photochemical chain reactions hydrogen-chlorine reaction – photolysis of aldehydes and ketones – actinometry - Photosensitization – chemiluminescence – photosynthesis – photodimerisation of anthracene. Fluorescence and phosphorescence – quenching of fluorescence and Stern-Volmer equation - **Interaction of high-energy radiation with matter – radiolysis of water – hydrated electron.**

REFERENCES

1. Physical and Theoretical Chemistry, C.D.George, P.M.Thomas and C.D.Joseph (1966).

2. Text Book of Physical Chemistry, P.L.Soni, O.P.Dharmara, U.N. Dash, Sultan Chand & Sons, New Delhi.
3. Principles of Physical Chemistry, B.R.Puri, L.R.Sharma, M.S.Pathania, Shoban Lal Nagin Chand & Co. New Delhi.
4. Physical Chemistry, P.W.Atkins, J.D.Paula, Oxford University Press, Oxford.
5. Physical Chemistry 3/e, G.W.Castellan, Narosa Publishing House, New Delhi.
6. Physical Chemistry 5/e, Ira N. Levine, Tata McGraw-Hill Publishing Co Ltd, New Delhi.
7. Chemical Kinetics 3/e, K.J.Laidler, Harper & Row, Publishers, New York.

Course Coordinator

HOD

BCI603	ELECTIVE – 2 – INDUSTRIAL CHEMISTRY						L	T	P	C	
	Total Contact Hours - 60						3	1	0	4	
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name &Department:- – Dr A. Manikandan / Chemistry										
COURSE OBJECTIVES:- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Rememberthe knowledge about the generation of energy from various types of fuels										
CO2	Understand about the chemicals in improvement of agricultural crops										
CO3	Understand about the methods employed for purification of water for industry and home										
CO4	Apply the detail about the Pollution occurring from various sources and resulting toxic effects										
CO5	Apply the importance of concepts involved in the pollutant technology										
CO6	Analyze the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Po s	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L				M		H		
	CO2	H	L				H				
	CO3	H	L				H				
	CO4	H	L				M				
	CO5	H	L				M				
	CO6	H	L				H				
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
						√					
4	Approv al		Academic Council Meeting								

Energy: Sources: non-renewable, classification of fuels: solid, liquid and gaseous. Calorific value of fuels and its determination - **Solid fuels:** Coal: types – properties and uses – lignite, sub-bituminous coal, bituminous coal and anthracite. **Coking and non-coking coal** - **Liquid fuels:** Refining of crude petroleum and uses of fractions. Hydrodesulphurisation. Cracking: thermal and catalytic (fixed bed and fluidised bed cataylsis). Octane number. Production and uses of tetraethyl lead, ETBE and MTBE - **Gaseous fuels:** Natural gas and gobar gas: production, composition and uses., **Gobar electric cell.**

UNIT-2: CHEMISTRY AND AGRICULTURE

15

Fertilizers: NPK, representation,superphosphate, triple superphosphate, uses of mixed fertilizers - Micronutrients and their role, biofertilizers, plant growth hormones – **Pesticides:** Classification of pesticides with examples - Insectides; stomach poisons, contact insecticides, fumigants. Manufacture and uses of insecticides. DDT, BHC (gammmaxane: Conformation of gamma isomer) pyrethrin - Mention of aldrin, dieldrin,endrin and pentachlorophenel (and its Na salts) and Biopesticides - **Herbicides: Manufacture of 2,4-D and 2,4,5-T** - Fungicides: Preparation of Bordeaux mixture. Mention of lime-sulphur, creosote oil and formula - **Sugar industry:** Double sulphitation process. Refining and grading of sugar. **Saccharin: synthesis and use as a sugar substitute** - aspartame. **Ethanol: manufacture from molasses by fermentation.**

UNIT-3: WATER TREATMENT

15

Introduction: Sources of water. Hardness of water-temporary or carbonate hardness, permanent hardness or non-carbonate hardness. Units of hardness, disadvantages of hard water – In domestic, in industry and in steam generation in boilers. Effect of iron and manganese in water - Estimation of hardness – EDTA method – Estimation of total hardness – **O. Hehner's method or alkali titration method** - **Water softening methods:** Industrial purpose Lime – soda process, Zeolite process; Ion-exchange - Demineralisation – deionization process. Mixed – bed deionization - Domestic purpose - Removal of suspended impurities. Removal of microorganism – Chlorination – Break point chlorination. Reverse osmosis. Desalination - Waste water treatment

UNIT-4:POLLUTION AND CHEMICAL TOXICOLOGY

15

Pollution: Air pollution - Acid rain. Green house effect (global warming), ozone layer depletion - photochemical oxidants. Control of air pollution. Water pollution – organic pollutants, Chemical oxygen demand (COD), Biological oxygen demand (BOD), total organic carbon. International standards for water and air quality and regulations - **Chemical toxicology: Effect of toxic chemicals on enzymes.** Lead, mercury and cyanide pollution and their biochemical effects. Carbon monoxide, sulfur dioxide, oxides of nitrogen, ozone – biochemical effects - **Quality control:** ISI specification. Patent: Purpose and procedures.

UNIT-5: SEMINAR TOPICS

15

Glass, Cement, Dyes, Paints, Special paints, Lubricants and greases, Refractories, **Abrasives**, Plastics, Perfumes and flavoring industries, Fermentation industries, Explosives, Pulp and paper industries, Rubber industries, Pharmaceutical industries, Food and food products industries, **Photographic product industries**, Ceramic industries, Petrochemicals.

REFERENCE BOOKS

1. Norris Shreve, R. and Joseph a. Brink, Jr. Chemical Process Industries, 4th Ed.;Mc Graw Hill Kogakusha, Ltd: 1977.
2. George t. Austin. Shreve's Chemical Process Industries, 5th Ed.; Mc Graw Hill: 1984.
3. Subba rao, n. S. Biofertilizers in Agriculture; Oxford and IBH Publishing Co.: New Delhi, 1982.
4. Jain, P. C. And Jain, M. Engineering Chemistry, 10th Ed.; Dhanpat Rai And Sons:Delhi, 1993
5. Kuriakose, j. C. And rajaram, j. Chemistry in Engineering and Technology. Vol 2.; Tata Mc Graw Hill: New Delhi, 1988.
6. Stanley E. Mahanen, Jugal, Kishore, Agrawal,Practicals in Engineering Chemistry; Oxford and IBH Publishing Co., New Delhi, 1976.

Course Coordinator

HOD

BCI603	ELECTIVE – 2 – FOOD CHEMISTRY AND TECHNOLOGY					L	T	P	C		
	Total Contact Hours - 60					4	0	0	4		
	Prerequisite course – Chemistry / Physics / Mathematics Studied in Higher Secondary studies										
	Course Coordinator Name &Department:- Dr G. Padmapriya / Chemistry										
COURSE OBJECTIVES:- To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understands thoroughly.											
COURSE OUTCOMES (COs)											
CO1	Rememberthe knowledge about the Introduction of Food Chemistry										
CO2	Understand about the chemicals in constituents of food										
CO3	Understand about the methods employed for introduction of food additives										
CO4	Apply the detail about the Nutrition and Balanced Diet										
CO5	Apply the importance of concepts Food Adulteration And Hygiene										
CO6	Analyze the real time applications of Chemistry in day today life.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L				M		H		
	CO2	H	L				M				
	CO3	H	L				M				
	CO4	H	L				H				
	CO5	H	L				M				
	CO6	H	L				M				
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
						√					
4	Approval		Academic Council Meeting								

UNIT I: INTRODUCTION

15

Food: source, functions of food – food groups – food guide – basic five food groups,

usage of the food guide – food in relation to health – objectives of cooking - **Water:** Purification processes – Ion exchangers, reverse osmosis, activated charcoal treatment. Use of chlorination, ozone, and UV light disinfection. Specification of drinking water. Water borne diseases – microbiological examination. Sources and detection - **Milk:** Composition and effectiveness as a diet. Fat content in milk, whole and skimmed - Effect of cooking and heat processing of milk – pasteurization. Preservation of milk - Deep freeze preservation, dairy products – cheese, butter, ghee and kova. Spray drying technique – milk powder, infant food preparation. **Lactose intolerance Milk substitutes – vegetable milk. Toned milk.**

UNIT 2: CONSTITUENTS OF FOODS

15

Proteins: amino acids – peptides – proteins, modification of food products through heat processing .Effect of cooking – steaming or cooking under pressure of legumes - Enzymes: Nomenclature, classification – Apo, holo and coenzymes. Enzymes used in food processing - **Carbohydrates:** Classification, structure and reactions of monosaccharides, glucose, fructose, structure of sucrose, maltose, lactose and starch. **Artificial sweetening agents.**

UNIT 3: FOODS AND FOOD ADDITIVES:

15

Food additives: Artificial sweeteners – saccharin, cyclamate, aspartame – food flavours – esters, aldehydes and heterocyclic compounds. Antioxidants. Food colours – changes in cooking..Restricted use. Spurious colours. **Emulsifying agents, preservatives – leavening agents.**Baking powder –Yeast. Taste enhancers – MSG-vinegar - **Modern food:** Mushroom cultivation and types, spirulina composition. Snack foods - Production of bread, bun and biscuits. Raw materials, methods and machinery required - Candy manufacturing. Caramellisation. Fast foods. Instant foods. Dehydrated foods - Oleoresin of spices. Condiments.

UNIT 4: NUTRITION AND BALANCED DIET

15

Nutrition – calorific value of food stuff – RQ of food (Respiratory quotient of food) – basal metabolic rate – factors influencing BMR, specific dynamic action (SDA) of food - **Thermogenic effect** – energy requirements of individuals – diet and its components – theprotein requirements – biological value of proteins, supplementary value of proteins. Diseases associated with protein malnutrition - Nutritional value of carbohydrates. – Fibers in the diet, dietary sugars – nutritional aspects of lipids.

UNIT I: FOOD ADULTERATION AND HYGIENE

15

Adulterants: Common adulterants in different foods – milk and milk products, vegetableoils, and fats, spices and condiments, cereals, pulses, sweetening agents and beverages. Contamination with toxic chemicals – pesticides and insecticides. **Principles involved in the analysis of detection and prevention of food adulteration -** **Microbial growth:** growth curve of bacteria. Effect of environmental factors on growth of microorganisms. pH, water activity, oxygen availability temperature – beneficial effect of micro organisms Food borne illness – bacteria, virus, moulds and parasites. (Any two illness each) - **Food preservation and processing** :Food deterioration, methods of preservation and processing - **Quality control:** Specifications and standards: PFA, FPO, FDA, drug license, WHO standards, ISI specifications, packing and label requirements, essential commodities act, consumer protection act. AGMARK.

REFERENCE BOOKS

1. Swaminathan M. Advanced Text Book on Food and Nutrition ,Volume I and II Printing and Publishing Co., Ltd., Bangalore. 1993.
2. Norman N. Potter ,Food Science, CBS Publishers And Distributors, New Delhi. 1994.
3. Lillian Hoagoland Meyer, Food Chemistry, CBS Publishers And Distributors, New Delhi.1994.
5. Owen R Fennema, Food Chemistry, Marcel Decker Inc., New York. 1996.
6. Srilakshmi B., Food Science, New Age International Pvt. Ltd. Publishers, III Ed. 2003.
7. Ramakrishnan S., Prasannam K.G and Rajan R–Principles. Text book of Medical Biochemistry. Orient Longman ltd. Iii ed. 2001.
8. Shakuntala Manay N. And Shadaksharaswamym. Foods: Facts and Principles. New Age International Pvt. Ltd. Publishers, II Ed. 2002.

Course Coordinator

HOD

BCI 6P1	PROJECT (DISSERTATION AND VIVA-VOCE)						L	T	P	C	
	Total Contact Hours – 45						0	0	20	10	
	Prerequisite course – Chemistry										
	Course Coordinator Name & Department: Dr. A. Manikandan/Chemistry										
COURSE OBJECTIVES:- To facilitate the students to understand the current scenario in science and technology and to present the research report on their findings as per the acceptable format.											
COURSE OUTCOMES (COs)											
CO1	Rememberthe concept and objectives, nature, types and methods of project.										
CO2	Understand the process and steps involved in preparation of project work, research gap										
CO3	Understand the research design, and methodology , sampling techniques & sampling design										
CO4	Apply the statistical tools in the project for data analysis										
CO5	Create the major findings, suggestions and conclusion										
CO6	Analyze the model for project report.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						L	M	H
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
					✓						
4	Approval		Academic Council Meeting								

PROJECT (DISSERTATION AND VIVA-VOCE)

10

The project topics are to be finalized to the students at the end of the second semester with a time schedule to carry out various stages of work. During the semester vacation, the data

Collection may be commenced. The theme selected by each student for the Dissertation should be related to various methodologies and techniques pertaining to Science and technology.. Each candidate should submit three copies of dissertation as per the guidelines to the department concerned.

Marks	
Dissertation	150
Viva- Voce Examination	50

Course Coordinator

HOD

BBA011	BUSINESS PROCESS OUTSOURCING- MANAGEMENT						L	T	P	C	
	Total Contact Hours– 30						2	0	0	2	
	Prerequisite course – Higher Secondary Level										
	Course Coordinator Name& Department:- Ms.D.K.Sowmiyalaskshmi,BBA										
COURSE OBJECTIVES:- • To familiarize the students with the basic fundamentals of BPO. • To impart knowledge on type of BPO and call centers . • To enable the students onthe conceptHealthcare BPO & Transaction BPO. • To peep into the concept of Human Resource BPO and the career opportunities in BPO.											
COURSE OUTCOMES(COs)											
CO1	Describe the basic fundamentals of BPO.										
CO2	Discuss and develop the awareness about Types of BPOs and Call Centers										
CO3	Identify the concept of Health care BPOs										
CO4	Examine the concept of Transaction BPOs										
CO5	Develop the confidence in Human Resource BPO and career opportunities in BPOs										
CO6	Formulate the Types of Transaction Processing BPO in India										
Mapping of Course Outcomes with Program outcomes (POs) (H/M/L indicates strength of correlation) H-High, M-Medium, L-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H							H		
	CO2				H						
	CO3			H							
	CO4		M								
	CO5	M									
	CO6		H								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
4	Approval	Academic Council Meeting									

UNIT-I **6**

Business Process Outsourcing– Basics – Benefits of BPO– BPO companies in India.

UNIT-II **6**

BPO Industry – Employment Opportunities– types of BPO – Call centers– Types of Call Centers–
Issues and Problems.

UNIT-III **6**

Health Care-BPO - Structure of foreign Health Care sector– Future Trends and Threats.

UNIT-IV **6**

Transaction Processing BPO– Elements of Back Office services– Types of Transaction Processing
BPO in India.

UNIT-V **6**

Human Resource BPO-Reasons for outsourcing HR– Activities involved in HR BPO– HR Outsourcing Trends– Career in HR BPO.

Text Books:

1. John K. Holvey, Borboro Murphy Melby, Business Process Outsourcing–Wiley Publisher-2007
2. Sarika Kulkarni –Business Process Outsourcing–Jai co Publishing house – 2005
3. .Rick L. Click, Thomas N. Duening, Business Process Outsourcing–John Willey & sons, Publisher 2004

Reference Books:

1. Deepak Shikapur – BPO DIGEST– Ameya (Inspiring books) – 2004.
2. Clifton – System analysis for business data processing– Prentice hall Publications.
3. Anandkumar, V. & Biswas, S., 2008. Business Process Outsourcing, Sage Publications Pvt. Ltd

Course Coordinator

HOD

BBE002	DESKTOP PUBLISHING						L	T	P	C	
	Total Contact Hours – 30						2	0	0	2	
	Prerequisite course – Higher Secondary Level										
	Course Coordinator Name & Department :- N.Mathimagal & BCA										
COURSE OBJECTIVES:- The learner will have the knowledge about the use of Computer Hardware and basic Software											
COURSE OUTCOMES (COs)											
CO1	Gain knowledge of basic concepts of Computer Hardware and basic Software										
CO2	Analyze the use of Netscape to access the Course Home Page and Tips and Tricks. .										
CO3	Discuss the basic Principles and development of publishing and printing.										
CO4	Identify the basic Knowledge and operations of a prepress computer system										
CO5	Demonstrate the typography.										
CO6	Test real time application using a basic concept.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PS O 1	PS O 2	PS O 3
2	CO1	H	L						H		
	CO2	M	L								
	CO3	H	-								
	CO4	H	L								
	CO5	M	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)	
									✓		
4	Approval	Academic Council Meeting									

DESKTOP PUBLISHING

UNIT-1

Classification of Computer Hardware and basic Software. Different Hardware and Software with• their uses. Types of Software i.e. System, - Application etc. Different types of Input & Output devices. Workshop safety and environmental awareness - Principles and development of publishing and printing - Desktop publishing.

UNIT-2

Knowledge and operations of a prepress computer system – Typography - Image processing.

UNIT -3

Finished art work - Other related processes – Case Study.

REFERENCE BOOKS:-

1. G. Dalin. M. Sc software engineering, HSI PUBLICATIONS

CourseCoordinator

HOD

BCA001	COMPUTER APPLICATION						L	T	P	C	
	Total Contact Hours – 30						2	0	0	2	
	Prerequisite course – Higher Secondary Level										
	Course Coordinator Name &Department :- N.Mathimagal& BCA										
COURSE OBJECTIVES:- The learner will have the knowledge about the basic operations of a computer system, computer applications software, input, and output and storage devices.											
COURSE OUTCOMES (COs)											
CO1	Define the Characteristics, History, Classification, Personal Computers and Applications.										
CO2	Demonstrate understanding of the basic operations of a computer system.										
CO3	Explain the principles of operations of computer systems used in a particular application, specifically in terms of the systems' hardware and software components.										
CO4	Discuss the various types of Processors, Input and Output devices, OS & DOS command.										
CO5	Identify the suitable Storage Devices and Software’s to solve the problem.										
CO6	Use computer applications software to solve problems.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO2	PS O3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	-								
	CO4	H	L								
	CO5	M	-								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)	
									✓		
4	Approval	Academic Council Meeting									

COMPUTER APPLICATION

UNIT-I:-

Brief History of Development of Computers ,Computer System Concept, Computer System Characteristics ,Capabilities and Limitations, Types of Computers-.,Personal Computer (PCs) - IBM PCs, Types of PCs- Desktop, Laptop, Notebook, Palmtop, etc. Basic Components of a Computer System - Control Unit, ALU, Input/Output semiconductor Memory.Storage fundamentals - Primary Vs Secondary memory.

UNIT-II:-

Input Devices :Keyboard, Mouse, Joystick, Scanners, Digital Camera, MICR,OCR, OMR, , Light pen, Touch Screen. Output Devices Monitors - Characteristics and types of monitor, Size, Resolution, Refresh Rate, Dot Pitch, Video Standard - VGA, SVGA, XGA etc. Printers

- Daisy wheel, Dot Matrix, Inkjet, Laser. Plotter, Sound Card and Speakers.

UNIT-III:-

Various Storage Devices - Magnetic Disks, Hard Disk Drives, Floppy, Disks, Optical Disks, Computer Software ,Need, Types of Software's - System software, Application software System Software - Operating System, compiler ,Assemblers, Interpreter .

TEXT & REFERENCE BOOKS:-

1. Computers today by S.K. Basandra, Galgotia Publications.
2. Fundamentals of Information Technology by Alexis Leon & Mathews LEON, Vikas publishing house, New Delhi.
3. Dos quick reference by Rajeev Mathur, Galgotia Publications.

Course Coordinator

HOD

BCA002	GRAPHICAL AND WEB DESIGNING					L	T	P	C		
	Total Contact Hours - 30					2	0	0	2		
	Prerequisite course – Nil										
	Course Coordinator Name &Department :- Jennifer P. & CS										
COURSE OBJECTIVES :- To gain knowledge in basic web designing concepts.											
COURSE OUTCOMES (COs)											
CO1	Remember the web basics and graphic design.										
CO2	Understand the design principle.										
CO3	Analyze the color theory and typography.										
CO4	Apply the basic principle and drawing design.										
CO5	Implement the communication design and layout techniques										
CO6	Illustrate a real time application using image processing concept.										
Mapping of Course Outcomes with Program outcomes (POs) (H/M/L indicates strength of correlation) H-High, M-Medium, L-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO2	PSO3
2	CO1	H	L							H	
	CO2	H	L								
	CO3	H	L								
	CO4	H	-								
	CO5	M	L								
	CO6	H	L								
3	Category	Part 1 Tamil/Linguistic Study	Part II Linguistic English	Part III Core	Part IIISubstream	Part III Project	Part IV Basic/ Advanced Tamil/ EVS/VE/ SBE/ Soft Skill	Part V Extension Activity			
							✓				
4	Approval	Academic Council Meeting									

GRAPHICAL AND WEB DESIGN

Unit-1:-

Introduction to Graphic Design – Drawing – Design Principle.

Unit -2:-

Color theory – Typography – Idea Generation.

Unit -3:-

Stylisation – Communication Design – Lay outing Techniques – Image Processing – Page Layouting.

Reference Books:-

1. Computer Graphics: Principles and Practice in C, by J. D. Foley, A. Van Dam, S. K. Feiner, J. F. Hughes. Addison-Wesley, 2nd ed

Course Coordinator

HOD

BCA003	MULTIMEDIA						L	T	P	C	
	Total Contact Hours – 30						2	0	0	2	
	Prerequisite course – Higher Secondary Level										
	Course Coordinator Name &Department :- N.Mathimagal& BCA										
COURSE OBJECTIVES:- The learner will have the knowledge about the principles of different types of media and able to identify the proper applications of multimedia, how multimedia can be used in various application areas, and evaluate the appropriate multimedia systems and develop effective multimedia applications.											
COURSE OUTCOMES (COs)											
CO1	Gain knowledge of basic concepts of multimedia										
CO2	Analyze the multimedia application problems.										
CO3	Discuss the Video capturing, Sound capturing, editing concepts.										
CO4	Identify the basic multimedia design principles.										
CO5	Demonstrate the multimedia system and Design Process										
CO6	Test real time application using a multimedia concept.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PS O 1	PS O 2	PS O3
2	CO1	H	L						H		
	CO2	M	L								
	CO3	H	-								
	CO4	H	L								
	CO5	M	L								
	CO6	H	L								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)	
											✓
4	Approval	Academic Council Meeting									

MULTIMEDIA

UNIT-1:-

Multimedia Fundamentals: Define the concept of multimedia, fundamental criteria for the design of a multimedia presentation, multimedia application goals & objectives, opportunities in multimedia production, Role of multimedia development team members, avoiding problems in planning a multimedia application.

UNIT-2:-

Multimedia Building Blocks: Text, Graphics, video capturing, Sound capturing, editing. Basic design principle: proximity, visual hierarchy, Symmetry / Asymmetry, Repetition, unity, Contrast, dynamics, Emphasis, Multimedia Authoring tools.

UNIT-3 :-

Design, Development and evaluation of multimedia a system: The development of user interface design, Design Process,

Reference Books:-

1. John Villamil-Casanova, Louis Molina, An introduction to multimedia.
2. Mohammad Dastbaz, Designing Interactive Multimedia Systems.
3. Bohdan O. Szuprowicz, Multimedia Networking.
4. Stephen McGloughlin, Multimedia on the web.

Course Coordinator

HOD

BCA004	NETWORKING AND MAINTENANCE						L	T	P	C	
	Total Contact Hours - 30						2	0	0	2	
	Prerequisite course – Computer Science / Mathematics Studied in Higher Secondary Studies.										
	Course Coordinator Name &Department :- E.Srimathi/CS										
COURSE OBJECTIVES :- Learners familiar with the basic concepts of Microprosser, Controller, Server and to demonstrate the traditional imperative design of CPUs, cards,PCs and BIOS.											
COURSE OUTCOMES (COs)											
CO1	Design the structure of Micro Processor and PCs and CPUs										
CO2	Understand the structure of PC architecture and the study of various PCs										
CO3	Understand the Basics of Processor										
CO4	Study the Computer Organisation& Operating Systems(Windows And Linux) Types Of Computer										
CO5	Working with Background And Number System										
CO6	Used to develop the Backups, Switches Routers, BIOS, Floppy Disk and zip Driver										
Mapping of Course Outcomes with Program outcomes (POs) (H/M/L indicates strength of correlation) H-High, M-Medium, L-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO2	PSO 3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	M	L								
	CO5	H	-								
	CO6	H	L								
3	Category	Part 1 Tamil/Linguistic Study	Part II Linguistic English	Part III Core	Part IIISubstream	Part III Project	Part IV Basic/ Advanced Tamil/ EVS/VE/ SBE/ Soft Skill	Part V Extension Activity			
											
4	Approval	Academic Council Meeting									

NETWORKING AND MAINTENANCE

UNIT -1 :- COMPUTER HARDWARE

Computer Organizations and Operating Systems (Windows and Linux) , Basic Electrical Engineering and Electronics , Microprocessors , Computer Hardware , Internet and Viruses ,

Principles of Data Communication & Network Maintenance , Digital Fundamentals , Computer Assembling and Software Installations , Hardware Lab , Project

UNIT -2:- COMPUTER ORGANISATION & OPERATING SYSTEMS(WINDOWS AND LINUX)TYPES OF COMPUTER

Analog, Digital, and Hybrid type, Hardware, Software, System software, Application software, Stored Program Concept and Von Newman Architecture, Firm ware, Human ware, Stored Program Concept, Evolution of computers, Generation of computer.

UNIT-3: - BACKGROUND AND NUMBER SYSTEM

Information Representation and Codes, Data Types, Complements, Addition and Subtraction of Binary Numbers, Fixed Point and Floating Point Representation, Octal and Hexadecimal System , Conversion of Number Systems, Alpha Numeric Codes – ASCII & EBCDIC, Error Detection Codes, Building Blocks of Computers, Combinational Blocks (Gates, Multiplexes, Decoders, Encoders etc.), Sequential Building Blocks (Flip Flops, Registers, Counters, Random Access Memory, etc.)

Reference Books:

1. IBM PC and CLONES, B.Govindrajalu, Tata McGrawhill Publishers, IBM PC and CLONES.
2. Computer Installation and Servicing, D.Balasubramanian, Tata McGraw Hill.
3. Computer Installation and Servicing.
4. The complete PC upgrade and Maintenance, Mark Minasi, BPB Publication, The complete PC upgrade and Maintenance.
5. Troubleshooting, Maintaining and Repairing PCs, Stephen J Bigelow ,TataMCGraw Hill Publication ,Troubleshooting Maintaining and Repairing PCs.

Course Coordinator

HOD

BCA006	WEB DESIGNING						L	T	P	C	
	Total Contact Hours – 30						2	0	0	2	
	Prerequisite course – Higher Secondary Level										
	Course Coordinator Name &Department:-V.Ramya& BCA										
COURSE OBJECTIVES: - To gain knowledge in basic web designing concepts.											
COURSE OUTCOMES (COs)											
CO1	Define the web basics and server side scripting.										
CO2	Execute the HTML coding and linking process.										
CO3	Analyze the hyperlinks and special characters.										
CO4	Relate the Embedded Style Sheets & Linking External Style Sheets.										
CO5	Use the backgrounds and user style sheets.										
CO6	Test real time application using web designing concept.										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PS O1	PS O2	PS O3
2	CO1	H	L							H	
	CO2	M	L								
	CO3	H	-								
	CO4	H	-								
	CO5	H	-								
	CO6	H	-								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)	
4	Approval	Academic Council Meeting									

WEB DESIGNING

UNIT -1

Introduction, Syllabus, Calendar, Terminology, Files and Folders, Purchasing Domain/Hosting, Remote Hosting, FTP, HTML basics, Starting a Website, HTML Coding

UNIT-2

Terminology, Starting a Website, HTML Coding

UNIT-3

HTML Coding, Wireframe, Website Design/Development, FTP, Basics of CSS Coding, CSS Coding, Internal CSS

Reference Books:-\

1. Blanck, Peter. *eQuality: The Struggle for Web Accessibility by Persons with Cognitive*
2. *Disabilities*, Cambridge Disability Law and Policy Series, 2015.
3. Burgstahle, Sheryl. *Universal Design in Higher Education: From Principles to Practice*, Harvard Education Press, 2008.
4. Byrne, Jim. *60 hot to touch Accessible Web Design tips – the tips no web developer can live without*, Jim Byrne, 2006, (ISBN: 978-1-4116-6729-7).
5. Chisholm, and May. *Universal Design for Web Applications: Web Applications That Reach Everyone*, O'Reilly Media, 2008.
6. Clark, Joe. *Building Accessible Websites*, New Riders Publishing, 2002.

Course Coordinator

HOD

BSC001	ANIMATION						L	T	P	C									
	Total Contact Hours – 30						2	0	0	2									
	Prerequisite course – Higher Secondary Level																		
	Course Coordinator Name &Department :- N.Mathimagal& BCA																		
COURSE OBJECTIVES:- The learner will have the knowledge about the use of animation, digitized sound, video control, and scanned images.																			
COURSE OUTCOMES (COs)																			
CO1	Gain knowledge of basic concepts of Animations																		
CO2	Analyze the use of Netscape to access the Course Home Page and Tips and Tricks. .																		
CO3	Discussthe basic instructional design principles in the development of stacks..																		
CO4	Identify the basicFormulate a working definition of interactive multimedia.																		
CO5	Demonstrate the competence in using the authoring program Hyper Studio.																		
CO6	Test real time application using a basic concept.																		
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low																			
1	COs/Pos	PO1	PO2	PO3		PO4		PO5		PO6	PO7	PS O 1	PS O 2	PS O3					
2	CO1	H	L									H							
	CO2	M	L																
	CO3	H	-																
	CO4	H	L																
	CO5	M	L																
	CO6	H	L																
3	Category	Humanities & Social Studies (HS)		Basic Sciences (BS)		Engg Sciences (ES)		Professional Core (PC)		Core Elective (CE)		Non-Major Elective (NE)		Open Elective (OE)		Any other		Project/Term Paper/ Seminar/ Internship(PR)	
																✓			
4	Approval	Academic Council Meeting																	

ANIMATION

UNIT - 1

INTRODUCTION:

Elements of Information Technology - Introduction to Programming Languages - Basics of Animation.-Foundation Art. -Computer Based 2D Animation. - Multimedia & Computer Graphics. Introduction to 3D Animation & Modeling- Introduction to Mass Communication & Media Literacy

UNIT - 2

3-D Animation-I.- Production Process-I. - Multimedia-I. - Composing and Editing. - Color Theory.

UNIT- 3

Script Writing-I. - Content Development Direction-I. - Gaming Technology - Digital Editing and Motion Graphics-I. - Visual Effects-I. - V.F.X.-I.

REFERENCE BOOKS :

1. Introduction to mass Communication : Medial Literacy & Culture By Stanley Baran
The Tata McGraw Hill
2. The Media in your life - By Jean Folkerts& Stephen Lacy by Pearson Publications.

Course Coordinator

HOD

BSC002	COMPUTER HARDWARE AND NETWORKING					L	T	P	C		
	Total Contact Hours – 30					2	0	0	2		
	Prerequisite course – Higher Secondary Level										
	Course Coordinator Name &Department :- Ms.K.HemaLakshmi / CS										
COURSE OBJECTIVES :- Learners familiar with the basic concepts of Microprocessor,Controller, Server and to demonstrate the traditional imperative design of CPUs,cards,PCsand BIOS.											
COURSE OUTCOMES (COs)											
CO1	Define the structure of Micro Processor and PCs and CPUs										
CO2	State the structure of PC architecture and the study of various PCs										
CO3	Describe the basics of Processor										
CO4	Study the CPU,Chips,Processor and Controllers										
CO5	Examine the working of Internal Components cards and Higher Level Processor										
CO6	Relate the Backups,SwitchesRouters,BIOS,Floppy Disk and zip Driver										
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low											
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PS O2	PS O3
2	CO1	H	-						H		
	CO2	H	L								
	CO3	H	L								
	CO4	M	-								
	CO5	H	L								
	CO6	M	-								
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)	
									✓		
4	Approval	Academic Council Meeting									

COMPUTER HARDWARE AND NETWORKING

UNIT-1

Microprocessor System Introduction of System overview, Introduction to Processors, Memory Interfacing, Interfacing I/O Devices, Interfacing Data Converters, Display Interface, Serial I/O and Data Communication, Higher level Processors

UNIT - 2

Introduction to PC Architecture Study of PC-AT/ATX System, Pentium, Core, Core 2 Cored, Core 2 Duo, I3, I5, I7 Processor Basics of Processor and CPU Block Diagram of Computer and Computer Generation Motherboards, Chipset and Controllers, BIOS and the Boot Process, Computer Memory.

UNIT-3

Internal Components IDE and SATA Devices: Hard Disk Drive and CD/DVDs Drives, SCSI Devices, Floppy Disk, Zip Drive, Backup Drive, Expansion Cards- LAN Card, IDE Card, VGA and SVGA Cards, Sound Card, Interface Cards, I/O cards, Video Cards, USB Card, Fire-Wire Cards, Internal Ports, Cables and Connector Types. Introduction of Network Cable like UTP, STP, Fiber Optics, Hub, Unmanageable Switch, Manageable Switch, Router, Modem, Wi-Fi, Access Point, PCI Wireless Card, USB Wireless Device, Print Server, USB Network Sharer, Backup Device, Server Hardware etc.

Reference Book:

1. Microprocessor Architecture Programming and Application with the 8085 Ramesh Gaonkar Penram International Publication.
2. Electronics and Radio Engineering M.L. Gupta Dhanpatrai & Sons, New Delhi.
3. PC AND CLONES Hardware, Troubleshooting and Maintenance B. Govindarajulu, Tata Mc-graw-Hill Publication.
4. PC Troubleshooting and Repair Stephen J. Bigelow Dream tech Press, New Delhi

Course Coordinator

HOD

BSC003	COMPUTER PROGRAMMING					L	T	P	C	
	Total Contact Hours – 30					2	0	0	2	
	Prerequisite course – Higher Secondary Level									
	Course Coordinator Name &Department :- Ms.K.HemaLakshmi/ CS									
COURSE OBJECTIVES :-										
Learners will be familiar with the programming language C, Algorithm,and Design the flowchart and implement the programs using the concept such asFunctions,Pointers and Strings.										
COURSE OUTCOMES (COs)										
CO1	Apply and Write the clear, structure and Looping of elementary C programs.									
CO2	Explain algorithmic thinking and apply it to programming.									
CO3	Describe problem-solving techniques.									
CO4	Ability to use C with Various operators Expressions and Decision making control.									
CO5	Write Code using Arrays with single dimensions, Two dimensions and Multidimensional and Various Strings operations									
CO6	Examine programs using Functions, Pointers, Structures and Union									
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low										
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
2	CO1	H	-						H	
	CO2	H	L							
	CO3	H	L							
	CO4	H	-							
	CO5	M	L							
	CO6	H	-							
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)
									✓	
4	Approval	Academic Council Meeting								

COMPUTER PROGRAMMING

UNIT-1:-

INTRODUCTION:-

Generation and Classification of Computers – Basic organization of a Computer – Number System – Binary – Decimal – Conversion – Problems. Need for logical Analysis and thinking algorithm – Pseudo code – Flow Chart.

UNIT-2:-

PROGRAMMING BASICS:-

Problem formulation – Problem solving – introduction to “C” programming – Fundamentals – structure of C Program – compilation and linking processes – Constants, Variables – Data Types – Expressions using operators in C- Managing input and output operations – Decision making and Branching – Looping Statements – Solving simple scientific and statistical problems.

UNIT -3:-

ARRAYS, STRINGS, FUNCTIONS AND STRUCTURES:-

Arrays – Initialization – Declaration – One Dimensional and Two Dimensional Arrays – String – String Operations – String Arrays. Simple programs – sorting – searching – matrix operations. Function – definition of function – declaration of function – Recursion – pointers – pointer and arrays – example problems – need for structure data type – structure definition – structure declaration – structure within a structure – union - storage classes, pre-processor directives.

Text Books:-

1. Anita Goel and Ajay Mittal, “Computer Fundamentals and programming in C”, Dorling Kindersley (India) Pvt Ltd., Pearson Education in South Asia 2011.
2. Pradip Dey, Manas Ghosh, “fundamentals of computing and programming in c”, First edition, Oxford University Press, 2009.
3. Yashavant P. Kanethar, “Let Us C”, BPB Publications, 2011.

Reference Books:-

1. Byron S Gottfried, “ Programming with C”, Schaum’s Outlines, Second Edition, Tata McGraw-Hill 2006.
2. Dromey R.G., How to Solve it by Computer”, Pearson Education, Fourth Reprint, 2007.
3. Kernighan., B.W and Ritchie, D.M, “ The C Programming Language”, Second Edition, Pearson Education, 2006.

Course Coordinator

HOD

BSC004	COMPUTER TECHNOLOGY					L	T	P	C	
	Total Contact Hours – 30					2	0	0	2	
	Prerequisite course – Higher Secondary Level									
	Course Coordinator Name &Department :- Ms.K.HemaLakshmi/ CS									
COURSE OBJECTIVES :-										
Learners will be Explore and demonstrate knowledge of how to maintain computer equipment and solvecommon hardware problems										
COURSE OUTCOMES (COs)										
CO1	Design, implement and evaluate computer technologies.									
CO2	Think critically, creatively and analytically in developing technological solutions to simpleand complex problems. .									
CO3	Plan, analyze, design and construct information systems to identified specifications.									
CO4	Ability to efficient code in the relevant programming language(s). .									
CO5	Evaluate, and use computer software. Use software tools for creating, finding, organizing, and communicating information.									
CO6	Work effectively as a team member to achieve a common stated goal.									
Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low										
1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
2	CO1	H	-						H	
	CO2	H	L							
	CO3	H	L							
	CO4	H	-							
	CO5	M	L							
	CO6	H	-							
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)
									✓	
4	Approval	Academic Council Meeting								

COMPUTER TECHNOLOGY

UNIT - 1

Digital Logic: Logic functions, Minimization, Design and synthesis of combinational and sequential circuits; Number representation and computer arithmetic (fixed and floating point).

Computer Organization and Architecture: Machine instructions and addressing modes, ALU and

data-path, CPU control design, Memory interface, I/O interface (Interrupt and DMA mode), Instruction pipelining, Cache and main memory, Secondary storage. Programming and Data Structures: Programming in C; Functions, Recursion, Parameter passing, Scope, Binding; Abstract data types, Arrays, Stacks, Queues, Linked Lists, Trees, Binary search trees, Binary heaps

UNIT - 2

Algorithms: Analysis, Asymptotic notation, Notions of space and time complexity, Worst and average case analysis; Design: Greedy approach, Dynamic programming, Divide-and-conquer; Tree and graph traversals, Connected components, Spanning trees, Shortest paths; Hashing, Sorting, Searching. Asymptotic analysis (best, worst, average cases) of time and space, upper and lower bounds, Basic concepts of complexity classes – P, NP, NP-hard, NP-complete.

UNIT -3

Theory of Computation: Regular languages and finite automata, Context free languages and Push-down automata, Recursively enumerable sets and Turing machines, Undecidability. Compiler Design: Lexical analysis, Parsing, Syntax directed translation, Runtime environments, Intermediate and target code generation, Basics of code optimization. Operating System: Processes, Threads, Inter-process communication, Concurrency, Synchronization, Deadlock, CPU scheduling, Memory management and virtual memory, File systems, I/O systems, Protection and security. Databases: ER-model, Relational model (relational algebra, tuple calculus), Database design (integrity constraints, normal forms), Query languages (SQL), File structures (sequential files, indexing, B and B+ trees), Transactions and concurrency control.

Reference Books:

1. A First Course in Computers” by Sanjay Sexena.
2. Computer Organization and Architecture – Carl Hamcher&SafatZaky.
3. Computer Architecture and Organization – J. P. Hayes.

Course Coordinator

HOD