HOLY CROSS COLLEGE (AUTONOMOUS), TIRUCHIRAPPALLI-2
DEPARTMENT OF BIOCHEMISTRY
CHOICE BASED CREDIT SYSTEM
UG COURSE PATTERN- B. Sc., BIOCHEMISTRY
FOR CANDIDATES OF 2014– 2015 BATCH

Semester	Part	Course	Title of the course	CODE	Hrs / Week	Credits	Marks
I	I	Language	Tamil Paper I/ Hindi Paper I / French Paper I	U14TL1TAM01 U14HN1HIN01 U13FR1FRE01	6	3	100
	II	English	English Paper I	U10EL1GEN01	6	3	100
	III	Major Core 1	Fundamentals for Biochemistry (theory cum lab)	U14BC1MCT01	7	5	100
		Allied 1	Food and Nutrition	U14BC1ACT01	4	4	100
		Allied 2	Nutrition and Dietetics Practicals	U14BC1ACP02	4	3	100
	IV	Environmental studies	Environmental studies	U14RE1EST01	2	2	100
		Value Education	Ethics/Bible Studies/Catechism	U12VE2LVE01 U12VE2LVB01 U12VE2LVC01	1	-	-

Semester	Part	Course	Title of the course	CODE	Hrs / Week	Credits	Marks
II	I	Language	Tamil Paper II/ Hindi Paper II/ French Paper II	U14TL2TAM02 U14HN2HIN02 U13FR2FRE02	5	3	100
	II	English	English Paper II	U10EL2GEN02	6	3	100
	III	Major Core2	Chemistry of Biomolecules	U14BC2MCT02	5	5	100
		Major Core 3	Cell and Developmental Biology	U14BC2MCT03	5	4	100
		Allied 3	Dietetics	U14BC2ACT03	4	3	100
	IV	Skill Based Elective– 1	Soft Skill Development	U14RE2SBT01	2	2	100
		Skill Based Elective– 2	Rural Enrichment and Sustainable Development	U14RE2SBT02	2	2	100
		Value Education	Ethics/Bible Studies/Catechism Empowerment of Women	U12VE2LVE01 U12VE2LVB01 U12VE2LVC01	1	1	100

Semester	Part	Course	Title of the course	CODE	Hrs / Week	Credits	Marks
III	I	Language	Tamil Paper III / Hindi Paper III / French Paper III	U14TL3TAM03 U14HN3HIN03 U14FR3FRE03	6	3	100
	II	English	English Paper III	U10EL3GEN03	6	3	100
	III	Major Core 4	Analytical Biochemistry	U14BC3MCT04	5	5	100
		Major Core 5	Practicals – I (Analysis of Biomolecules)	U14BC3MCP05	5	5	100
		Allied 4	Allied Optional Paper- I	U14BC3AOT04	4	3	100
	IV	Skill Based Elective-3	Pain Relief Formulations & Cosmetics	U14BC3SBP03	2	2	100
		Gender Studies	Gender Studies	U12WS3GST01	1	1	100
		Value Education	Ethics/Bible Studies/Catechism	U12VE4LVE02 U12VE4LVB02 U12VE4LVC02	1	-	100

Semester	Part	Course	Title of the course	CODE	Hrs / Week	Credits	Marks
IV	I	Language	Tamil Paper IV / Hindi Paper IV / French Paper IV	U14TL4TAM04 U14HN4HIN04 U14FR4FRE04	5	3	100
	II	English	English Paper IV	U13EL4GEN04	6	3	100
	III	Major Core 6	Enzymes	U14BC4MCT06	5	5	100
		Major	Human Physiology /	U14BC4MET01/	5	5	100
		Elective 1	Biophysical Chemistry	U14BC4MET02			
		Allied 5	Allied Optional Paper II Microbiology Applied	U14BC4AOT05	4	4	100
		Allied 6	Allied Optional Paper III Microbiology Applied	U14BC4AOP06	4	3	100
	IV	Value Education	Ethics/Bible Studies/Catechism	U12VE4LVE02 U12VE4LVB02 U12VE4LVC02	1	1	100

Semester	Part	Course	Title of the course	CODE	Hrs / Week	Credits	Marks
V	III	Major Core 7	Intermediary Metabolism	U14BC5MCT07	5	4	100
	III	Major Core 8	Genetics and Molecular Biology	U14BC5MCT08	5	4	100
	III	Major Core 9	Immunology	U14BC5MCT09	5	4	100
		Major Core 10	Practical-II (Enzymes and Analytical Techniques)	U14BC5MCP10	5	4	100
		Major Elective-2	Drug Biology/ Biostatistics	U14BC5MET01/ U14BC5MET02	5	5	100
	IV	Non-major Elective 1	First Aid Management / Clinical Biochemistry and Microbiology	U14BC5NMT01/ U14BC5NMT02	2	2	100
		Skill Based Elective 4	Food Preservation Technology	U14BC5SBP04	2	2	100
		Value Education	Ethics/Bible Studies/Catechism	U13VE6LVE03 U12VE6LVB03 U12VE6LVC03	1	-	100

Semester	Part	Course	Title of the course	CODE	Hrs / Week	Credits	Marks
VI	III	Major Core 11	Genetic Engineering & Biotechnology	U14BC6MCT11	6	5	100
		Major Core 12	Clinical Biochemistry	U14BC6MCT12	6	5	100
		Major Core 13	Practical-III (Clinical & Immunochemical analysis)	U14BC6MCP13	6	5	100
		Major Elective3	Plant Biochemistry / Basics of Bioinformatics/ Pharmaceutical chemistry and Pharmacognosy	U14BC6MET01/ U14BC6MET02/ U14BC6MET03	5	5	100
	IV	Non-major Elective 2	Nutrition and Dietetics/ Home Management	U14BC6NMT01/ U14BC6NMT02	2	2	100
		Skill Based Elective 5	Tools For Bioinformatics	U14BC6SBP05	2	2	100
		Skill Based Elective 6	Research Methodology	U13DS6SBT06	2	2	100
		Value Education	Ethics/Bible Studies/Catechism	U13VE6LVE03 U12VE6LVB03 U12VE6LVC03	1	-	100
	V	Extension activity	RESCAPES-Impact Study of Project	U08RE6ETF01	-	1	100
TOTAL					180	141	4300

HOLY CROSS COLLEGE (Autonomous), Tiruchirappalli - 620 002.

TAMIL DEPARTMENT

BA/ B.SC/ B.COM DEGREE

Part - I : Language: Tamil Paper - 1

Total Hours : 90 **Code : U14TL1TAM01**

Hrs : 6Hrs /Wk **Marks : 100**

Credit : 3

நோக்கங்கள்:

1. தாய்மொழியை வலுவோடும், பொலிவோடும் கையாளும் வழி முறைகளைக் கண்டறியச் செய்தல்.
2. தமிழ் இலக்கியப் பரப்பையும், பாரம்பரியத்தையும் அறிமுகப்படுத்துதல்.
3. படைப்பாற்றலை வளர்த்துக் கொள்ள ஊக்கம் அளித்தல்.
4. உயர்ந்த பண்பாடுகளின் அடிப்படையில் வாழ்க்கையை அமைத்துக் கொள்ளும் உள்ளார்ந்த விருப்பத்தைத் தோற்றுவித்தல்.
5. மனித உரிமைகளை வலியுறுத்தி மனித நேயத்தை வளர்த்தல்.
6. நாம் வாழும் நாட்டையும், உலகையும் பற்றிய விழிப்புணர்வை ஊட்டி சமய நல்லிணக்கத்தையும், சமூக நல்லுறவையும் பேணிக்காக்கத் துணைப்புரிதல்.
7. ஆரோக்கியமான சிந்தனைகள் வளர ஆக்கம் அளித்தல்.

பயன்கள்:

1. தற்காலத் தமிழ் இலக்கிய வரலாற்றை வளர்க்க வழிகாட்டல்.
2. மாணவர்களின் தன்னம்பிக்கையை வளர்த்தல்
3. வாழ்வியல் நெறிகளை உணர்த்தல்.
4. பிழையின்றி எழுத பேச பயிற்சி அளித்தல்.

பாடத்திட்டம்

அலகு:1 செய்யுள்

மொழி

கல்வி

வீரம்

அலகு:2 செய்யுள்

அறம்

வாழ்க்கை

அலகு:3

தமிழ் இலக்கிய வரலாறு

20-ஆம் நூற்றாண்டு (தற்காலம்)

தமிழாய்வுத்துறை வெளியீடு

அலகு:4

படைப்பிலக்கியம் - சிறுகதைத் தொகுப்பு

அலகு:5

பொதுப்பகுதி - கலைச்சொற்கள்

தமிழாய்வுத்துறை வெளியீடு

பாட நூல்கள்

செய்யுள் - தமிழாய்வுத்துறை வெளியீடு

தமிழ் இலக்கிய வரலாறு - தமிழாய்வுத்துறை வெளியீடு

சிறுகதைத் தொகுப்பு - தமிழாய்வுத்துறை வெளியீடு

கலைச்சொற்கள் - தமிழாய்வுத்துறை வெளியீடு

(for the candidates admitted from June 2014 onwards)

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI-620002

DEPARTMENT OF HINDI

PART – I LANGUAGE HINDI FOR B.A, B.Sc & B.Com

HINDI PAPER-I SHORT STORY, PROSE, GRAMMAR

SEMESTER – I

HRS/WEEK : 6 **CODE: U14HN1HIN01**

CREDITS : 3 **MARKS : 100**

UNIT – I : Purasakar, Sukamaya Jeevan, Ganga Singh, Machuye Ki Beti, Maharaj Ka Ilaj

UNIT- II : Maatru vandana, Chandini, Thitalii, Divali, Seekho.

UNIT- III : Sadak Ke Niyam, Bhagavan mahaveer, Prithvi Ka swarga, Mahan ganithagya Ramanujam, Birbal Ki Chathuraye.

UNIT- IV : General Grammar
(Sanghya, Visheshan, ling, Vachan, Kriyavisheshan)

UNIT- V : Anuvad Abhyas – II

Books Prescribed :

- Galpa Sanchayan - D.B.H.P. Sabha Publishers, Chennai-17
- Naveen Hindi Patamala – I- D.B.H.P. Sabha Publishers, Chennai-17
- Naveen Hindi Patamala – II- D.B.H.P. Sabha Publishers, Chennai-17
- Sugam Hindi Vyakaran - D.B.H.P. Sabha Publishers, Chennai-17
- Anuvad Abhyas – II - D.B.H.P. Sabha Publishers, Chennai-17

HOLY CROSS COLLEGE (AUTONOMOUS), TIRUCHIRAPPALLI – 2

DEPARTMENT OF FRENCH

SYLLABUS

SEMESTER I

PART I – LANGUAGE - FRENCH PAPER I [GRAMMAR & CIVILISATION (ÉCHO A1 2e édition)]

(For candidates admitted 2013 onwards)

HRS/WEEK : 6 **CODE : U13FR1FRE01**
CREDIT : 3 **MARKS : 100**

Unit 1 Parcours d'initiation ; Vous comprenez

La différence entre le prénom et le nom, les nationalités, les nombres, les professions

La présentation, le genre et le nombre d'un nom, l'interrogation et la négation – l'identité, les lieux de la ville, les mots du savoir-vivre – saluer, remercier – l'espace francophone.

Unit 2 Au travail!

La conjugaison des verbes du 1er groupe, des accords, les articles – l'état civil, des personnes et des objets caractéristiques d'un pays – exprimer ses gouts – première approche de la société française.

Unit 3 On se détend!

La conjugaison des verbes irréguliers, le future proche, les pronoms après une préposition – les loisirs – proposer, accepter, refuser, demander une explication – première approche de l'espace de France, repérages de quelques lieux de loisirs

Unit 4 Racontez-moi ! ; Bon voyage !

Le passé composé, la date et l'heure – les moments de la journée, de l'année, les événements liés au temps – dire ce qu'on a fait – les rythmes de vie en France, des personnalités du monde francophone.

La comparaison, les adjectifs démonstratifs et possessifs – les voyages et les transports – négocier une activité, faire les recommandations – les transports en France

Unit 5 Bon appétit!

L'emploi des articles, la forme possessive – la nourriture, les repas, la fête – les situations pratiques à l'hôtel et au restaurant – les habitudes alimentaires en France.

TEXT BOOKS :

ECHO A1 – METHODE DE FRANÇAIS & CAHIER PERSONNEL D'APPRENTISSAGE
Authors: J. Girardet and J. Pécheur
Publication: CLÉ INTERNATIONAL, 2012.

(for candidates admitted from 2014 onwards)
HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 2.
2014 - 2015
I B.A., B.Sc., B.Com., B.R.Sc., B.C.A., B.B.A., SEMESTER I
PART II - ENGLISH 1 - GENERAL ENGLISH PAPER I

NO.OF HRS/WK : 6 CODE: U10EL1GEN01
NO.OF CREDITS: 3

OBJECTIVES

To develop in the students LSRW Skills at the foundation basic level
To focus on Oral Communication Skills through several Spoken English tasks given individually and in groups.
To encourage students to read and appreciate biographies/passages/fables/folk tales
To develop sub skills including comprehension, vocabulary, grammar, spelling, punctuation and reference skills.

UNIT I: Speak Better I
Tasks 1 - 30
UNIT II: Speak Better II
Generation of Alternatives
Viewpoints
Challenging Assumptions
Redesigning
Dominant Ideas and Crucial Factors

UNIT III : Read and Communicate I : a) Fables and Folk Tales
The Crow and the Kavun
The Parakeet and the Clay Pot

UNIT IV: Read and Communicate I: b) Fables and Folk Tales
How the Ministers Laid Eggs
How Andare Ate Curd at the Palace

UNIT V: Read and Communicate II : Biographies
Mahatma Gandhi
Abraham Lincoln

PRESCRIBED TEXT

Oranee Jansz : EXPLORATIONS *A Course in reading, thinking and communication skills*: Foundation Books. Print.

LIST OF GENERAL TOPICS:

1. Knowledge is power
2. The Impact of English Language
3. Science and Technology
4. Where there is a will there is way
5. Honesty is the best policy
6. Birds of the same feather, flock together
7. East or west home is the best
8. Make hay while the sun shines
9. Your favourite leader
10. Description of a significant experience in your life.

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
I B.Sc., SEMESTER – I
MAJOR CORE 1: FUNDAMENTALS FOR BIOCHEMISTRY
(Theory cum lab)
2014– 2015 BATCH

CREDITS: 5 **CODE: U14BC1MCT01**
HRS/WK: 7

General Instructional objectives:

The student learns about the structure of major biomolecules, the various types of bonds in the biomolecules, structure and applications of water molecules, different types of isomerism & electrodes and handling of chemicals and glassware in the laboratory.

UNIT: I

CHEMICAL BONDING

Ionic bond formation and factors favoring the formation, lattice energy, Born- Haber cycle & characteristics Covalent bond – Formation of single and multiple bonds -characteristics – VSEPR theory – shapes of simple molecules. Hydrogen bond – Nature, type and properties, effect on compounds Applications of hydrogen bond. Importance of bonds in biomolecules: glycosidic linkages in carbohydrates, non covalent interactions that determine the three-dimensional structures of proteins and nucleic acids - Hydrogen bonding, hydrophobic interaction, ionic bonds, and Vanderwaals force.

UNIT: II

STEREOCHEMISTRY OF ORGANIC COMPOUNDS

Different types of isomerism – A general idea. Tautomerism – Keto-enol, Amido – Imido, Lactam – lactim and Nitro –aci nitro Geometrical isomerism – Maleic and fumaric acids. Optical Isomerism – Elements of symmetry, isomerism of compounds containing asymmetric carbon atom – Lactic and tartaric acids, Resolution, Racemisation, Autoracemisation, Asymmetric synthesis, Walden Inversion, Configuration – D and L rotations, R and S notations.

UNIT: III

GASEOUS STATE

Dalton's law of partial pressure – Henry's law – Gas analysis in biological systems – pCO_2& pO_2 Gaseous exchanges in the lungs arterial & ventral capillaries

ELECTRO CHEMICAL TECHNIQUES

Principles of ECT – Reference electrodes, measurement of pH by glass electrode. Oxygen electrode –Principle, operation of a Clark electrode and application of oxygen electrode

UNIT: IV

BASIC THERMODYNAMICS:

First and second law of thermodynamics. Heat and work – various forms of energy, terminologies viz., heat, process, heat capacity, enthalpy, entropy and heat content, isothermal, adiabatic, reversible and irreversible processes, free energy, molar heat capacity and relation between Cp and Cv.

CHEMICAL KINETICS: Rate, rate law, specific rate constant– order as applied to first, second, zero and fractional order reactions, molecularity

UNIT: V

Definitions of pH& pOH – buffer solutions – Preparations and uses - buffer action – Henderson equation –pH of body fluids – buffers in body fluids – measurement of pH by indicator. Concentration expression – Normality, Molarity, Molality & Mole fraction principles of titrimetric analysis – acid base, redox & Precipitation titrations Laboratory hygiene & safety – Corrosive, flammable, explosive, carcinogenic & poisonous chemicals – storage handling & disposal – proper maintenance of reagent antidotes – first aid.

TEXT BOOKS:

1. P.L. Soni H.M. Chawla [1994] Text Book of Organic Chemistry, Sultan Chand and sons, New Delhi.

2. Puri Sharma Pathania: Principles of Physical Chemistry, 30th edn., Vishal Publication.

REFERENCES:

1.P.L. Soni [1994] – Text Book of Inorganic Chemistry Sultan Chand and sons, New Delhi.

2.Upadhayay A., Upadhayay K & Nath N. (1993) Biophysical chemistry 1st edn. Himalaya Publishing House.

3.Bahl. B.S., Tuli. G.D. and Arun Bahl: Essentials of physicalchemistry.

4. Murray R.K. Granner D.K. Mayes P.A Rodwell V.W. Harper's Biochemistry – 24thedn., A Lange medical Book – Prentice Hall International Inc.,

Practical Work:

1. Weighing and making up of solution
2. Calculation of different strengths of solution.
3. Preparation of standard curve
4. Estimation of ferrous ion by titrimetric method.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
I B.Sc., SEMESTER – I
ALLIED 1 (COMPULSORY) - FOOD AND NUTRITION

CREDITS: 4 **CODE:**U14BC1ACT01
HRS/WK: 4

General Instructional objectives:
The student learns about the nutritional status of an individual, anthropometry measurements, nutritional problems, and importance of various food constituents such as carbohydrates, proteins, fats, vitamins and minerals and the energy metabolism BMR and calculation of energy requirement.

UNIT: I
NUTRITIONAL STATUS:
Introduction to nutrition – Food as a source of nutrient, functions of food, definition of nutrition, classification of nutrients. Interrelationship between Nutrients and Health - visible symptoms of good health Loss of nutrient value – light, heat, leaching of nutrients
COMMUNITY NUTRITION:
Assessment of Nutritional Status – Anthropometry, Malnutrition – Definition causes of Malnutrition. International organizations, National agencies in community nutrition - FAO, WHO, UNICEF and CARE, ICDS, Midday meal programme, Role of National Institutions- ICMR, CSIR, NIN, and CFTRI.

UNIT: II
FOOD CONSTITUENTS:
Carbohydrates – kinds, function, sources, requirements, deficiency. Fibers–Definition, classification, Sources, role of fiber in human nutrition Fats - kinds, function, sources, RDA. Saturated and unsaturated fatty acids Cholesterol deficiency (phyrnoderma). Proteins – Kinds, function, sources, evaluation of protein quality (PER, BV, and N balance).Deficiency state – Kwashiorkor and Maras us

UNIT: III
MINERALS AND WATER:
Mineral Nutrition: Macro Nutrients – Calcium, Phosphorous Magnesium, Sodium, Potassium, Sulphur, Chlorine. Micro Nutrients – Iron, Iodine, Copper, Cobalt, Zinc, Manganese, Fluorine, Selenium, Bromine, Molybdenum- their distribution, sources, absorption, metabolism, functions, deficiency and requirements.
WATER:
Importance, distribution, functions, sources, water balance, impairment, dehydration, edema

UNIT: IV VITAMINS:
Vitamins – definition, classification (structure not included) A, D, E, K, C, B complex (B1, B2, B6, B12, Folic acid, Biotin, Choline) - sources, distribution, absorption, metabolism, function, requirement, deficiency conditions and allowance. Hypervitaminosis A and D.

UNIT: V ENERGY:
Definition of Calorie and joule, measurement of Calorific values of foods, physical, physiological fuel value. Basal metabolism – (BMR), factors affecting BMR, specific dynamic action of foods, energy needs of the body measurement of energy balance of the body.
Direct and indirect calorimeter Calculation of energy requirement, the ideal proportion of calories from protein, carbohydrates and fats

TEXT BOOK:

1. Swaminathan, M. (1985) Advanced Text Book on Food and Nutrition. 2nd Edn. The Bangalore printing and publishing Co., Ltd.

REFERENCE :
1. Davidson. S.Passmore, R.Brook JF and Truswell (1985) Human Nutrition and Dietetics. The English Language Book society, Living Stone. (Latest Edition)
2. David, S. Robinson, Food Biochemistry and Nutritional Value. Longman Scientific and Technical, John Wiley and sons, Inc., New York.
3. Raheena Begum, M. (1989) A Text Book of Foods, Nutrition and Dietetics Sterling Publishers Pvt., Ltd., New Delhi.
4. Shynbhangini, A. Joshi, (1992) Nutrition and Dietetics, Tata McGraw- Hill publishing Co., Ltd., New Delhi.
5. Sue Rodwell Williams, (1985), "Nutrition and Diet Therapy" The C.VMosby Saint Louis.

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI – 2
DEPARTMENT OF BIOCHEMISTRY
I B.Sc., SEMESTER- I
ALLIED 2 (COMPULSORY): NUTRITION & DIETETICSPRACTICAL
CREDITS: 3 **CODE: U14BC1ACP02**
HRS/WK: 4

I. QUANTITATIVEANALYSIS:

Estimation of Phosphorous, Calcium and Magnesium in milk Estimation of Iron in Greens Acidity in curds

II. ENERGY CONTENT INFOOD

Wet combustion Bomb Calorimetry

III **DAILY FOODGUIDE**

Basic Five Food Groups Foods costing
Food adulteration

IV. PRACTICAL RELATEDEXPERIENCE:

1. Preparation and weaning foods for infants.
2. Planning, preparing and evaluating menu for preschool age, school age, adolescence and adult. Planning, preparing and evaluating menus for special conditions like pregnancy, lactation and old age.
3. Modifying normal diets and preparation of soft, clear liquid diets
4. Planning, preparation, serving and evaluation of the diets for
    a. Obesity and underweight
    b. Diabetes mellitus
    c. Diarrhoea, Constipation
    d. Peptic Ulcer
    e. Atherosclerosis, hypertension
    f. Hepatitis, Cirrhosis
    g. Nephritis
    i. Low and medium cost diets for deficiency diseases protein, energy, iron, Vitamin.

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HOLY CROSS COLLEGE (AUTONOMOUS), TIRUCHIRAPPALLI-2 B.A /B.Sc./B.Com/B.R.SC/B.C.A/B.B.A DEGREE EXAMINATION

SEMESTER - I

ENVIRONMENTAL STUDIES

CODE: U14RE1EST01

Hrs – 2/Week **CREDITS : 2**

Unit I–Awareness and Natural Resources

Awareness of Environmental issues and management strategies–need of the hour Renewable and non-renewable resources-uses, present status and management of forest, water, land and energy resources.

Unit II–Ecosystems and Biodiversity

Ecosystem–concepts, structure and types–concept of food chain sand food web–causes and effects of weakening food chains

Biodiversity–concept of genetic, species and ecological biodiversity–ecological and economic values–India, a mega diversity country, hotspots–threats to biodiversity and conservation measures.

Unit III–Environmental Pollution

Causes, effects and control of water, and air pollution–global warming–ozone

depletion– Nuclear hazards.

Unit IV–Human population and Environment

Population growth at national and global level.

World food production-Effects of modern agriculture on land and Eco systems-GMOs and related issues.

Environmental pollutions and diseases-malaria- chikungunya

Unit V–Environment and Social Issues

Rich poor wide–at national and global levels. Urbanization –slums

Changing value systems –AIDS

Family welfare programs

HOLY CROSS COLLEGE (AUTONOMOUS), TIRUCHIRAPPALLI-2
B.A. /B.Sc. / B.Com. / B.R.Sc. / B.C.A. DEGREE COURSE
LIFE ORIENTED EDUCATION
ETHICS – I: RELIGION AND VALUE SYSTEMS

HRS / Wk :1 **CODE: U12VE2LVE01**
CREDITS : 1
MARKS : 100

OBJECTIVES:

- To Understand My and Other Religions and Culture
- To Appreciate My and Other Religions and Culture
- To Learn from other Religions and Culture
- To Interact with My and Other Religions and Culture to enhance My faith in My religion.
- To Help the students to become aware of the negative forces of religions.

UNIT – I: RELIGION

Concept of God- Faith, Meaning, Definition, Nature, Characteristics. Basic values of different religions-Globalization.

UNIT – II: DIFFERENT RELIGIONS

Basic characteristics and basic thoughts- Buddhism, Christianity, Hinduism, Islam, Jainism and Sikhism

UNIT – III: UNITY OF RELIGION

Unity of Vision and Purpose- Respect for Other's Faith, Inter Religious Co-operation, Religious Pluralism as a fact and Religious Pluralism as a value.

UNIT – IV: FUNDAMENTALISM, COMMUNALISM AND SECULARISM

Meaning and impact of Fundamentalism-Communalism-Violence and terrorism – Tolerance – Secularism - Individualism.

UNIT – V: VALUE SYSTEMS

Value and Value Systems - Moral Values -Individuals and the need to stand for values in the concept of Globalization - Consumerism. Will power to live up to your values. Healthy body for empowerment – Physical health and Mental hygiene, food and exercises.

REFERENCES:

1. Social Analysis (a course for all first year UG students), 2001. Department of Foundation Courses, Loyola College, Chennai-34.
2. Special topics on Hindu Religion, 2001.Department of Foundation Courses, Loyola College, Chennai-34.
3. Religion: the living faiths of the world, 2001. Department of Foundation Courses, Loyola College, Chennai-34.
4. Sydney Am Meritt, 1997. Guided meditations for youth.
5. Marie Migon Mascarenhas,1986. Family life education- Value Education, A text book for College students.

HOLY CROSS COLLEGE(AUTONOMOUS) TRICHIRAPALLI-2. B.A/ B.Sc/ B.Com/ B.R.Sc./ B.C.A – DEGREE COURSES LIFE ORIENTED EDUCATION BIBLE STUDIES – I: NEW TESTAMENT

HRS / WK : 1 **CODE: U12VE2LVBO1**
CREDIT : 1
MARKS : 100

OBJECTIVE:

- Developing the passion for the Word of God – Jesus and inculcating the thirst of Missionaries being a disciple of Christ.

UNIT - I: BIBLE – THE WORD OF GOD

- Books of the Bible – Division into Old Testament and New Testament – history of the Bible-
- Messianie Prophecier (Isaiah 9:6,40:3,53:1-12,61:1-3,Micah 5:2)
- The Birth and Ministry of John the Baptist (Luke 1:1-80,Mat 3:1-17,14:1-12)
- The Birth, Passion and Resurrection of Jesus (Luke 1:26-80,2:1-52,John 1 :18-21)

UNIT – II: MINISTRY OF JESUS

- Miracles (Mark 2:1-12,Luke 4:38-41,6:6-11,7:1-17,8:26-56,John 2:1-12)
- Parables (Luke 6:46-49,8:4-15,10:25-37,15:1-32)
- Preaching
  - Sermon on the mount (Mat 5-7)
  - Lord's Prayer (Luke 11: 1-13)
  - Kingdom of God (Mat 13: 24-50)
- Prayer life of Jesus (Luke 5:12-16,John 11:41-45,17:1-26,Mark 14:32-42)
- Rich and Poor (Luke 16: 19-31,21:1-4)
- Women Liberation (John 4:1-30,8:1-4)
- Women in the New Testament
- Mary(Mother of Jesus)-(Luke 1:27-35, John 2:1-12, 19:35, Acts 1:13-14)
- Martha & Maria (Luke 10: 38- 42, John 11: 1-46)

UNIT – III: CHURCH – BIRTH AND GROWTH

- Early Church
- Birth (Acts 2:1-41)
- Unity and sharing (Acts 2:42-47,4:1-37,5:1-11)
- Witnessing life (Acts 3:1-26,5:12-42,8:26-40, 16:20-34)
- Comparison between early Church and present Church.

UNIT – IV: DISCIPLES AND APOSTLES

- Betrayal and the change in the life of St. Peter (Luke 22:1-7,Acts 2:1-41,12:1-17)
- St.Andrew (Mat 4:18-20,John 1:35-42,6:1-14)
- St.Stephen (Acts 6,7)
- St.Paul (Acts 8,9,14,17,26 and 28)

UNIT – V: MISSIONARIES

- St. Thomas (John 20:24-31) & Missionary to India\ Pandithar Rama Bai
- William Carrie
- Dr.Ida Scuddar & St. Britto (Oriyur)
- Amy Carcheal
- Mother Teresa (Calcutta)
- Devasagayam (Nagercoil)
- Staines & Family

REFERENCES:

1. John Stott, 1994, **"Men with a Message"**, Angus Hudson Ltd. London.

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI -2
B.A/B.Sc./B.Com/B.R.Sc/B.C.A-DEGEE COURSES
LIFE ORIENTED EDUCATION
CATECHISM – I: GOD OF LIFE

HRS / WK :1 **CODE :U12VE2LVC01**
MARKS : 100 **CREDIT : 1**

OBJECTIVES:

- To enable the students to know God and his Salvific acts through Holy Bible
- To enable the students to know about the Paschal Mystery

UNIT - I: CREATION AND COVENANT

Genesis - God revealed himself in creation -God who preserves creation through covenants (Pentateuch) -Our response to God's covenant -Reason for its success and failure -The relationship of God with Israel -Image of God in Old Testament-God and me

UNIT - II: GOD OF THE PROPHETS

God's care for the humanity through Prophets-Major (Isaiah, Jeremiah) Minor (Amos) and Women (Deborah) Prophets-Their life and mission. Theology of Prophets -Concept of sin and collective sins expressed by prophets and God's saving love.

UNIT - III: GOD OF WISDOM

God experience through wisdom Literature, its origin and growth

UNIT - IV: SYNOPTIC GOSPELS

Synoptic Gospels and John's Gospel – Author –historical background –Chief message of each Gospel and for whom it was written. A few passages for the study of parallelism in the synoptic gospels.

UNIT - V: LUKE'S GOSPEL

Study of Luke's Gospel in detail – specialty of the gospel – main emphasis of the message – meaning and blessing of suffering and paschal joy in one's life.

Passion – Paschal mystery

REFERENCES:

1. Catechism of the Catholic Church published by Theological Publications in India for the Catholic Hierarchy of India, 1994
2. The Holy Bible Revised Standard Version with Old and New Testaments Catholic Edition for India.
3. Vaalvin Valizha – St. John's Gospel – Fr. Eronimus

புனித சிலுவை தன்னாட்சிக் கல்லூரி, திருச்சிராப்பள்ளி – 620 002.

தமிழாய்வுத்துறை

இளங்கலை / இளமறிவியல் / இளம் வணிகவியல் பட்ட வகுப்பு

முதலாமாண்டு – இரண்டாம் பருவம் - 2014

தாள் - II

Total Hours : 75 **Code : U14TL2TAM02**

Hrs : 5Hrs /Wk **Marks : 100**

Credit : 3

நோக்கங்கள்:

1. இறைச் சிந்தனை வழி மாணவர்களை ஒருமுகப்படுத்துதல்.
2. தமிழ்ச் சான்றோர்களின் சிறப்புகளை அறிமுகப்படுத்துதல்.
3. மாணவர்களின் நல்லெண்ணங்களை மேம்படுத்துதல்.
4. நட்புணர்வை மாணவர்கள் மனதில் பதியவைத்தல்.

பயன்கள்:

1. இப்பாடம் மாணவர்களிடையே ஆன்மீக அறிவு அறிமுகமாகவும், வளரவும், ஆழப்படவும் துணைபுரிகின்றது. இது ஓர் இயற்கைப் பூங்கா.
2. தமிழை நேசித்து, தமிழ்ச் சான்றோர்களின் மீது மதிப்புக் கொள்ளவும், தானும் சான்றோர் ஆகவும் இது ஒரு பாலமாக பயன்படுகிறது.
3. ஊற்றுக்களாய் மாணவிகளிடையே மறைந்து கிடக்கும் நல்லெண்ணங்களை வெளிக்கொணரவும் நேர்மறைச் சிந்தனைகள் தோன்றவும் பயன்படுவதால் இது ஒரு நூலகமாகும்.
4. வாழ்க்கையில் நட்பின் தேவையை உணர வைக்கும் வழிகாட்டியாகத் திகழ்கிறது. இது வாழ்க்கைப் பெட்டகம்.

அலகு:1 செய்யுள்

இறைமை

அன்பு

நேர்மை

அலகு:2 செய்யுள்

தன்னம்பிக்கை

முயற்சி

அலகு:3

தமிழ் இலக்கிய வரலாறு - தமிழாய்வுத்துறை வெளியீடு

பல்லவர்காலம்

நாயக்கர்காலம்

அலகு:4

படைப்பிலக்கியம் - புதினம்

சு.தமிழ்ச்செல்வி - கீதாரி

அலகு:5

கடிதம் எழுதுதல்

பாட நூல்கள்

செய்யுள்	- தமிழாய்வுத்துறை வெளியீடு
தமிழ் இலக்கிய வரலாறு	- தமிழாய்வுத்துறை வெளியீடு
கீதாரி	- சு.தமிழ்ச்செல்வி
கடித இலக்கியம்	- பயிற்சி ஏடு.

(for the candidates admitted from June 2014 onwards)

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI-620002

DEPARTMENT OF HINDI

PART – I LANGUAGE HINDI FOR B.A, B.Sc & B.Com

HINDI PAPER-II PROSE, DRAMA, GRAMMAR-II, COMPREHENSION

SEMESTER –II

HRS/WEEK : 5 **CODE: U14HN2HIN02**

CREDITS : 3 **MARKS : 100**

UNIT – I **:** Bharat matha, Premchand, Taj mahal ki Aathma Kahani, Mahakavi Prasadh, Meri theertha yatra

UNIT- II **:** Sathyameva jayathe - Drama (chapter 1& 2)

UNIT- III : Sathyameva jayathe – Drama (chapter 3)

UNIT- IV : General Grammar (Sarvanaam, Kriya, Kaal, Karak, Ne Ka niyam)

UNIT- V **:** Comprehension – Prose passages

Books Prescribed :

- Naveen Gadhya Chayanika – D.B.H.P. Sabha Publishers, Chennai-17
- Sathyameva Jayathe – D.B.H.P. Sabha Publishers, Chennai-17
- General Grammar – D.B.H.P. Sabha Publishers, Chennai-17

HOLY CROSS COLLEGE (AUTONOMOUS), TIRUCHIRAPPALLI – 2

DEPARTMENT OF FRENCH

SYLLABUS

SEMESTER II

PART I - LANGUAGE - FRENCH PAPER II [GRAMMAR, CIVILISATION & TRANSLATION (ÉCHO A1 2e édition)]

(For candidates admitted 2013 onwards)

HRS/WEEK : 5 **CODE : U13FR2FRE02**

CREDIT : 3 **MARKS : 100**

Unit 1 Quelle journée !

La conjugaison pronominale, l'impératif, l'expression de la quantité – les activités quotidiennes, les achats et l'argent – demander des nouvelles de quelqu'un – le comportement en matière d'achat et d'argent.

Unit 2 Qu'on est bien ici !

Les prépositions et les adverbes, les verbes exprimant un déplacement – le logement, la localisation, l'orientation, l'état physique, le temps qu'il fait – demander de l'aide, exprimer une interdiction – le climat en France, les cadres de vie (ville et campagne)

Unit 3 Souvenez-vous ?

Emplois du passé composé et de l'imparfait – les moments de la vie, la famille, les relations amicales, amoureuses, familiales – demander/donner des informations sur la biographie d'une personne – le couple et la famille.

Unit 4 On s'appelle ?

Les pronoms compléments directs et indirects – les moyens de la communication – aborder quelqu'un, exprimer une opinion sur la vérité d'un fait – les conseils de savoir-vivre en France.

Unit 5 Un bon conseil ! ; Parlez-moi de vous !

L'expression de déroulement de l'action, les phrases rapportées – le corps, la santé et la maladie – téléphoner, prendre rendez-vous, exposer un problème – les conseils pour faire face aux situations d'urgence.

La place de l'adjectif, la proposition relative, la formation des mots – la description physique et psychologique des personnes, les vêtements et les couleurs – demander/donner une explication – quelques styles comportementaux et vestimentaires en France.

TEXT BOOKS :

ECHO A1 – METHODE DE FRANÇAIS & CAHIER PERSONNEL D'APPRENTISSAGE

Authors: J. Girardet and J. Pécheur
Publication: CLÉ INTERNATIONAL, 2012.

(for candidates admitted from 2014 onwards)
HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 2.
2014 - 2015
I B.A., B.Sc., B.Com., B.R.Sc., B.C.A., B.B.A., SEMESTER I
PART II - ENGLISH 1I - GENERAL ENGLISH PAPER II

NO.OF HRS/WK : 6 CODE: U10EL2GEN02
NO.OF CREDITS: 3

OBJECTIVES

Integrated skills of English with focus on reading, writing, speaking and listening.
Integrated sub skills that include comprehension, vocabulary, grammar, spelling, punctuation and reference skills.
Literary appreciation (incidental)

UNIT I

The Suitor and Papa: *Anton Chekov*

UNIT II

The Sniper : *Liam O'Flaherty*

UNIT III

A Handful of Dates : *Tayeb Salih*

UNIT IV

Two Gentlemen of Verona: *A.J. Cronin*

UNIT V

GRAMMAR - 1. Transformation of sentences – a) Direct – Indirect speech b) Voices
2. Question Tag 3. Tenses

COMPREHENSION – Prescribed texts

COMPOSITION - 1. Personal letter
2. Creative Writing
3. Narrative Writing
4. Article Writing

GENERAL ESSAY: 5 TOPICS
1. My relationship with my mother
2. My favourite hobby
3. Look before you leap
4. All that glitters is not gold
5. Me, after ten years…

BOOKS FOR REFERENCE

Renu, Anand and Geetha, Rajeevan, *Images Of Life An Anthology of Prose,* New Delhi: Cambridge University Press, 2006. Print.

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
I B.Sc., SEMESTER II
MAJOR CORE 2: CHEMISTRY OF BIOMOLECULES

CREDITS: 5 **CODE: U14BC2MCT02**
HRS/WK: 5
General Instructional Objectives:
The student
-learns about the occurrence, structure, properties & importance of different biomolecules.
General Instructional Objectives:
The student
-learns about the occurrence, structure, properties & importance of different biomolecules.

UNIT: I CARBOHYDRATES
Introduction: Natural occurrence and physiological importance, classification - aldoses and ketoses, mono, oligo and polysaccharides, structural elucidation of glucose. Reactions of carbohydrates due to glycosidic OH, alcoholic OH and functional (aldehyde and ketone) groups
Di and trisaccharides: Occurrence, structure and physiological importance of maltose, sucrose, lactose, cellobiose, trehalose and raffinose.
Polysaccharides: Occurrence, structure and physiological importance of starch, glycogen, cellulose, hemicellulose, dextrin, chitin, inulin, pectin, agar – agar. Glycosaminoglycans - occurrence, structure and physiological importance of hyaluronic acid, heparin and chondroitin sulfates. Sugar derivatives of biological importance - Amino sugars, deoxy sugars, sugar phosphates; cell-wall polysaccharides, blood group substances

UNIT: II AMINO ACIDS
Introduction to amino acids and proteins: Structure and classification of amino acids (common amino acids of proteins). Essential amino acids - their structure and importance The acid base properties of amino acids (amphoteric nature of amino acids, titration curve of acids), color reactions of amino acids, physical properties and chemical properties of amino acids.

UNIT: III PROTEINS
Proteins: Peptide bonds - formation and chemical nature. Classification of protein based on structure – (fibrous and globular proteins); based on function (simple, conjugated and derived proteins). Structure of protein: Primary, secondary, tertiary and quaternary structure of proteins Determination of amino acid composition and sequence in proteins Ramachandran Plot- Basic concept.

UNIT: IV
FATTY ACIDS AND LIPIDS:
Introduction occurrence and classification of lipids.
Fatty acids : Classification, physical and chemical properties of fatty acids, distribution of naturally occurring fatty acids, essential fatty acids and their importance. Fats: Triglycerides, waxes and polyunsaturated fatty acids and their importance, Phospholipids - classification and properties; rancidity of fats. Chemical constants of fats, detergents- their action and importance. Sphingolipids & glycolipids - their classification, basic structure and importance. Sulfolipids and gangliosides - their structure and biological importance. Prostaglandins: their basic structure and importance. Sterols: Structure and properties of animal sterols. Cholesterol, its structure and properties; colour reactions of cholesterol.

Molecular components of membrane.

UNIT: V

NUCLEIC ACIDS:

Introduction to nucleic acids: DNA and RNA - their difference and similarities, structure of nitrogen bases - normal and rare, properties of base, nucleosides and nucleotides, physical and chemical properties of RNA and DNA. Isolation, separation and purification of DNA and RNA). RNA –Types. DNA polymorphism, different forms of DNA (A, B&Z), unusual structure of DNA, linkages in nucleotides and nucleosides, Watson – Crick model of DNA, Protein-Nucleic Acid (PNA) and DNA – drug interaction.

TEXT BOOKS:

1. J.L. Jain, (2005): Fundamentals of Biochemistry, 6th Revised Edition, Sultan Chand and Company, New Delhi

2. E.S. West, W.R. Todd and H.S. Mason(1974): Text book of Biochemistry, 4thEdition, New Delhi, Oxford and IBH.

3. JamesDarnell,HarveyLodishandDavidBaltimore(1990):MolecularCellBiology,2nd Edition, Scientific American Books, W.H. Freeman and Company, New York.

REFERENCES:

1.P.L. Soni and Mohan Katyal [2000] – Text Book of Inorganic Chemistry (a Modern Approach) Sultan Chand and sons, New Delhi.

2.R.K. Murray, D.K. Granner and P.A. Mayes(2003): Harper's Illustrated Biochemistry,25th Edition, New Delhi: Tata McGraw Hill Publishing Company Ltd.

3.A.L. Lehninger, D.L. Nelson and M.M. Cox (1993): Principles of Biochemistry, 2nd edition, CBS Publishers and Distributors.

4.David Rawn, J., (2004): Biochemistry, Panima Publishing Corporation, New Delhi.

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 2
DEPARTMENT OF BIOCHEMISTRY
I B.Sc., BIOCHEMISTRY, SEMESTER – II
MAJOR CORE 3 – CELL AND DEVELOPMENTAL BIOLOGY

CREDITS: 4 **CODE: U14BC2MCT03**
HRS/WK: 5

COURSE OBJECTIVES:

The students learn about the:

- basic structure and functioning of a cell
- organization of a cell, which would give a better understanding about the concepts in the forth coming papers.

UNIT: I

Ultra structure of a cell. Cytoplasm: physical and biological properties. Plasma membrane: Ultra structure and membrane models viz., unit membrane and fluid mosaic. Permeability functions – Passive, facilitated and active diffusion and endocytosis. Introduction to signal transduction and other functions.

CELLULAR COMPONENTS: UNIT: II

Mitochondria: Morphology, ultra structure and functions. Endoplasmic reticulum: Morphology, ultra structure, types, role in cell secretion and other functions.

UNIT: III

Golgi complex: Morphology, ultra structure, role in cell secretions, glycosylation and other functions. Lysosomes: Morphology, chemistry, ultra structure and functions.

UNIT: IV

Nucleus: Ultra structure and functions. Nucleolus: Ultra structure and functions. Chromosomes: Morphology, structure, types, chemistry, organization and functions.

UNIT: V

Centrosome – Morphology, ultra structure and functions. Cell cycle-Events during cell cycle, measurement of cell cycle, duration spindle mechanics, mitotic inhibitors, meiosis and its significance.

TEXT BOOK:

1. Power.C.B., Cell Biology, Himalaya publishing House, Delhi, 1996.

REFERENCES

1. Verma P.S and V.K Agarwal – Cell Biology, S.Chand and company Ltd., New Delhi, 1998.

2. De Robertis E.D.P, and De Robertis E.M., Cell and Molecular Biology,8^{th} Edn. B.I.Waverly pvt. Ltd., New Delhi, 1995.

3. Freifelder.D., Molecular Biology, N.K.Mehra for Narosa publishing House New Delhi, 1990.

4. Kleinsmith, L.J and Kish V.M., Principles of Cell Biology Harper and Row publishers, New York, 1998.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 2
DEPARTMENT OF BIOCHEMISTRY
I B.Sc., SEMESTERII
ALLIED 3 (COMPULSORY): DIETETICS

CREDITS: 3 **CODE: U14BC2ACT03**
HRS/WK: 4

General Instructional objectives:
The student learns the basis for recommending the dietary allowances for different income groups & the nutritional requirement for special groups like pregnancy, lactation and infancy, nutrition related problems of early childhood, school children, adolescence, adults and old age. Diet therapy and special feeding method and the causes, symptoms and dietetic management of diabetes mellitus, disease of gastro intestinal tract, liver & renal system, febrile conditions, cardiovascular system & allergic condition.

UNIT: I
NUTRITION IN HEALTH
Basis for recommending the dietary allowances, factors to be considered in formulating diets for different income groups.
NUTRITION FOR SPECIAL GROUP
Nutrition in pregnancy – Physiological stages in pregnancy, nutritional requirements, foods selection.Nutrition during lactation: Physiology of lactation, Nutritional requirements. Nutrition during infancy – Growth and development, Nutritional requirements, Breast feeding, problems in weaning – proportion of carbohydrates and proteins in weaning food. Infant formula,introduction of supplementary foods.

UNIT: II
Nutrition during early childhood (Toddler/preschool) - Growth and nutrient needs, nutrition related problems, feeding pattern. Nutrition of school children: Nutritional requirements, importance of snacks, school lunch. Nutrition during adolescence – growth and Nutrient needs, Food choices, Eating habits, Factors influencing. Nutrition of adults: Sedentary, moderate and heavy activity needs. Geriatric Nutrition: factors affecting food intake and nutrient use, nutrient needs, Nutrition related problems.

UNIT: III
NUTRITION IN DISEASE
Concepts of diet therapy. Growth and scope of dietetics, purposes and principles of therapeutic diet, modification of normal diets based on causative factors. Special feeding methods (Tube feeding, IV feeding). Classification of therapeutic diets. Diet in obesity and underweight. Diet in febrile conditions: Typhoid, Tuberculosis, Malaria, Pneumonia and influenza. Exchange list in diet planning.

UNIT: IV

DIETETIC MANAGEMENT OF DISEASES

Gastro intestinal tract diseases: peptic ulcer (Gastric and duodenal), gastritis, Diarrhoea, dysentery and Constipation. Diseases of the liver – Hepatitis and Cirrhosis. Diabetes Mellitus, anemia. Diseases of the renal system: glomerulo nephritis, nephrotic syndromes, renal stones, uremia.

UNIT: V

Diet in disease of cardiovascular system – atherosclerosis, hypertension, hyperlipidemia, different

sodium restricted diets. Diet in Hypo and hyperthyroidism. Diet in allergy – Definition, classification, manifestations, common food allergies, tests for allergy, dietetic treatment.

TEXT BOOKS:

1. Swaminathan, M., (1985). Essentials of food and Nutrition. Vol 2. The Bangalore printing and

Publishing Co., Ltd., 2nd Edn., Bangalore.

2. Srilakshmi, B., (1997). Dietetics, New Age International (P) limited publishers, New Delhi.

REFERENCE:

1. Davidson, S.Passmore, R.Brook J.F and Truswell (1975), Human Nutrition and Dietetics. The English Language Book society, living stone, (Latest Edition)

2. David, S. Robinson, Food Biochemistry and Nutritional value. Longman scientific and technical John Wiley and son, Inc., New York.

3. Raheena Begum, M. (1989) A text book of Foods, Nutrition and Dietetics, steeling Publishers Pvt., Ltd., New Delhi

4. Shunbhagini, A. Joshi, (1992) Nutrition and Dietetics, Tata McGraw –Hill Publishing co., Ltd., New Delhi.

5. Anita F.P (1973), Clinical Dietetics and Nutrition Oxford University press London.

HOLY CROSS COLLEGE(AUTONOMOUS),TIRUCHIRAPPALLI

B.A/B.Sc./B.Com/B.R.SC/B.C.A/B.B.A DEGREEEXAMINATION

SEMESTER-II

SBE-1 SOFT SKILL DEVELOPMENT

Hrs – 2/Week **CODE:U14RE2SBT01**

CREDITS : 2

General Objective:

The student understands the need for the development of self esteem, team spirit and communicative skills to prepare themselves for employability

UNIT I: Capacity Building

Self awareness-building self esteem-importance of having a strong self–esteem–developing positive attitude -.Anchoring on principles: Universal principles and values–forming & inculcating values-Leadership skills.

UNIT II : Interpersonal skills

Trust-trustworthiness-interpersonal communication–art of listening, reading and writing–art of writing–Emails etiquettes-building relationship-networking

UNIT III: Corporate skills

Vision, mission and goals: Concepts, vision setting, goal setting, goals for roles Individual and Group goals, Concept of synergy, team building, group skills

UNIT IV: Management skills

Developing Body Language–Practicing etiquette and mannerism–Stress Management–

Time Management-Importance and urgent activities-Time management to move towards life vision.

UNIT V: Employability skills

Writing Resume/CV- interview skills-Group Discussion-mock Interview-mock GD-Career planning

TEXT BOOKS:

Meena K.Ayothi V.(2013) A Book on development of soft skills(soft skills: A Road Map to Success) P.R . Publishers and distributors, Trichy.

Alex K.(2012) Soft Skills Know Yourself & Know the World, S.Chand&Company Ltd., NewDelhi

Book Recommended:

1. Francis Thamburaj S.J.(2009).Communication soft skills for Professional Excellence,1st Ed., Grace Publishers,

Rathan Reddy B.(2005).Team Development and Leadership, Jaico Publishing House, Mumbai

HOLY CROSS COLLEGE (AUTONOMOUS), TIRUCHIRAPPALLI–2B.A./B.Sc.,/B.Com./BCA&BBA, DEGREE EXAMINATION

SEMESTER II

SKILL BASED ELECTIVE II: RURAL ENRICHMENT AND SUSTAINABLE DEVELOPMENT

Hrs – 2/Week **CODE: U14RE2SBT02**

CREDIT: 2

UNIT I:

Green Revolution and industrialization

Cost climate changes and mismanagement of natural resources: Effects of over exploitation of land and water, mono culture practices use of hybrid and genetically modified (GM) seeds dumping of chemical fertilizers and pesticides-reduced economic returns from agriculture-resultant social issues-poverty-farmers suicide.

UNIT II:

Sustainable Development: concept environmental, social and economic aspects of sustainable development-sustainable development as solution to address rural issues-successful case studies from India .

UNIT III:

Elements in sustainable development I: Water shed management-rain water Harvesting, de-silting, bunds construction ,check dams, managing rain water drainage canals Alternative agricultural models –agro-forestry.

UNIT IV:

Elements in sustainable development II: addressing agricultural issues-biofertilizers-azolla culture, vermicomposting, biopesticides-panchakavya, mulikai puchiviratti ,amirthakarasal ,addressing health and sanitation issues-health, nutrition, vaccination.

UNIT V:

Survey of natural resources and resource mapping in villages, village level participatory approach(VLPA)-role of SHGs and NGOs.

Introduction to disaster Management (fire and flood)

புனித சிலுவை தன்னாட்சிக் கல்லூரி, திருச்சிராப்பள்ளி – 620
002. தமிழாய்வுத்துறை
இளம் வணிகவியல் / இளங்கலை / இளம் அறிவியல் பட்ட வகுப்பு இரண்டாம் ஆண்டு - மூன்றாம் பருவம் - 2014 தாள் - III

Total Hours : 90 **Code : U14TL3TAM03**
Hrs : 6Hrs /Wk **Marks : 100**
Credit : 3

நோக்கங்கள்:

1. வாழ்வின் கூறுகளாகியஅறம், பொருள், இன்பம், வீடுபேறு ஆகியவற்றின் வழிமுறைகளை எடுத்துரைத்தல்.
2. ஊடகங்களின் ஆழமான நுண்ணறிவை வெளிப்படுத்துதல்.

பயன்கள்:

1. காப்பியங்களை பயில்வதன் மூலமாக மாணவர்கள் அறக்கருத்துக்களை உணர்ந்து கொள்ளுதல்.
2. தமிழ் மொழியை செம்மொழியாக அறிவித்துள்ள இக்காலக்கட்டத்தில் தமிழ் இலக்கியத்தின் பயனை மாணவர்கள் முழுமையாக அறிந்துக் கொள்ளுதல்.
3. ஊடகங்கள் வெளிப்படுத்தும் நன்மை, தீமை ஆகியவற்றைப் பகுத்தறியக் கூடிய பக்குவத்தை அடைதல்.

அலகு:1 செய்யுள்
இயற்கை
நாட்டுப்பற்று
உழைப்பு

அலகு:2 செய்யுள்

மானம்

பெண்ணுரிமை

அலகு:3

தமிழ் இலக்கிய வரலாறு

சோழர் காலம்

அலகு:4

நாடகம்

தண்ணீர் தண்ணீர் - கோமல் சுவாமிநாதன்

அலகு:5

கோயிற்கலை - திட்டக்கட்டுரை, வினாடி வினா

பாட நூல்கள்

1. செய்யுள் நூல் - தமிழ்த்துறை வெளியீடு
2. தமிழ் இலக்கிய வரலாறு - தமிழ்த்துறை வெளியீடு
3. நாடகம் - தண்ணீர் தண்ணீர் - கோமல் சுவாமிநாதன்
4. கோயிற்கலை - தமிழ்த்துறை வெளியீடு

(for the candidates admitted from June 2014 onwards)

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI-620002

DEPARTMENT OF HINDI

PART – I LANGUAGE HINDI FOR B.A, B.Sc & B.Com

HINDI PAPER-III POETRY, PREDICS, HISTORY OF HINDI LITERATURE

SEMESTER – III

HRS/WEEK : 6 **CODE: U14HN3HIN03**

CREDITS : 3 **MARKS : 100**

UNIT – I : Shubhagaman, Man, Tere ghar ked war bahuth hym
Memory poem : - Kabir das Ke Dohe - 6
Thulasidas Ke Dohe - 6 Rahim Ke Dohe - 6

UNIT- II : History of Hindi Literature :
Essay Type Questions : Veeragatha Kaal

UNIT- III : Bakthi Kaal

UNIT- IV : Poetics

a. Ras : Shringar, karun, Hasya, Veer
b. Alankar : Anupras, Yamak, Upama, Roopak
c. Chand : Choupayee, Baravai

UNIT- V : Kavi Parichaya : Ayodiya singh upadyaya Harioudh, Maithili Sharan Gupth, Siyaram Sharan Gupth, Kabir, Thulasi das

Books Prescribed :

- Naveen Padhya Rathnakar– D.B.H.P. Sabha Publishers, Chennai-17
- Pracheen Padhya Sangrah– D.B.H.P. Sabha Publishers, Chennai-17
- Hindi Sahitya Ka Sanshitpta Itihas – Rajnath Sharma, Agrwal Publication, Uttar Prakash
- Kavya Pradeep – Ram Bahori Shukla, Hindi Bhavan, Illahabad.

HOLY CROSS COLLEGE (AUTONOMOUS), TIRUCHIRAPPALLI – 2

DEPARTMENT OF FRENCH

SYLLABUS

SEMESTER III

PART I - LANGUAGE - FRENCH PAPER III [LANGUAGE & CIVILISATION (ÉCHO A2 2e édition)]

(For candidates admitted 2013 onwards)

HRS/WEEK : 6 **CODE : U14FR3FRE03**
CREDIT : 3 **MARKS : 100**

Unit 1 Vivement demain !

Le futur, la comparaison des qualités, des quantités et des actions – la santé – le travail dans trente ans – la vie quotidienne - l'éducation et la formation (l'enseignement en France) – faire des projets.

Unit 2 Tu as du boulot ?

Le pronom « en » et « y » - exprimer une condition : si + présent, si + passé composé, exprimer des préférences – les emplois de demain - des idées pour créer une entreprise – le travail en France.

Unit 3 Qu'en pensez-vous?

L'emploi du subjonctif , l'expression de la quantité – revue de presse – entrée en politique – la naissance des départements - la vie politique – l'organisation administrative et politique de la France.

Unit 4 C'est tout un programme !

Les propositions relatives, la formation des adverbes, la forme « en + participe présent » - parler de la télévision et de la radio - comment les Français s'informent (la télévision et la presse en France)

Unit 5 On se retrouve

L'emploi et la conjugaison de l'indicatif – parler de son apprentissage du français langue étrangère – les rencontres : modes et comportements – une vraie vie de quartier grâce à Internet – formules pour un premier contact par écrit.

TEXT BOOKS :

ECHO A2 – METHODE DE FRANÇAIS & CAHIER PERSONNEL D'APPRENTISSAGE
Authors: J. Girardet and J. Pécheur
Publication: CLÉ INTERNATIONAL, 2010.

(for candidates admitted from 2013 onwards)

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 2.

2014 - 2015

II B.A., B.Sc., B.Com., B.R.Sc., B.C.A., B.B.A., SEMESTER I

PART II - ENGLISH III - GENERAL ENGLISH PAPER III

NO.OF HRS/WK : 6 CODE: U10EL3GEN03

NO.OF CREDITS: 3

OBJECTIVES

To reinforce the LSRW skills of students.

To enhance their study skills and literary skills through a selection of prose extracts.

To develop soft skills such as presentation and group discussion skills.

To strengthen sub skills including vocabulary, grammar, comprehension, argumentative and imaginative writing

UNIT I

A Little Bit of What You Fancy : *Desmond Morris*

UNIT II

The Avenger : *Anton Chekov*

UNIT III

Know When to Say 'It's None of Your Business': *Mark McCormack*

UNIT IV

The Second Crucifixion: *Larry Collins and Dominique Lapierre*

UNIT V

General Essay – 5 topics given

Idioms and Phrases - 20 Idioms and phrases given

BOOKS FOR REFERENCE

Anand, Renu .,& Rajeevan, Geetha. *Images of Life: An Anthology of Prose*. New Delhi: Foundation Books, 2007. Print.

List of Idioms and Phrases:

1. To tuck in
2. In tune with
3. To frown upon
4. In favour of
5. In vogue
6. To gloat at
7. On the contrary
8. Prompted by
9. To pale to nothing
10. To wax enthusiastic
11. To figure one out
12. Crystal clear
13. Grey area
14. To have second thoughts
15. On red alert
16. On a fool's errand

17. To be taken aback
18. To storm
19. Trouble spots
20. Flood of humanity

GENERAL ESSAY TOPICS

1. Women are not as intelligent as men.
2. The use of the internet and the computer.
3. Life in the next decade.
4. The ways of using the cell phone to minimize health hazards.
5. How will you save the planet?

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
I B.SC., SEMESTER III
MAJOR CORE 4: ANALYTICAL BIOCHEMISTRY

CREDITS: 5 **CODE: U14BC3MCT04**
HRS/WK: 5

General Instructional objectives:

- The student learns about the principle, materials, methods, and applications of various biochemical techniques

UNIT: I

SPECTROMETRIC METHODS

Basic principles of electromagnetic radiation, energy, wave length, wave number, absorption and emission spectra. Beer-Lambert law- Colorimetry and Spectrophotometry, Emission spectra, Spectro fluorometry - principles, instrumentation and applications in vitamin assays(riboflavin and Thiamine), flame photometry and atomic absorption spectrophotometry –application and NMR spectroscopy, IR and FT-IR spectroscopy.

UNIT: II CHROMATOGRAPHY

Chromatography: Principle, materials, methods and applications of Paper chromatography, Thin layer chromatography, Column chromatography, Molecular sieve chromatography, Gas–Liquid chromatography, Adsorption, Partition and Ion exchange chromatography, Affinity chromatography, High performance liquid chromatography and HPTLC.

UNIT: III

CENTRIFUGATION METHODS

Basic principles of sedimentation, centrifugal force, Svedberg constant, types of centrifuges & rotors. Preparative ultracentrifugation – differential and density gradient. Analytical ultracentrifuge and its application in determination of molecular weight of proteins and nucleic acids.

UNIT: IV

ELECTROPHORETIC TECHNIQUES

General principles, factors affecting the migration rate-electric field, sample, buffer and the supporting medium. Types- Tiselius moving boundary electrophoresis, electrophoresis with paper, cellulose acetate, starch, agarose and polyacrylamide gel. SDS-PAGE, 2Delectrophoresis, Immunoelectophoresis, High voltage electrophoresis and Isoelectricfocusing.

UNIT: V

RADIOISOTOPE TECHNIQUES

Atomic structure, radiations, types of radioactive decay, half life period, units of radioactivity detection and measurement of radioactivity – Methods based on ionization & excitation (GM counter & scintillation counter)- advantages and disadvantages, Autoradiography. Applications of radioisotopes in the elucidation of metabolic pathway, clinical diagnosis and radio dating. Safety aspects of the use of radio isotopes.

TEXT BOOK:

1. A. Upadhyay, K. Upadhyay and N. Nath (2003): BiophysicalChemistry,3rd Edition, Himalaya Publishing House, New Delhi
2. Keith Wilson and John Walker(2004): Principles and Techniques of Practical Biochemistry, 5th edition, United Kingdom, Cambridge University Press

REFERENCES:

1. G.R. Chatwal and S. Anand(1999): Instrumental Methods of Chemical Analysis, Himalaya Publishing, Mumbai
2. Srivastava V.K. and K.K. Srivastava (1981): Introduction to Chromatography-Theory and Practicals, 2nd edition, S. Chand and Company, New Delhi.
3. Chatwal. G. and S. Anand (1995): Spectroscopy (atomic and molecular), Himalaya Publishing House, Mumbai.
4. Sharma B.K. (1993): Chromatography, 1st edition Goel publishing House.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
I B.Sc., SEMESTER III
MAJOR CORE 5: PRACTICAL – I ANALYSIS OF BIOMOLECULES

CREDITS: 4 **CODES: U14BC3MCP03**
HRS/WK: 5

I QUALITATIVE ANALYSIS:

Reactions of simple sugars - glucose, fructose, galactose, xylose, lactose, maltose, sucrose, starch and dextrin. Reactions of proteins – solubility, Biuret, Millon's and Xanthoproteic tests, denaturation by heat, pH change, precipitation by heavy metals and by acidic reagents, color reactions of amino acids like Try, Tyr, Arg, Pro, His. Reactions of lipids – Solubility, saponification, acrolein test for unsaturation, Liebermann–Burchard test for cholesterol.

PREPARATION

1. Preparation of starch from potatoes.
2. Preparation of casein from milk.

QUANTITATIVEANALYSIS

1. Estimation of reducing sugar by Benedict's titrimetric method.
2. Estimation of amino acids by formal titration.
3. Determination of acid number of edible oil.
4. Estimation of DNA by diphenylamine method
5. Estimation of RNA by ordinal method.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
II B.Sc., SEMESTER– III
ALLIED 4(OPTIONAL): MICROBIOLOGY – GENERAL

CREDITS: 3 **CODE:** U14BC3AOT04
HRS /WK: 4

General Instructional objectives:
The student learns about the history & scope of microbiology, classification, types, morphology, reproduction and control of microorganism.

UNIT: I
HISTORY AND SCOPE OF MICROBIOLOGY:
Scope of Microbiology, History – Discovery era; Transition period; Golden age; twentieth century. Classification of Microorganism- Haeckel's and Whittaker's, differences between Prokaryotes and Eukaryotes. Carl Woese-3 domain Concept. An introduction to microscopy- A brief account on Compound, Dark field, Bright field, Phase contrast, Fluorescent and Electron microscope.

UNIT: II
BACTERIA - MORPHOLOGY AND ITS GROWTH CHARACTERISTICS:
Bacteria: Nomenclature, morphology and fine structure; Nutritional requirements, nutritional types; Growth curve; Types of Culture medium, Culture methods, Cultural characteristics, Identification. Reproduction and Photosynthesis.

UNIT: III
Brief and general account: Mycoplasmas, Rickettsiae, Chlamydia, Myxobacteria. Viruses: General properties and types - TMV, T-even phage-Morphology and reproduction.

UNIT: IV
STRUCTURE AND REPRODUCTION OF ALGAE, FUNGI AND PROTOZOA:
Cyanobacteria: General account on structure, reproduction. **Actinomycetes**: General account on structure, reproduction. **Microalgae**: General account on structure and reproduction. *Chlorella, Volvox, Diatoms*. **Microfungi**: General account on structure and reproduction of *Yeast, Mucor, Penicillium, Aspergillus*. **Protozoa**: General account on structure and reproduction of *Entamoeba, Paramecium, Plasmodium, Trypanosoma.*

UNIT: V
CONTROL OF MICROORGANISMS:
Physical Agents - High temperatures, Low temperatures, Desiccation, Radiation, Filtration. Chemical Agents – Characteristics of an ideal antimicrobial chemical agent, Phenols, Alcohols, Halogens, Heavy metals, Dyes, Detergents, Aldehyde, Gaseous agents. Antibiotics- Classification based on their mode of action- Penicillin, Polymyxins, Streptomycin, Sulfonamides and other chemotherapeutic agents, antibiotic resistance.

TEXT BOOK:

1. Pelczer M.J. Chan E.C. S Noel R.Krieg, (2004) Microbiology, Fifth Edn., Tata McGraw Hill publishing company Limited, New Delhi.

REFERENCE:

1. Ananthanarayan R. & Jeyaraman Paniker C.K (1999): Text Book of Microbiology, Fifth Edn, Orient Longman Limited, New Delhi.

2. Lansing M.Prescott, John P.Harley, Donald A. Klein (2005): Microbiology, 6^{th} Edn. Tata Mc Graw – Hill Companies, New York.

3. Power C.B & Daginawala H.F (1996): General Microbiology volume I &II. Himalaya Publishing House, Bombay.

3. Purohit S.S (1999): Microbiology Fundamentals and Applications, Agro Botanical Publishers, India.

4. Sharma P.D. (2005): Microbiology, Rastogi and Co., Meerut.

5. Stainer R.Y. Ingraham J.L., wheels M.L. (2004): General Microbiology, Macmillan, London.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
II B.Sc., SEMESTER III
SBE 3: PAIN RELIEF FORMULATION ANDCOSMETICS
CREDITS: 2 CODES: U14BC3SBP03 HRS/WK: 2

PREPARATION OF

1. Turpentine liniment
2. Soap liniment
3. Pain balm preparation.
4. Simple ointment & Sulphur ointment
5. Calamine lotion
6. Calamine Benzoate Lotion
7. Cold cream
8. Vanishing cream
9. Hair cream
10. Liquid tincture of liquorice
11. Compound Tincture of Benzoin
12. Tincture of Orange
13. Shampoo
14. Nail bleach
15. Cuticle remover
16. Compound syrup of ferrous phosphate
17. Commercial cough syrup
18. Talcum powder
19. Baby powder
20. Toothpowder.

REFERENCE

1. Arthur J. Winfield, R. Michael and E. Richard, Pharmaceutical Practice (2000), 3rd edition, Elsevier Publications.

HOLY CROSS COLLEGE (AUTONOMOUS), TIRUCHIRAPPALLI-2 B.A. /B.Sc. / B.Com. / B.R.Sc. / B.C.A./B.B.A DEGREE COURSE

II YEAR: SEMESTER - III (From 2012 onwards)

GENDER STUDIES

Hours: 1Hr/wk **CODE: U12WS3GST01**

CREDITS: 1

Objectives

To make boys and girls aware of each other's strength and weakness

To develop sensitivity towards both genders in order to lead an ethically enriched life

To promote attitudinal change towards a gender balanced ambience and women empowerment

Unit I Concepts of Gender :

Sex-Gender-Biological Determination-Patriarchy-Feminism-Gender Discrimination-Gender Division of Labour - Gender stereotyping – Gender Sensitivity-Gender Equity – Equality – Gender Main streaming – Empowerment.

Unit II Women's Studies Vs Gender Studies:

UGC's Guidelines – VII to XI Plans –

Gender Studies : Beijing Conference and CEDAW-Exclusiveness and Inclusiveness.

Unit –III Areas of Gender Discrimination :

Family – Sex Ratio – Literacy – Health – Governance – Religion Work Vs Employment – Market – Media – Politics – Law – Domestic Violence – Sexual Harassment – State Politics and Planning.

Unit – IV Women Development and Gender Empowerment :

Initiatives – International Women's Decade – International Women's Year – National Policy for Empowerment of Women – Women Empowerment Year 2001 – Mainstreaming Global Policies.

Unit – V Women's Movements and Safeguarding Mechanism:

In India National / State Commission for Women (NCW) – All Women Police Station – Family Court – Domestic Violence Act – Prevention of Sexual Harassment at Work Place Supreme Court Guidelines – Maternity Benefit Act – PNDT Act – Hindu Succession Act 2005 – Eve Teasing Prevention Act – Self Help Groups – 73rd Amendment for PRIs.

BOOK FOR STUDY

Manimekalai. N & Suba. S (2011), Gender Studies, Publication Division,
Bharathidasan University, Tiruchirappalli

HOLY CROSS COLLEGE (AUTONOMOUS), TIRUCHIRAPPALLI-2
B.A. /B.Sc. / B.Com. / B.R.Sc./ B.C.A. DEGREE COURSE
LIFE ORIENTED EDUCATION
ETHICS – II: EMPOWERMENT OF WOMEN

HRS / Wk : 1 **CODE: U12VE4LVE02**
CREDIT : 1
MARKS : 100

OBJECTIVES:

- To make the learners aware of various Social, Gender issues and Cyber Crimes.
- To make them aware of the property rights.
- To make them understand and appreciate the role of media, in facing the challenges on various life issues.

UNIT – I: GENDER ISSUES

Feminism attitude of men and women towards women, Gender Identity-Factors contributing to gender identity (Family values, culture, tradition, religion, societal values, mass media)

UNIT – II: WOMEN AND MEDIA

Portrayal of women in media, Media world - News paper, Magazine, Cinema, TV, Video and Advertisements - Morality in Media and Right use of Media

UNIT – III: SOCIAL ISSUES RELATED TO WOMEN

Eve teasing, Rape, Dowry, Harassment in marriage, Divorce and Widows Remarriage, HIV & AIDS, Transgender, Female Genocide, sex workers, trafficking, fugitive, Female foeticide, handicapped children and women and evils of drug abuse

UNIT – IV: WAYS OF EMPOWERING WOMEN

Need for empowerment –Skills required for empowerment and Career Oriented Skills, Women's bill- Property rights, Models of Empowered Women-Mother Teresa, Indira Gandhi, and Helen Keller, Chanu Sharmila and Malala

UNIT – V: CYBER CRIME AGAINST WOMEN

Harassment and Spoofing via e-mail, Cyber Stalking, Cyber Pornography, Morphing - Cyber Laws, social network, face book, and twitter

REFERENCES:

1. Dr.M.Arumairaj et al., 1999, "Marching towards the Millenium ahead".
2. Thomas Anjugandam, 1999, "Grow Free Live Free" Salesian Publicaiton.
3. H.C Pretti Nandhini Upretti, jaipur 2000 "Women and problems of Gender Discrimination".
4. Thomas B.Jayaseelan, 2002, "Women: Rights and law" Indian Social Institute, New Delhi.
5. Reni Jacob vol I & II, April- June 2004, "Vikasimi – The journal of Women's

Empowerment, Ed,”

HOLY CROSS COLLEGE(AUTONOMOUS) TRICHIRAPALLI-2.
B.A/B.Sc./B.Com/B.R.Sc/B.C.A – DEGREE COURSES
LIFE ORIENTED EDUCATION
BIBLE STUDIES – II: OLD TESTAMENT

HRS / WK :1 **CODE: U12VE4LVBO2**
CREDIT : 1 **MARKS : 100**

OBJECTIVE:

- Understanding the desires of God through Prophetic revelation and becoming sensitive to the heart beat of God.

UNIT – I: PURPOSE OF LIFE

Creation of man – fall of man (Gen 1-4)

Plan of redemption through the life of :

- Noah (Gen 6-9); Abraham (Gen 12-18);
- Joseph (Gen 37-40); Moses (Exo 4-5);
- Joshua (Joshua 1-8)

UNIT – II: JUDGES AND KINGS

- **JUDGES:** Deborah (Judges 4); Samson (Judges 6-8); Gideon (Judges 13-16)
- **KINGS:** David (I Sam 17-31, II Sam 1-12); Solomon (I Kings 1-11, Proverbs 1-5,31)

UNIT – III: WOMEN IN THE BIBLE

- Women in the Old Testament
- Eve (Gen 3)
- Ruth (Ruth 1-4)
- Hannah (I Sam 1:1-28)
- Esther (Esther 1-6)

UNIT – IV: MINOR PROPHETS

- Brief Life History and teachings of
- Amos
- Jonah
- Micah
- Nahum
- Habakkuk

UNIT – V: MAJOR PROPHETS

- Brief Life History and teachings of
- Elijah(I Kings 17-19)
- Elisha(II Kings 4-6)
- Isaiah (Is 1,6,11,36-38,40-42,44,50,53,61)
- Jeremiah (Jer 1-3,7-12,18-19,23)
- Daniel (Daniel 1-6)

REFERENCES:

1.Missionaries Biographies. 1995, Amazon.com

2.Russell Fueller (1999) The Text book of the Twelve Minor Prophets. Wipf &Stock Publishers, UK.

3.Willis Judson Beecher (2002) The Prophets and The Promise. Wipf & Stock Publishers, UK

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 2
B.A./ B.Sc./ B.Com/ B,R.SC/ B.C.A - DEGREE COURSES
LIFE ORIENTED EDUCATION
CATECHISM – II: CHURCH AND SACRAMENTS

HRS / Wk : 1

CODE : U12VE4LVC02
CREDIT : 1
MARKS : 100

OBJECTIVES:

- To instruct the students to live in relationship with God.
- To offer God's gift of the Holy Spirit.
- To build relationship with Jesus.
- To learn Sacraments and Prayer life through which a Christian is able to live in relationship with Christ.
- To enrich our devotion to Mother Mary and Saints.

UNIT - I: MISSION OF THE CHURCH

What is church (attributes) – Interpretation: body of the Christ- Bride of Christ, goal of all things- Historical as well as spiritual- Mystery and Sacrament-Pilgrim Church.

UNIT – II: PARTICIPATORY CHURCH (AS LAY FAITHFUL) AS A COMMUNITY

Work of the holy Spirit- Salt and leaven in the world "Church of modern World" Church as community – Its important aspect, early Christian Church – People of God as Church- Its characteristic and structure

UNIT – III: THE FUNCTIONARY CHURCH AND I

Ministerial Church – Relating Church –Parish Church- Role of lay faithful in the Church – Its challenges – Church and I.

Sacraments – Initiation- Social – Healing (all the seven) - stress on Confession, Confirmation and Holy Communion. Sacramental: holy "things" used –their sanctity.

UNIT – IV: SACRAMENTS AND SACRAMENTAL

Sacraments-Initiation-Social-Healing (all the seven)-stress on Confession, Confirmation and Holy Communion. Sacramental: holy "things"used-their sancity.

UNIT – V: MARY AND SAINTS

Mary as a young virgin- Disciple- Her role in the Catholic Church-Annual feasts- Pilgrimages- Devotion to Mary, Theologies. Saints in the Church- 10 women saints.

REFERENCES :

1. "Vatican II Revised" Archbishop Angelo Fernandes Published by X.Diax de Rio S.J. Gujarat Sahitya Prakash, P.O.Box. 70, Gujarat, 388001, India.
2. "The Sacraments The Word of God at the Mercy of the Body" Claretian Publications, Malleswaram, Bangalore 560055.

புனித சிலுவை தன்னாட்சிக் கல்லூரி, திருச்சிராப்பள்ளி – 620 002.
தமிழாய்வுத்துறை
இளம் வணிகவியல் / இளங்கலை / இளம் அறிவியல் பட்ட வகுப்பு இரண்டாம் ஆண்டு – நான்காம் பருவம் - 2014 தாள் - IV

Total Hours : 75 **Code : U14TL4TAM04**
Hrs : 5Hrs /Wk **Marks : 100**
Credit : 3

நோக்கங்கள்:

1. மாணவர்களுக்குத் தமிழர்தம் வாழ்வியல் விழுமியங்களை உணர்த்துதல்.
2. அறநெறிகள் வாழ்க்கைக்கு வழிகாட்டும் விதத்தினை எடுத்துரைத்தல்
3. சிகரம் தொட்ட படைப்பாளிகளின் சிந்தனைகளை வெளிப்படுத்துல்
4. மொழித்திறன் வளர்த்தல்.

பயன்கள்:

1. வாழ்க்கையின் பல்வகை நிலைகளையும் உணர்ந்து செயல்படச் செய்தல்
2. தன்னைத் தானே நெறிப்படுத்திக்கொள்ள, பயன்பாடடைய இலக்கியம் வழிகாட்டுவதை புரிந்துகொள்ளச் செய்தல்.
3. இடைவிடாத முயற்சியின் வெற்றிப்படிகளைக் கண்டுணர்ந்து மேன்மை அடையச் செய்தல்.
4. இருமொழிப் புலமையை வளர்த்தல்.

அலகு:1 செய்யுள்

கடமை

காலந்தவறாமை

ஒற்றுமை உணர்வு

அலகு:2 செய்யுள்

நட்பு

குடும்பமும் விருந்தோம்பலும்

அலகு:3

தமிழ் இலக்கிய வரலாறு

சங்ககாலம் - சங்கம் மருவியகாலம்

எட்டுத்தொகை, பத்துப்பாட்டு, பதினெண்கீழ்க்கணக்கு நூல்கள்

அலகு:4

உரைநடை

சங்க இலக்கியம் (பெண்பாற் புலவர்கள்)

கட்டுரைத் தொகுப்பு

அலகு:5

பொது – மொழிபெயர்ப்பு

பாட நூல்கள்

1. செய்யுள் நூல் - தமிழாய்வுத்துறை வெளியீடு
2. தமிழ் இலக்கிய வரலாறு - தமிழாய்வுத்துறை வெளியீடு
3. சங்க இலக்கியம் கட்டுரைத் தொகுப்பு - தமிழாய்வுத்துறை வெளியீடு
4. மொழிபெயர்ப்பு - தமிழாய்வுத்துறை வெளியீடு

(for the candidates admitted from June 2014 onwards)

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI-620002

DEPARTMENT OF HINDI

PART – I LANGUAGE HINDI FOR B.A, B.Sc & B.Com

HINDI PAPER-IV FUNCTIONAL HINDI & TRANSLATION

SEMESTER – IV

HRS/WEEK : 5 **CODE: U14HN4HIN04**

CREDITS : 3 **MARKS : 100**

UNIT – I Functional Hindi

UNIT- II Adhunic Kaal

UNIT- III General Essays

Parishram Ka Mahatva, Anushasan, Paropakar, Jawaharlal Nehru, Deepavalli, Bharath Mein Computer

UNIT- IV Letter Writing

UNIT- V Anuvad Abhyas - III

Books Prescribed :

- General Essays - D.B.H.P. Sabha Publishers, Chennai-17
- Abinava Patra Lekhan - D.B.H.P. Sabha Publishers, Chennai-17
- Anuvad Abhyas – III - D.B.H.P. Sabha Publishers, Chennai-17

HOLY CROSS COLLEGE (AUTONOMOUS), TIRUCHIRAPPALLI – 2

DEPARTMENT OF FRENCH

SYLLABUS

SEMESTER IV

PART I - LANGUAGE - FRENCH PAPER IV [LANGUAGE & CULTURE (ÉCHO A2 2e édition)]

(For candidates admitted 2013 onwards)

HRS/WEEK : 5 **CODE : U14FR4FRE04**
CREDIT : 3 **MARKS : 100**

Unit 1 C'est la fête !

Les pronoms objets directs et indirects – parler d'une fête – exprimer des goûts et des préférences – fêtes sans frontières – plats des fêtes – les jours fériés – les saisons – le calendrier – les fêtes traditionnelles, importées, francophones.

Unit 2 Vous plaisantez !

Le conditionnel présent, la distinction du futur et du conditionnel – le mouvement en général – raconter une anecdote – journée de détente – la naissance d'un chef d'œuvre - l'art au début du 20e siècle – le plaisir de jeux de mots.

Unit 3 On s'entend bien !

Les constructions « faire + verbe » et « laisser + verbe », le discours rapporté – décrire le caractère ou le comportement, exprimer l'accord et le désaccord – le langage des couleurs – sujets de conversation – sujets d'étonnement.

Unit 4 À vos risqué et périls !

Le subjonctif présent, la voix passive – l'aventure aujourd'hui – travailler pour la planète – réussites et échecs - marathon de Paris – plaisir des sports – les sports les plus regardés et pratiqués - les français et les sports – les jeunes issus de l'immigration.

Unit 5 La vie est dure

Les pronoms possessifs, les adjectifs, les pronoms indéfinis – parler de ses activités quotidiennes, exprimer la confiance ou la méfiance – les taches ménagères – la France insatisfaite - sans travail – la chanteuse Diam's – le film 'Le Couperet de Costa-Gavras'.

TEXT BOOKS :

ECHO A2 – METHODE DE FRANÇAIS & CAHIER PERSONNEL D'APPRENTISSAGE
Authors: J. Girardet and J. Pécheur
Publication: CLÉ INTERNATIONAL, 2010.

(for candidates admitted from 2013 onwards)

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 2.

2014 - 2015

II B.A., B.Sc., B.Com., B.R.Sc., B.C.A., B.B.A., SEMESTER I

PART II - ENGLISH IV - GENERAL ENGLISH PAPER IV

NO.OF HRS/WK : 6 CODE: U13EL4GEN04

NO.OF CREDITS: 3

OBJECTIVES

To strengthen the LSRW skills of students through inter-active approaches, participatory methods and activity oriented exercises.

To develop skills required for referential and independent learning.

To focus on writing skills like creative and comparative writing and book reviews.

To reinforce sub skills including vocabulary, grammar, dialogue, report writing and note making.

UNIT I: READ AND COMMUNICATE: HISTORICAL SKETCHES

The Renaissance

India under the British Raj

UNIT II: READ AND COMMUNICATE : MODERN FABLES

Nonchi Nona and Kotiya the Cat

The Competition

UNIT III: READ AND COMMUNICATE : MODERN FABLES

The Nightingale and the Rose

The Butterfly that Stamped

UNIT IV -READ AND COMMUNICATE : BIOGRAPHIES AND MODERN FABLES

Napoleon Bonaparte

The Hiding Place

UNIT V

GRAMMAR - Tenses

COMPREHENSION - General

COMPOSITION - 1. Note making
2. Dialogue
3. Creative Writing
4. Narrative Writing
5. Imaginative Writing

GENERAL ESSAY – 5 TOPICS

1. Should capital punishment be abolished?
2. Is a corruption- free India a dream?
3. The nuclear family and its consequent changes in society.
4. The threat of terrorism.
5. If man becomes immortal…

THINK BETTER - READ AND COMMUNICATE : MODERN FABLES

1 – 10 for Internal Testing

BOOKS FOR REFERENCE

Oranee Jansz : EXPLORATIONS *A Course in reading, thinking and communication skills*. New delhi: Cambridge university press. 2004. Print.

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List of words \ compound words\phrases for making sentences:

1. Store house of knowledge
2. Genre
3. To be divided over

4. Taboo
5. To take over
6. Hump
7. Bushy
8. Tiered
9. To roll from side to side
10. Flickered
11. To sail through
12. To tremble all over
13. Ecstasy
14. Thunder-clap
15. Mousy-quite
16. Collision
17. Exiled
18. Revolution
19. To come round
20. To fight for a cause

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI-2
DEPARTMENT OF BIOCHEMISTRY
II B.Sc., SEMESTER IV MAJOR CORE 6: ENZYMES

CREDITS: 5 **CODES: U14BC4MCT06**
HRS/WK: 5

General Instructional objectives:

The student
- learns about the intracellular localization of enzymes and its nomenclature.
- learns the various techniques to isolate and purify enzyme, the kinetics of enzyme action and its various applications.

UNIT: I

CLASSIFICATION AND STRUCTURE:

Nomenclature (EC System) – structure of ribonuclease and Lysozymes.
Co-factors – coenzymes - metalloenzymes. Marker Enzyme - Isozymes - LDH.

UNIT: II

ISOLATION AND PURIFICATION OF ENZYMES:

Classical methods of purification and Crystallization. Homogenization – Separation of cellular organelles by differential centrifugation (intercellular localization). Separation based on solubility differences, isoelectric precipitation, salting in and salting out, dialysis, solvent fractionation, Chromatographic techniques and Electrophoresis.

UNIT: III

MECHANISM OF ENZYMES ACTION

Energy of activation, catalytic mechanism of enzyme action-lock & key theory and induced fit model, acid base catalysis, covalent catalysis, metal ion catalysis, electrostatic catalysis, catalysis through proximity and orientation effects, catalysis by preferential transition state binding.

UNIT: IV

ENZYME KINETICS:

Specificity – stereo specificity and geometric specificity. Michaelis Menten equation, Line weaver burk plot. Enzyme inhibition- mechanism of competitive, non-competitive inhibition, allosteric. Factors regulating enzyme action viz., pH, temperature, substrate and enzyme concentration.

UNIT: V

ENZYME TECHNOLOGY AND ITS APPLICATION:

Industrial use – Amylases and proteases – pectinase for juice clarification; papain for meat tenderization; collagenase for hide purification. Glucose oxidase strips for glucose detection and invertase in sugar hydrolysis. Biotechnological applications of exo and endonuclease. Immobilized enzymes and its applications. Biosensors, abzymes, and biochips.

TEXT BOOK:

1.Keith Wilson and John Walker (2004): Principles and Techniques of Practical Biochemistry, 5th edition, United Kingdom, Cambridge University Press.
2.Donald Voet & Judith G. Voet (1995) Text Book of Biochemistry Second Edition – (1995), By John Wiley & sons, Inc.

REFERENCES:

1. Stryer, L. (1980) Biochemistry WH.Freeman and Company NewYork.
2. West. E.S., Todd W.R., Mason. H.S. & Bruggen J.T. (1996) Text Book of Biochemistry Fourth Edn., The Macmillan Company, London.
3. MurrayR.K.GrannerD.K.MayesP.A.RodwellV.W.(1996)Harper'sBiochemistry – 24th Edition. A Lange Medical Book, Prentice Hall International Inc.
4. Renuka Harekrishnan (2000). An Introduction to Biomolecules & Enzymes.III Edn. Indrajit Pathipagam, Madurai.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 2
DEPARTMENT OF BIOCHEMISTRY
II B.Sc., SEMESTER –IV
MAJOR ELECTIVE 1 - HUMAN PHYSIOLOGY

CREDITS: 5 **CODE: U14BC4MET01**
HRS/WK: 5

General Instructional objectives: The student

- learns about the structure, operational mechanism and functions of the various organs and organ system in human body
- learns about the chemistry and functioning of various endocrine secretions.

UNIT: I

DIGESTIVE AND CIRCULATORY SYSTEM:

Gross anatomy of the Gastro- Intestinal tract with relation to its function – types of glands and their secretion. Basic structure and function of heart, rhythmicity of heart, origin and conduction of heart beat, cardiac cycle, heart sounds, Blood pressure, heart rate, Cardiac output, electrocardiogram.

UNIT: II

RESPIRATORY SYSTEM:

Respiration - Definition, Basic structure of lungs, transport of gases (CO_2& O_2).

Body fluids – Extracellular fluid, plasma volume, interstitial fluid, transcellular fluid, intracellular fluid, ionic composition of body fluids, imbalances in sodium and potassium lends, body buffers, lymph-formation, composition and flow.

UNIT: III

EXCRETORY SYSTEM:

Excretion: Basic structure and function of kidney, structure of nephron, glomerular filtration rate, Tubular Transport maximum, tubular load, plasma clearance. Formation of urine – Threshold substances, filtration pressure, filtration, reabsorption, secretion, acidification. Normal and abnormal constituents of urine.

Physiology of reproduction.

UNIT: IV

NERVOUS AND MUSCULAR SYSTEM:

Structure of neuron, nerve impulse and neurotransmission, synapse –chemical and electrical synapse, functional properties of nerve fibre, action potential. Reflex action and reflex arc. Molecular organization, mechanism of excitation and contraction of striated muscles, neuromuscular functions, Biochemistry of muscle contraction.

UNIT: V

BASIC ENDOCRINOLOGY:

Introduction to Hormones: Mode of action of hormones. Hypothalamus and Hypophysis: Structure, hormones secreted.Thyroid, Parathyroid and Pancreas: Chemical nature of hormone, synthesis, storage, release, transport and functions. Adrenal and Gonadal hormones: Chemical nature of hormone, synthesis, storage, release, transport and functions.

TEXT BOOK:

1. Chatterjee, C.C. (1985) Human Physiology, Vol. I & Vol. II published by A. K. Chatterjee, India.

REFERENCE:

1. Talwar G.P. (1980) Text Book of Biochemistry, Prentice–Hall of India.
2. Guyton, A.C. (1991) Text Book of Medical Physiology W.BSaunders Company, Philadelphia, London, Toronto.
3. Harper, H.A., Rodwell, V.W. Mayes.P.A [1997]. Review of Physiological chemistry, A Lange Medical Publications, Maruzen Asia Pvt.,Ltd.,
4. Murray, R.K.Gramer, D.K. Mayes, P.A and Rodwell, V.W. (1999).Harper's Biochemistry, 25th Edn. A Lange Medical Book, Prentice- Hall International.
5. West, E.S., Todd, W.R., Mason, H.S. and Bruggen, J.T.V. (1974). Text Book of Biochemistry. The Macmillan Company, Collier – Macmillan Limited/London.
6.Frederic.H.Martini., William. C. Ober., Clare W. Garrison. (2006). Fundamentals of Anatomy And Physiology 7th Edn. Pearson Benjamin Cummings Publications, San Francisco.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 2
DEPARTMENT OF BIOCHEMISTRY
II B.Sc., SEMESTER –IV
MAJOR ELECTIVE 1 -BIOPHYSICAL CHEMISTRY

CREDITS: 5 **CODEs: U14BC4MET02**
HRS/WEEK: 5

General Instructional objectives:
The student learns about the laws, concepts and theories of physical chemistry applied in biological systems.

UNIT: I
GASEOUS STATE: Dalton's law of partial pressures – Henry's law – Gas analysis in biological systems – PC02 and PO2 gaseous exchange in the lungs arterial and ventral capillaries.

UNIT: II
CHEMICAL KINETICS: Rate – Definition and Methods of determination – Rate Laws – Specific rate constant –Order as applied to first, second, zero and fractional order reactions – Molecularity.

UNIT: III
THERMODYNAMICS: Heat and work – various forms of energy – Interconversion of forms of energy – Definition of heat, temperature and heat capacity. First and second law of thermodynamics – Clausius - Claypeyron equation – Definition of enthalpy, entropy and heat content - Isothermal, Adiabatic, reversible and irreversible processes – Classical example of equipartition of energy. Hess's law and its application – Free energy changes during chemical reactions. Bond energies and heat of combustion Calculation of free energy change from equilibrium constant of biological transformations – Kirchoff'sequation. Definition of pH and pOH – Buffer solutions – Preparation and uses – Buffer action – Henderson equation – pH of body fluids Buffers in body fluids – Red blood cells and tissues – Measurement of pH by indicators, Hydrogen electrode and glass electrode method.

UNIT: IV
COLLOIDAL STATE : Size of colloidal particles – Types of colloidal dispersions (Sol, aerosols, emulsion forms, gels) Preparation of lyophilic and lyophobic sols – protective colloids – Gold number – Stability of colloids – precipitation – coagulation – Flocculation. Properties of colloids – colligative, properties, optical properties, Electrical properties. Gasometric phenomenon and osmoregulation in the body – Electrosomosis - Electrophoresis. Importance and applications of colloids.

UNIT V:

ELECTROCHEMICAL TECHNIQUES: Principles of electrochemical techniques – reference electrodes, Measurement of PH by glass electrode, ion selective electrodes and gas sensors. Redox potentials principles potentiometric titrations oxygen electrode - principle, operation of a Clark electrode, applications of oxygen electrode.

REFERENCE:

1. Upadhyay A., Upadhyay k. & Nath N. (2000).Biophysical chemistry First edn. Himalaya publishing House.
2. Puri Sharma pathania :Principles of physical chemistry 3rd edn., Vishal publication[1983]
3. Bahl. B.S. Tuli.G.D and Arun Bahl : Essentials of physical chemistry[1982]
4. Murray R.K. Granner D. K. Mayes P.A. Rodwell V.W Harper's Biochemisty 24^{th} edn., A lange medical Book – prentice Hall InternationalInc[1994]

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
II B.Sc., SEMESTER IV
ALLIED 5 (OPTIONAL): MICROBIOLOGY-APPLIED

CREDITS: 4 **CODE:** U14BC4AOT05
HRS/WK: 4

General Instructional Objectives:

The student
- learns about the different fermentation processes, the microbiology of food and dairy products. Soil microorganisms and their role in biogeochemical cycles, veterinary, air & water microorganism and the common bacterial and viral diseases of man.

UNIT: I

INDUSTRIAL MICROBIOLOGY:

Fermentation Products – enzymes, antibiotics, alcohols – microbes involved, fermentation process of ethyl alcohol, vinegar, penicillin, commercial importance of the products. Effluent treatment.

UNIT: II

FOOD MICROBIOLOGY:

Normal flora of fresh food, food spoilage & food poisoning. Physicochemical methods in food preservation.

DAIRY MICROBIOLOGY:

Normal flora of milk, pasteurization, milk products – curd, cheese, butter, fermented milk. Milk borne 1 diseases.

UNIT: III

AGRICULTURAL AND AQUATIC MICROBIOLOGY:

Soil microorganisms - types, influence on soil, nitrogen cycle, nitrogen fixation, soil fertility, biofertilizer, Biogas. An introduction to marine microbes.

UNIT: IV

An introduction to Medical Microbiology.

Types and analysis of air microorganism, air borne diseases – meningitis, chicken pox, and measles.Types and analysis of water microorganism, water borne diseases – polio, cholera. Zoonotic diseases: Anthrax, Rabies, swine flu – causative agents, pathogenesis and preventive measure.

UNIT: V

MEDICAL MICROBIOLOGY:

Common bacterial, viral diseases of man - diphtheria, tuberculosis, pneumonia, whooping cough, typhoid, cholera, leprosy, tetanus, polio, viral hepatitis, AIDS – causative organism, basic structure, toxicity, pathogenicity, clinical symptoms, preventive measures.

TEXT BOOK:

1. Pelczer M.J. Chan E.C.S. Noel R. Krieg, 1993 Microbiology, Fifth Edn., Tata McGraw Hill publishing company Ltd., New Delhi.
2. Ananthanarayan.R. and Jeyaram Paniker C.K. (1986) Text Book of Microbiology, Orient Longman Limited Madras.

REFERENCE:

1. Pelczer M.J. Chan E.C.S. Noel R. Krieg (1993 Microbiology), Fifth Edn., Tata McGraw Hill publishing company Ltd., New Delhi.
2. Ananthanarayan.R. and Jeyaram Paniker C.K. (1986) Text Book of Microbiology, Orient Longman Limited Madras.
3. Frazier W.G. (1958) Food Microbiology. McGraw Hill Book of Company New York.
4. Power C.B. & Daginawala H.F. (1996) General Microbiology Volume I & II. Himalaya Publishing House, Bombay.
5. Stainer R.Y. Ingraham JL.Wheels M.L. & Painter P.R. (1992) General Microbiology, Macmillan, London.
6. Sharma P.D. (1993) Microbiology, Rastogi and Co., Meerut.
7. Purohit S.S (1992) Microbiology-Fundamentals and applications, Agro Botanical Publishers, India.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI DEPARTMENT OF BIOCHEMISTRY

II B.Sc., SEMESTER IV

ALLIED 6(OPTIONAL): MICROBIOLOGY – PRACTICALS

CREDITS: 3 **CODE:** U14BC4AOP06

HRS/WK: 4

1.Cleaning, Preparation and sterilization of glasswares.
2.Preparation of media for bacteria, fungi and actinomycetes.
3.Inoculation methods.
4.Isolation of pure culture by streak plate & pour plate method.
5.Preservation of cultures – Stab and Slant cultures.
6.Staining of Microorganism – Gram stain, acid fast, methylene blue, Negative staining
7.Hanging drop preparation.
8.Bacteriological examination of soil and milk.
9.Growth curve.
10. Wine production by yeast.
11. Antibiotic disc assay.
12. Enumeration of coliform organism.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
III B.Sc., SEMESTER V
MAJOR CORE 7: INTERMEDIARY METABOLISM
(METABOLIC DISORDERS NOT INCLUDED)

CREDITS: 4 **CODES: U14BC5MCT07**
HRS/WK: 5

General Instructional Objectives:

The student

- Learns about themitochondrial ETS, high energy compounds & photosynthesis
- learns about the metabolism of carbohydrates, proteins and lipids & their regulations.
- understands the metabolism of purines, pyrimidines and Detoxication.

UNIT: I
METABOLISM OF CARBOHYDRATES

Carbohydrate metabolism – Glycogenesis, Glycogenolysis, Glycolysis, Citric acid cycle, Glyoxylate cycle, Gluconeogenesis, HMP shunt pathway, Uronic acid pathway.

UNIT: II
METABOLISM OF LIPIDS & STEROIDS

Biosynthesis of fatty acids and some important phospholipids. Degradation of fats – beta oxidation of saturated and unsaturated fatty acids, degradation of phospholipids. Metabolism of ketone bodies. Steroids – Biosynthesis and degradation of cholesterol – importance.

UNIT: III
AMINOACID METABOLISM

Amino acid pool Oxidative and non oxidative deamination, transamination, transmethylation. Urea cycle, Creatinine formation.

Outline of various amino acid metabolism. Metabolism of essential amino acids – Phenyl alanine and tyrosine, tryptophan, branched chain aminoacids & sulphur containing aminoacids.

UNIT: IV
METABOLISM OF NUCLEIC ACIDS

Biosynthesis (denova and salvage pathway) of purines and pyrimidines with reference to the sources of atoms in the purine and pyrimidine molecules. Catabolism of purines and pyrimidines. Detoxication mechanisms – conjugation, hydrolysis, reduction and oxidation with examples.

UNIT: V
REDOX SYSTEMS OF MITOCHONDRIA AND CHLOROPLAST

Respiratory chain – functions of NAD+, NADP+, FMN, FAD, cytochrome and CoQ in hydrogen transfer, formation of ATP. High energy compounds and linkages. Photosynthesis - light reactions and dark reactions.

TEXT BOOKS:

1.Murray *et al* (2006) Harper's Biochemistry, Twenty seventh Edn., Prentice Hall, International Inc.
2.Dr. Deb, A.C. (1999) – Fundamentals of Biochemistry, New Central Book Agency (P)Limited

REFERENCES:

1.Lehninger, A.L.Nelson, D.L. and Co., M.M. (1993). Principles of Biochemistry, CBS publishers and Distributors, India.
2.Stryer, L. (2006) Biochemistry, W.H. Freeman and Company, NewYork.
3.Dr. S. Ramakrishnan, K.G.Prasannan & R.Rajan (1994). Second Edn. Text Book of Medical Biochemistry, Orient Longman Limited, Madras.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 2
DEPARTMENT OF BIOCHEMISTRY
III B.Sc., BIOCHEMISTRY, SEMESTER V
MAJOR CORE 8: GENETICS AND MOLECULAR BIOLOGY

CREDITS: 4 **CODE: U14BC5MCT08**
HRS/WK: 5

COURSE OBJECTIVES:

The students learn about the:

- basic principles of inheritance and the significance of the organization of genome
- mechanisms in the expression of genetic material and its regulation

GENETICS:

UNIT: I

Heredity and variation: Mendelian Inheritance; Multiple alleles and Inheritance of blood groups, Chromosome theory of inheritance; Chromosomes and genes; Linkage and crossing over; Sex determination; Sex linked inheritance - Haemophilia, Colour blindness. Cancer genetics: Oncogenes, activation of proto oncogenes, antioncogenes and oncoproteins.

UNIT: II

Mutation types and molecular mechanisms; mutagens. Variation in chromosomes: Structural - deletion, duplication, inversion and translocation and Numerical - aneuplodiy and its types. Syndromes in man- Down's, Turner's and Klinefelter`s syndrome. Polyploidy – types, origin, induction and significance. Mutation detection-CLB method.

UNIT: III

REPLICATION OF DNA

Nucleic acids as carriers of genetic information carriers. Nucleosomes: organization of DNA. Semi conservative method: mechanism, experimental evidence. Enzymology of DNA replication, events at the replication fork, rolling circle method of DNA replication, inhibitors of DNA replication.

UNIT: IV

TRANSCRIPTION:

Transcription in prokaryotes and Eukaryotes – initiation, elongation, termination, inhibitors of transcription, antisense RNA. Post transcriptional processing of mRNA – splicing, introns, exons, capping, polyadenylation.

TRANSLATION

The genetic CODE and its features. Protein synthesis in E.coli - charged tRNA, F.met-tRNA, initiator codon, Shine – Dalgarno sequence, formation of initiationcomplex, role of EF – Tu, Ef-Ts, Ef-g and GTP, non sense codons; and releasefactors- RF1 and RF2. Post translational modification of protein.

UNIT: V

GENE REGULATION:

Enzyme induction, repression, operon concept, Lac-operon, trp operon, co-ordinate regulation, positive and negative regulation.

DNA repair light repair, dark repair– Excision, recombination and SOS repair systems in E.coli.

TEXT BOOK:

1.Verma, P.S., and Agarwal, V.K., Genetics A. Chand and Company Ltd., New Delhi, 2005.

2.Freifelder D., Molecular Biology, Jones and Bartlett, Boston USA, 1989.

3.Power.C.B., Cell Biology, Himalaya publishing House, Delhi,1996.

REFERENCES:

1.Gardner., Principles of Genetics, Wiley Eastern Ltd, New York,1984.

2.Griffiths, A, J.F., An Introduction to genetic analysis Freeman and company, New York, 1993.

3.Lewis Richi, Human Genetics: Concepts and its application 8^{th}Edn.
Tata Mc. Graw Hill New Delhi, 2005.

4.Ursula Goodenough., Genetics, Holt Reinhart and Winston, New York, 1985.

5.Tamarein, Robert H., Principles of Genetics, Tata Mc. Graw Hills, New Delhi, 2004.

6.De Robertis E.D.P, and De Robertis E.M., Cell and Molecular Biology, 8^{th}Edn.
B.I Waverly Pvt. Ltd., New Delhi, 1995.

7.Freifelder.D., Molecular Biology, N.K.Mehra for Narosa publishing House New Delhi,1990.

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
III B.Sc., SEMESTER-V MAIN CORE-9: IMMUNOLOGY

CREDITS: 4 **CODE: U14BC5MCT09**

HRS/WK: 5

General Instructional objectives

The student

- learns about the structure, mechanisms of action and functional roles of the various cells (T, B & Macrophages) and organs (primary & secondary lymphoid organs)of the immune system.
- understands the concept of autoimmunity, hypersensitivity, transplantation and tumorimmunology.

-understands the principle and applications of various immunological techniques

UNIT: I

Types of immunity: Innate and acquired, Passive and active.
Lymphoid organs: Primary and secondary lymphoid organs-thymus, bone marrow, bursafabricius, spleen, lymph node, GALT & BALT.
Lymphocytes: Macrophages, T and B cells –origin, differentiation and functions. Role of lymphokines and cytokines in an immune response.

UNIT: II

Antigen: Super Antigen, haptens – structure, general properties and functions.
Immunoglobulin: structure, types & functions. Genetic basis of Antibody diversity.
Vaccines and Toxoids, preparation and immunization.
Complements: Components, mode of activation, classical and alternate pathway and its functions.

UNIT: III

Acquired Immune Response: Primary and Secondary immune response.
Humoral immunity: Antigen recognition, cell interactions, clonal proliferation, interleukins, antibody synthesis, regulation of antibody synthesis.
Cell mediated immunity: Role of cyototoxic T lymphocytes, TD cells, NK cells and macrophages.
Immunity to infection: Mechanism, Antigenic drift, antigenic shift, antigen mimicry, antigenic masking, antigenic variation.

UNIT: IV

HLA: structure & functions, HLA typing, organ transplantation
Autoimmunity: Concept, mechanism & autoimmune diseases viz., Grave's diseases, SLE, serum sickness and Rheumatoid arthritis.
Hypersensitivity: Definition, mechanism & types with example.
Tumor immunology: Tumor antigens immune surveillance and Tumor immunotherapy.

UNIT: V

Immunological techniques: Production of antisera, agglutination and precipitation reactions, immunodiffusion, immunoelectrophoresis and immunofluorescent techniques. Principle, technique and applications of RIA, ELISA, FISH

TEXT BOOK:

1. Kuby, T. (1994) Immunology, W.H. Freeman & company, New York.

REFERENCES:

1. Chakravarthy.A.K. (1996) Immunology, Tata MC Graw Hill publishing company limited. New Delhi.
2. Daniel P.Stites & Abbas I. Tarr (1991) Basis and Clinical Immunology, Prentice – Hall International Inc.,
3. Sell. S. (1987). Basic immunology–An Introduction, IV Ed., Saunders college publications, Philadelphia.
4. Roit. I.M, (1998) Essential Immunology, 6^{th} Edn. EIBS/Blackwell scientific publication, Oxford.
5. Fathima, D. & Armugam (1996). Immunology, Saras Publication. Kanyakumari.
6. Nandini.S. (1994) – Immunology Introductory text book. New age Int, (p) Ltd. Publication, New Delhi.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OFBIOCHEMISTRY
III B.Sc., SEMESTER V MAJOR CORE 10: PRACTICALS –II
ENZYMES AND ANALYTICAL TECHNIQUES

CREDITS: 4 **CODE: U14BC5MCP10**
HRS/WK: 5

ENZYMES:

Preparation of acid phosphatase from potatoes, effect of pH, Temperature, Enzyme and Substrate concentration on the enzyme.

Preparation of catalase from Chowchow-effect of pH, temperature, enzymes and substrate concentration on the enzyme.

Preparation of Line weaver – Burk plot and determination of Michaelis Menten constant of acid phosphatase and catalase.

ANALYTICAL TECHNIQUES

1. Rectangular Paper chromatography.

Circular Paper chromatography.

Thin layer chromatography of aminoacids

Separation of plant pigments by column chromatography

5. Electrophoresis.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
III B.Sc., SEMESTER V
MAJOR CORE ELECTIVE-2: DRUG BIOLOGY

CREDITS: 4 **CODE: U14BC5MET01**
HRS/WK: 4

UNIT- I

History and development of medicinal plants, sources and classification of drugs. Routes of drugs administration, dosage forms. Drug distribution, pKa values, hydrogen bonding, protein binding, chelation, steric effect, surface activity. Mechanism of action of drugs, combined effect of drugs. Factors modifying drug action, tolerance and dependence. Pharmacogenetics.

UNIT- II

Drug metabolism – general pathways of drug metabolism (different types of reaction in phase I and phase II with examples), metabolism and excretion of drugs. Adverse drug reactions and treatment of poisioning. Drug interactions, factors affecting drug metabolism including stereo chemical aspects, significance of drug metabolism in medicinal chemistry.

UNIT- III

Autonomic nervous system, central nervous system, autocoids, chemotherapy of parasite infections, chemotherapy of microbial diseases, immunomodulators. Gene therapy. Therapeutic gases. Free radical biology and antioxidants, pharmacology of biophosphonates.

UNIT- IV

General toxicology: Basic principles of diagnosis. Mechanism of toxic effect, toxico kinectics – chemical carcinogens and teratogens, treatment of intoxication. Response of respiratory system, reproductive system, liver, kidney to toxic agents. Toxic effects of metals, solvents, environmental pollutants. Antidotes in the management of poisioning. Applied analytical toxicology and toxic vigilance.

UNIT- V

Basic constituents of plants (chemical classification). Isolation of active constituents from plant material. Percolation and maceration. Qualitative constituent characterization techniques. Utilization of HPTLC for the constituent analysis. Estimation of marker compounds on biological fluid after crude plant material. Introduction and medicinal terminology – IT enabled services, need of medical transcription, equipments used. Medical terminology – word root, combining form, suffixes prefixes, formation and defining medical words.

REFERENCE BOOKS

1. The pharmacology volumeI and II – Goodman and Gillman
2. Basic pharmacology –Foxter Cox
3. Principles of medicinal chemistry 4th edition by Willam.O.Foye, B.I. Waverks, LW&W., (1995)
4. 4.Burgers medicinal chemistry and drug discovery- principles and practice- Manfred. E.Wolf
5. 5.Oxford text book of clinical pharmacology and drug therapy, D.G Grahme Smith and J.K.Aronson
6. 6.Pharmacology and pharmatherapeutics- R.S. Satoskr,S.D.Bhandhakarand
7. Essential of pharmacotherapeutics, Barav.F.S.K 8.Introduction to medicinal chemistry, Batrick.G.L
9. Lippincotts illustrated review pahamacology, Mary. J.Mcek, Richarts, Pamela.C.

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
III B.Sc., SEMESTER V
MAJOR CORE ELECTIVE-2: BIOSTATISTICS

CREDITS: 4 **CODE: U14BC5MET02**
HRS/WK: 4

General Instructional Objectives

The student learns about illustrative and descriptive statistics and understands the use of the various statistical measures (correlation, various significance test and SASaa) to be applied in biological sciences.

UNIT: I

Definition – Scope of Biostatistics, Variables in Biology. Collection, classification and tabulation of data. Graphical and diagrammatic representation- scale diagram –Histogram – frequency polygon – frequency curves.

UNIT: II

Descriptive statistics – Measures of central tendency –Mean (Arithmetic, Harmonic and Geometric), Median and Mode. Measures of dispersion – Mean deviation, Quartile deviation and Standard deviation (Derivations not included).

UNIT: III

Simple correlations – correlation co-efficient. Regression – Simple linear regression.

UNIT: IV

Basic idea of significance test–student 't'test, 'Chi' square and goodness of fit. Theoretical distribution – Normal, Binomial and Poison distributions.

UNIT: V

Probability: Principle- (Permutations and Combinations) and types. ANOVA, ANOCOVA and its applications (One way and two way classification). An introduction to SAS Packages.

TEXTBOOK:

1. S.Palanichamy & M. Manoharan, (1991) Statistical methods for Biologists. Palani paramount publications.

REFERENCE BOOKS:

1. Gupta, C.D. (1973) An Introduction to statistical Methods. VikasPublishing Pvt. Ltd., New Delhi.
2. Veer Bala Rastogi. Fundamentals of Biostatistics.
3. Ipsen,J &Feigl, P.(1970) Bancrofts Introduction of Biostatistics Haper andRow Publishers, New York, London.
4. Snedecor, G.W.& William (1975) Statistical Methods Harvard University, Oxford & IBH publication Co., Calcutta Bombay.
5.Satoskar R.S. & Bhandarkar S.D., (1998) Pharmacology and pharmacotherapetics . Volume I & VolumeII

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 2
DEPARTMENT OF BIOCHEMISTRY
SEMESTER V- NME 1: NON MAJOR ELECTIVE PAPER I FIRST AID MANAGEMENT

CREDITS:2 **CODE:U14BC5NMT01**
HRS/WK: 2

General Instructional & Objectives

The student learns about principles & objectives of first aid & acquires a basic knowledge on the various first aid measures to be given during various emergency situations.

UNIT: I

Principles and objectives of First Aid, casualty assessment. Priorities of First Aid. Patient management and care.

UNIT: II

Management of common illness and Thermal illness. Risk assessment and risk reductions- Fainting, Anaphylaxis, Asthma, Epilepsy, Diabetes, Burns and Scalds.

UNIT: III

INJURIES: Internal and external bleeding injuries to muscles, back, chest, abdomen, joints and bones, stroke and head injury and eye irrigation. Sudden illness-poisoning, Bites and Stings.

UNIT: IV

Accident reporting, breathing emergencies, Cardiac emergencies. Oxygen therapy – resuscitation, defibrillation – Heart attack. Common gastrointestinal sickness, Altitude sickness.

UNIT: V

First Aid rooms and equipments, First aid kits, cleaning of wounds and dressing injury assessment.

TEXT BOOK:

1. John A Eastman,(2007). First Aid to the Injured – Authorized manual of St. John's Ambulance, Red Cross Road, New Delhi.

REFERENCE:

1. Subramanian. R. (2006) First aid Home nursing, 1st edn, Bharat printers Trichy.

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 2
DEPARTMENT OF BIOCHEMISTRY
SEMESTER V- NME 1: NON MAJOR ELECTIVE PAPER I CLINICAL BIOCHEMISTRY AND MICROBIOLOGY

CREDITS: 4 **CODE: U14BC5NMT02**
HRS/WK: 4

General and instructional objectives:
The student learns about the basics of sampling, normal values for the different hematological tests and its significance.

UNIT: I
Introduction to laboratory equipment and basic laboratory operations: Use and care of common laboratory Glass wares and Instruments- Microscope, Colorimeter, Centrifuge, Incubator, Hot air oven, Autoclave. Practicals: Demonstration of glass wares and instruments

UNIT: II
GENERAL COMMENTS ON SAMPLE COLLECTION:
Collection of Urine: Random, 24hrs, changes on keeping. Preservative of Urine. Collection of blood by fingertip and venipucture. Types of blood to be collected - whole blood, serum plasma, RBC. Routine analysis of urine(qualitative) colour, appearance and pH, specific graviy, Albumin, glucose, ketone bodies, blood, urinary deposits, bile salts, bile pigments and urobilinogen. Practicals: Demonstration – Abnormal chemical Constituents of Urine.

UNIT: III
INTRODUCTION TO HAEMATOLOGY:
Components of blood and their functions, Routine Haematological Tests – Haemoglobin estimation and Anaemia, Blood Grouping, the ABO and Rhesus blood group system, making and staining of a blood film and identification of cellular elements in it. Differential leukocyte count. Practicals: Hb, DLC, Blood Grouping.

UNIT: IV
CLINICAL BIOCHEMISTRY:
Routine Biochemical Test- Blood glucose, protein, Urea, creatinine, Cholesterol (lipid profile), Calcium, Phosphorous and Enzymes (SGOT, SGPT) – their estimation and significance. Practicals: – Glucose, Protein, Urea and Creatinine estimations. Demonstration.

UNIT: V **11Hrs**

INTRODUCTION TO BACTERIOLOGY

Morphology and examination of Microorganism, Microorganism in stained preparation and culturing of microorganisms. Laboratory diagnosis – Typhoid, cholera, Meningitis, Tuberculosis Staphylococcal and streptococcal infection. Practicals: Gram's staining and culture method.

TEXT BOOK:

1. Kanai L. Mukherjee (1993) Medical laboratory Technology, Vol. I, I, III Tata Mc Graw- Hill Publishing Co. Ltd., New Delhi.

REFERNCES:

1. Monical Cheesbrough and John McArthr. A Laboratory manual for rural tropical hospitals. The English Language Book society.
2. Kanai L. Mukherjee (1993) Medical laboratory Technology, Vol. I, I, III Tata Mc Graw- Hill Publishing Co. Ltd., New Delhi.
3. Ramakrishnan, Prasanna and Rajan (1994) Textbook of Medical Biochemistry orient Longman, Madras
4. Harold Varley Alan H. Gowenlock and Mauring Bell (1991) Practical Clinical biochemistry Vol. I & II Fifty Edn. CBS Publishers 7 Distributors, New Delhi.
5. Ambika Shanmugam, (1997) Fundamentals of Biochemistry for Medical students, Chennai.

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
III B.Sc., SEMESTER V
SBE 4: FOOD PRESERVATION TECHNOLOGY

CREDITS: 2 **CODE:** U14BC5SBP04
HRS/WK: 2

General Instructional Objectives:
The students learns about the processes and different methods involved in preserving foods from spoilage. An overview about commercial foods, milk and milk products and food additives.

Preparation of
1. Jams, jellies and fruit preserves
2. Squashes, vegetables and fruit products
3. Pickles &Chutneys
4. Sauces &Ketchups
5. Ready mixes & Paneer Preparations
6. Bakery products (Cakes &Biscuits)
7. Classification of food and importance of food preservation. Principles and methods of food preservation.
8. Milk and Milk Products (Flow chart for processing of milk powder,
9. condensed milk and cheese).

TEXT BOOKS:
1. Srilakshmi, B. (2001). Food Science, New Age International (P) limited publishers, New Delhi.
REFERENCE:
1. Shakuntala Manay, N. and Shadaksharasswamy, M., (1998), Foods –Facts and Principles New Age International (P) Limited, Publishers, New Delhi.
2. Shirley J.VanGrade and Margy Woodburn. (1999) Food Preservation and Safety-Principles and Practice Surabhi Publications, Jaipur.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPPALLI – 2
B.A./B.Sc/B.Com/B,R.SC/B.C.A - DEGREE COURSES
LIFE ORIENTED EDUCATION
CATECHISM – III: LITURGY AND CHRISTIAN LIFE

HRS / WK: 1 **CODE:U12VE6LVC03**
CREDIT: 1
MARKS: 100

OBJECTIVES:

- To prepare the students to participate meaningfully in the liturgical celebration and experience GOD in their day today life.
- To become a living witness to Jesus Christ in their personal, family and social life.

UNIT - I: LITURGY

Personal prayer (Know oneself) – Vocal prayer – Community prayer – Meditation – Contemplation – Knowing the prayers : Our Father – Hail Mary – Holy Rosary – Mysteries of the Rosary- Litany of Mary – family prayer-Popular devotion

UNIT – II: HOLY SACRIFICE OF THE MASS

Significance – meaning and need for spiritual growth – mass prayers – part of the mass – liturgical year, its division and its significance. –Creed – Act of contrition – Discernment of spirits – Counseling – Spiritual direction.

UNIT – III: CHRISTIAN VOCATION AS DISCIPLE FOR THE KINGDOM OF GOD

Who am I as a Christian? – Christian dignity and others – The values of the Kingdom opposing to the values of the World – Christian social conscience – Christian in the reformation of the world – a call to be salt and light in today's context-Come follow me-I have chosen you-Servant hood-Baptism-Common priesthood-Discipleship-Lay vocation-Lay participation-Lay associates.

UNIT – IV: CHRISTIAN FAMILY

Holy family- characteristic of good family – role of families in the church and society-Responsibilities of parents, and children in the family – church – laws towards marriage-Prolife (Abortion, Euthanasia).

UNIT – V: CONSECRATED LIFE

"Come and follow me" – special disciples - "I have called you to be mine"- - called to be prophets and agents for God's Kingdom – nucleus of the church – Eschatological signs of the God's Kingdom.

REFERENCES:

1. Compendium – Catechism for the Catholic Church Published by Vaigarai Publishing House for the Catholic Church of India.
2. You are the light of the World, A course on Christian living for II year Religion published by Department of Foundation Courses, St.Joseph's College (Autonomous), Tiruchirappalli–620 002.

HOLY CROSS COLLEGE(AUTONOMOUS), TIRUCHIRAPPALLI-2

B.A. /B.Sc. / B.Com. / B.R.Sc./ B.C.A. DEGREE COURSE

LIFE ORIENTED EDUCATION

ETHICS – III: FAMILY AND CAREER DEVELOPMENT

HRS / Wk : 1 **CODE: U13VE6LVE03**

CREDIT : 1

MARKS : 100

OBJECTIVES:

- To help the students learn skills, knowledge, talent to lead a meaningful life.
- To help the students understand marriage life.
- To make the students learn skills of nurturing family and children.
- To make them aware of emotional intelligence and choose their carrier.

UNIT – I: PERSONAL COMPETENCE

Emotional Intelligence for Professional growth, Management Vs Leadership-Management and Leadership Skills - Conflict Management - Tips for Professional growth

UNIT - II: MARRIAGE AND FAMILY

Family Vision - Family Values, Family relationship, Family Management, Sex in Marriage, Emotional Balance and Imbalance, Compatibility between Husband and Wife

UNIT – III: MOTHERHOOD

Bringing up Children - Development stages (Eric Ericson model), Spirituality: Spirituality in Family - Prayer, God's Will, and Role of Mother

UNIT – IV: PERSONALITY DEVELOPMENT

Self Analysis; interpersonal relation, introspection – character formation towards positive personality (values, self and college motto, punctuality, good moral, poverty, honesty, politeness, humanity, gentleness, friendship, fellowship and patriotism

UNIT – V: CAREER CHOICE

Career Choice according to Personality, Preparation for Competitive Exams, Sources of Knowledge, Memory Techniques, Mind Mapping

REFERENCES:

1. Tony B and Barry Buzan(2003), The mind map book, BBC world wide limited, London.
2. Susan Nash(2005), Turning team performance inside out, Jai CO. publishing House, New Delhi.
3. Fr. Ignacimuthu (1999) "Values for Life", Vaigarai Pathipagam.
4. Grose. D.N. (2000), "A text book on Value Education", Dominant Publishers.

HOLY CROSS COLLEGE (AUTONOMOUS), TRICHIRAPALLI - 2.

B.A/B.Sc./B.COM/B.R.Sc./B.C.A – DEGREE COURSES

LIFE ORIENTED EDUCATION

BIBLE STUDIES – III: ESSENCE OF CHRISTIAN FAITH

HRS / WK : 1 **CODE: U12VE6LVBO3**

CREDIT : 1 **MARKS : 100**

OBJECTIVE:

- Prepare to practice Christian principles in family, church and society as a young women.

UNIT - I: ESSENTIALS OF CHRISTIAN FAITH

- Salvation – Deliverance from sin (Is 53),Assurance of salvation and New life (II Cor 5:17)
- Sacraments – Baptism (Luke 3: 6-14), Lord's Supper (I Cor 10: 16,17; 11: 23-29)
- Trinity– One in three and three in one. Illustrations from the Bible. (John 14: 16,17)
- Heaven and Eternal life (John 14: 13, 3: 13-21)

UNIT – II: MARIAGE AND FAMILY LIFE

- Finding the God's Will - Issac (Gen 24)
- Man and woman as Partners – Abraham and Sarah (Gen 16-18,22) Aquila and Priscilla (Acts 18: 1-3,26)
- Evils to be avoided – Premarital Sex, Extramarital Sex, Homosexuality, Abortion(Heb 13: 4, Psalm 127 : 4)
- Ideal Wife – Sarah (I Peter 3: 1-6), Ruth, Eph 5

UNIT – III: CHRISTIAN HOME

- Parental Responsibilities and bringing up children – Abraham (Gen 22),
- Caring for the Aged (I Sam 2: 31,32)
- Entertainments (I Cor 10: 23)

UNIT – IV: CHRISTIAN ETHICS

- Holiness – Joseph (Gen 39:9)Levi 11: 45, Ecc 12
- Obedience to God - Abraham (Gen 12) ; St.Paul (Acts 9)
- Freedom and Accountability
- Justice and Love

- Choices in Life – Making Decisions(Studies, job, life Partner)
- Model to follow – Who is your model? (John 15: 1-17)

- Social Evils – Dowry, Caste discrimination, Accumulation of wealth
- Freedom of Options, Time Management, Work Ethics (I Peter 2: 11-25)

UNIT – V: ROLE IN CHURCH AND SOCIETY

- Man is the temple of God (I Cor 3: 11-17, 6: 19-20) Individual responsibility in Gospel work
- Church –Body of Christ (I Cor 12: 14-27)
- Unity (John 17: 20-23, Mat 10: 37-39, 16:24-26, Mark 13: 11-13)
- Discipleship (I & II Timothy, Titus)
- Social Responsibilities (Phil 2; 1-11, James 1: 27, 2: 14-17, 4: 17, 5: 14-15)

REFERENCES:

1. Alban Douglass (1982) One Hundred Bible Lessons. Gospel Literature Service, Mumbai.
2. Derek Prince (1993) Foundations for Righteous Living. Derek Prince Ministries-South Pacific, New Zealand.
3. Derek Prince and Ruth Prince (1986) God is a Match maker. Derek Ministries, India.
4. Ron Rhodes(2005) Hand book on Cults. Amazon.com
5. Stanley.R. (1997) With God Again. Blessing Youth Mission, India.
6. Taylor.H. (1993) Tend My Sheep. SPCK, London.

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
III B.Sc., SEMESTER VI

MAJOR CORE 11: GENETIC ENGINEERING AND BIOTECHNOLOGY

CREDITS: 5 **CODE:** U14BC6MCT11

HRS/WK: 6

General Instructional Objectives:

The student learns about the restriction enzymes and their uses, an introduction about vectors, application in constructing libraries, various gene transfer techniques, Plant tissue culture and its importance, Animal cell culture, rules in biotechnology, production of recombinant hormones, vaccines and monoclonal antibodies, an introduction to Nanobiotechnology.

GENETIC ENGINEERING: UNIT: I

Restriction enzymes: discovery, nomenclature, types and uses. Linking of DNA- ligases, linkers, adaptors and Homopolymer tails. Gene libraries: Genomic and cDNA libraries. Cloning vectors: Plasmids (pBR322), Bacteriophage (λ, M13) and Cosmids. Ti plasmid, Retrovirus, phagemid, YACs.

UNIT: II

Gene transfer techniques –calcium phosphate co precipitation, transduction, protoplast fusion, electroporation, Microinjection and lipofection.

Selection and Screening: Insertional inactivation Immunological screening, DNA Hybridization. Northern, Southern, Western Blotting and PCR- Principle, technique and applications.

BIOTECHNOLOGY UNIT: III

Biotechnology: Definition, Scope, Biotechnology as an interdisciplinary pursuit.

Plant Biotechnology: Plant tissue culture methods-callus culture, micropropagation, protoplast culture. Cloning of disease resistant plants, cloning of *Bacillus thuringiensis*, crystal protein gene in plants, Nif gene cloning. Application of plant tissue culture.

Microbial Biotechnology: SCP and its applications.

UNIT: IV

ANIMAL BIOTECHNOLOGY

Animal cell culture – culture media, primary and continuous culture, cell lines and its applications.

Biotechnology: policy induction, transgenic fish, IVF, embryo transfer. Transgenic livestock production and application, Knockout mice.

Rules in Biotechnology – Patent (IPR), copyright safety, bioethics and hazards.

UNIT: V

MEDICAL BIOTECHNOLOGY

Recombinant hormones: concept, applications (Insulin and Growth Hormone) Vaccines: Subunit vaccines, Recombinant vaccines, edible vaccines.

Monoclonal Antibodies: Methods of production (Hybridoma, vectors) and its application.

Nanotechnology – Concepts and application.

TEXT BOOKS:

1. Dubey, P.C. (2007) Text Book of Biotechnology, Chand and co New Delhi.
2. Old R.W and primrose, S.B (1989). Principles of Gene manipulation Blackwell scientific publications, Newyork.

REFERENCES:

1. Kumar, H.D. (1994) Mol. Bio., and Biotech., Vikas publishing House (P) Ltd., New Delhi.
2. Smith John, E. (1988) Biotech Edward Arnold London.
3. Trehan, K. (1990) Biotechnology, Wiley Eastern Ltd., New Delhi.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
III B.Sc., SEMESTER VI
MAJOR CORE 12 -CLINICAL BIOCHEMISTRY
CREDITS: 5 **CODE: U14BC6MCT12**
HRS/WK: 6

General Instructional Objectives:
The student
- learns about the disorders of carbohydrate, protein, lipid and nucleic acid metabolism.
- learns about liver, kidney, pancreatic and endocrine function tests, renal and liver transport disorder, diagnostic enzymology and coagulation disorders.

UNIT: I
DISORDERS OF CARBOHYDRATE METABOLISM:
Regulation of Blood Glucose, effect of hormones – Insulin, Glucagon & Catecholamines. Abnormal sugar levels - Hypo and Hyperglycemia, glycosuria. Diabetes mellitus-classification, metabolic changes, complications. Glucose Tolerance Test. Inborn errors of carbohydrate metabolism: Pentosuria, Fructosuria, Galactosemia, Glycogen storage disease.

UNIT: II
DISORDERS OF AMINO ACIDS AND PROTEIN METABOLSIM
Plasma proteins in health and diseases, Characteristics of individual plasma proteins, their significance & variation in diseases (Dysproteinemias and paraproteinemias). Serum urea and creatinine level-interpretation. Porphyria, Proteins in normal urine and renal diseases –proteinuria. Inborn errors of amino acid metabolism: Phenylketonuria Alkaptonuria, Tyrosinosis, Albinism, Maple – syrup syndrome and Hartnup syndrome.

UNIT: III
DISORDERS OF LIPID METABOLISM
Disorders of lipid metabolism: Intestinal lipid disorders, Lipid transport disorders, metabolic disorders: atherosclerosis, fatty liver, obesity. Inborn errors in lipid metabolism: Tay sach's disease, Niemann Pick disease and Gaucher's disease. Serum cholesterol interpretation.

UNIT: IV
DISORDERDS OF NUCLEIC ACID METABOLISM:
Disorders of Purine and pyrimidine metabolism – Gout – high serum levels of urate, orotic aciduria, Xanthinuria, ADA deficiency, Lesch Nyhan syndrome.

TISSUE FUNCTION TEST: Liver function test, kidney function test, pancreatic function test. RENAL AND LIVER TRANSPORT DISORDER: Renal glycosuria, cystinuria, Fanconi syndrome, Gilbert's disease and Dubin Johnson's syndrome. Quality Control of laboratory test.

UNIT: V

CLINICAL ENDOCRINOLOGY: Laboratory investigations associated with thyroid, parathyroid, pituitary and adrenal medulla. DIAGNOSTIC ENZYMOLOGY: Use of enzymes as marker for clinical diagnosis – Alkaline phosphatase, Acid phosphatase, AST(SGOT), ALT, [SGPT], LDH. CK and amylase, acetyl choline esterase. HAEMATOLOGY: Haemoglobinopathies, Mechanism of blood coagulation and disturbances in blood clotting process.

TEXT BOOKS:

1. Ramakrishnan S. and Rajiswamy. Text Book of Clinical (Medical) Biochemistry and Immunology 1995. T.R. Publications, Madras.
2. M.N. Chatterjee, Rana Shinde. Text Book of Medical Biochemistry 2002, Fifth Edn., Jaypee brothers, Medical publishers, Ltd., New Delhi.

REFERENCES:

1. Harold Varely Alan H. Gownlock and Maurine Bell. Practical Clinical Biochemistry
Vol I& II, Fifth Edn., CBS publishers & Distributors, New Delhi.
2. Thomas M. Devlin. Text Book of Biochemistry with clinical correlation,1993 Third Edn, A John wiley & sons. Inc publication.
3. Lehninger, Nelson, Cox Principles of Biochemistry, 1993 Second Edn., CBS Publishers & Distributors.
4. Robert K. Murray, Peter A Mayes, Daryl K.Granner & Victor W, Rodwell Harper's Biochemistry, 22nd Edn,. Prentice Hall International Inc.,

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
III B.Sc., SEMESTER VI MAJOR CORE 13: PRACTICAL III
CLINICAL AND IMMUNOCHEMICAL ANALYSIS

CREDITS: 5 **CODE: U14BC6MCP13**
HRS/WK: 6

I. HEMATOLOGY

1.Colorimetric Estimation of Haemoglobin - Sahli's Acid Haematin Method.
2.Hemocytometery - Determination of total R.B.C Count and Total W.B.C.Count.
3.Making and staining of a Blood Film and identification of the cellular elements in it.
4. Differential Lecucocyte Count.
5.Absolute Eosinophil count.
6. Determination of Coagulation time and Bleeding Time.
7.ABO Blood Grouping and Rh typing.

CLINICALBIOCHEMISTRY
8.Estimation of Blood glucose
9.Estimation of Blood Urea
10. Estimation of serum Creatinine
11. Estimation of serum Uric acid
12. Estimation of Phosphorous and Calcium in Serum.
13. Estimation of serum Cholesterol.
14. Estimation of serum Proteins &A: G ratio
15. Estimation of serum alkaline phosphatase.
16. Estimation of serum AST &ALT
17. Constituents of Normal Urine,
18. Test for Common abnormalities in Urine – Test for proteins, blood, bile, reducing sugars and ketone bodies.
19. Electrophoresis of serum proteins
20. Immuno diffusion
21. Immunoelectrophoresis.

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
SEMESTER VI
MAIN ELECTIVE 3: PLANT BIOCHEMISTRY

CREDITS: 5 **CODE: U14BC6MET01**
HRS/WK: 5

Unit I

Overview of plant structure, major tissues in plant, structure and components of a plant cell, plant cell membrane and constituents, transport systems across cell membrane, genome organization in plant (nucleus, plastids and mitochondrial). Solute transport and photo assimilate translocation: Uptake, transport and translocation of water, ions, solutes and macromolecules from soil, through cells, across membranes, through xylem and phloem.

Extra reading/Key words: DNA Structure and its role

Unit II

Transpiration, mechanisms of loading and unloading of photo assimilation. Respiration: Plant Glycolysis-cytosolic and Plastidic process; plant mitochondrial electron transport and regulation. Photosynthetic apparatus in plants, photosystems I and II, light harvesting antenna complex. Electron flow and phosphorylation; cyclic and noncyclic, oxygen evolution, Calvin cycle, C3, C4, and CAM cycle; Photorespiration, regulation of photosynthesis, RUBISCO

Extra reading/Key words: Calculation of ATP molecules

Unit III

Plant hormones: Biosynthesis, storage, breakdown and transport. Physiological effects and Mechanisms of action of auxins, gibberlins, cytokinins, ethylene, abscisic acid. Plant defense and secondary metabolites - Terpenes, phenols, flavonoids and nitrogenous compounds and their roles in plant physiology. Methods in phytochemicals: extraction, fractionation and characterization.

Extra reading/Key words: Isolation and identification methods of phytochemicals

Unit IV:

Nitrogen metabolism- Importance of nitrogen in biological systems, nitrogen cycle. Nitrogen fixation; symbiotic and non-symbiotic, nitrogenase complex, energetics and regulation. Formation of root nodules in legumes. Assimilation of nitrate and ammonium ion. Sulfur assimilation. Stress physiology: Responses of plants to biotic (pathogen and insects) and abiotic (water, temperature and salt) stresses; mechanisms of resistance to biotic stress and tolerance to abiotic stress.

Extra reading/Key words: Food chain and food web of nitrogen

Unit V:

Host parasite interaction: Recognition and entry processes of different pathogens like bacteria, Viruses, alteration of host cell behavior by pathogens, virus-induced cell transformation, pathogen induced diseases in plants, cell-cell fusion in both normal and abnormal cells.

Extra reading/Key words: Disease resistance mechanism

Note: Extra reading/Key words are only for internal testing (Seminar/Assignment)

References

1. Principles of Biochemistry; David L. Nelson and Michael M. Cox, 6th Edition,
2. W. H. Freeman (2013).
3. Biochemistry; Donald Voet, Judith G. Voet, 4th Edition, John Wiley and sons (2010). PM, Plant Biochemistry, Harborne JB (1997) Academic Press.
4. Introduction to Plant Biochemistry, Goodwin TW, Mercer EI (1983)
5. Plant Physiology; Taiz and Zeiger, 3rd Edition
6. Plant Biochemistry; Hans Walter Heidt, 3rd Edition, Elsevier Publishers
7. Biochemistry & Molecular biology of Plants: Buchanan BB, Gruissem W, Jones RL (2000) American Society of Plant Physiologists Rockville
8. Singhal G (1999) Concepts in Photobiology: photosynthesis and photo morphogenesis: Springer Science & Business Media.

HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
SEMESTER VI
MAIN ELECTIVE 3: BASICS OF BIOINFORMATICS

CREDITS: 5 **CODE: U14BC6MET02**
HRS/WK: 5

General and instructional objectives:
The student learns about the different databases and its applications.

UNIT - I:
Bioinformatics - an overview, definition and history. Bioinformatics Glossary. Evolution of Bioinformatics - Scope - Potentials of Bioinformatics Human Genome Project - Bioinformatics in India - Future of Bioinformatics.

UNIT - II :
Protein information resources: Primary data base – PIR, MIPS and Swissprot, TrEMBL. Composite protein Sequence data bases – NRDB, OWL, MIPSX, Swissprot and TrEMBL. Secondary data bases – Prosite, PRINTS, BLOCKS, Profiles, Pfam, IDENTIFY. Composite pattern databases – SCOP –CATH.

UNIT - III
Genome information resources: EMBL, DDBJ, Genbank and its flat file dissection - Specialized genome databases –dbEST – Unigene –GSDB.

UNIT - IV:
Structural databases – Introduction – PDB – MMDB – Structure file formats – Structural viewers and Structure similarity searching.

UNIT - V:
Sequence Alignment – Pair wise alignment – Multiple sequence alignment – Softwares used in sequence alignment.

REFERENCE BOOKS:-

1. Introduction to Bioinformatics - Attwood T.K. and Parry Smith D.J Published by Pearson Education Ltd., New Delhi(2004)
2. Arthur M. Lesk Introduction to Bioinformatics, Oxford University Press, New Delhi(2003)
3. A.Baxevanis and B.F. Ouellette, Wiley Bioinformatics -A practical guide to the analysis of genes and proteins. (ed) - Interscience, New York, 2001.
4. D.Higgins and W.Taylor (Eds), Bioinformatics- Sequence, Structure and databanks, Oxford University Press, New Delhi(2000).
5. S.R. Swindell, R.R. Miller and G.S.A.Myers (Eds) Internet for the Molecular Biologist, Horizon Scientific Press, Wymondham,UK,(1996).
6. Andrea Cabibbo, Richard Grant and Manuela Helmer-Citterich (Eds), The Internet for Cell and Molecular Biologists (2^{nd} Ed) Horizon scientific Press, Norwich UK(2004)

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI-2
DEPARTMENT OF BIOCHEMISTRY
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MAIN ELECTIVE 3: PHARMACEUTICALCHEMISTRY AND PHARMACOGNOSY

CREDITS: 5 **CODES: U14BC6MET03**

HRS/WK: 5

General and instructional objectives:

The student learns about the different types of phytoconstitutents, methods of extraction and its therapeutic significance in disease diagnosis.

UNIT: I **15Hrs**

CLASSIFICATION OF DRUGS

Classification of drugs based on sources; traditional and homeopathy. Mode of administration, site of action, absorption of drugs. Drug distribution and elimination, role of kidney in elimination. Drug receptors and barriers, Bio availability.

UNIT: II **15Hrs**

DRUG METABOLISM

Drug metabolism – chemical pathways of drug metabolism – phase I and Phase II reactions, role of cytochrome P450 Non microsomal reactions of drug metabolism, drug metabolizing enzymes.

UNIT: III **15Hrs**

ANTIBIOTICS

Chemotherapy: Biochemical mode of action of antibiotics – penicillin and Chloramphenicol, action of alkaloids, antiviral and antimalarial substances, Biochemical mechanism of drug resistance.

UNIT: IV **15Hrs**

PHYTOCHEMICAL PHARAMACOGNOSY

Basic concepts of Pharmacognosy, extraction protocols for biologically important organic compounds, classification of drugs of natural origin – morphological, pharmacological and chemical classification. Phytoconstituents of therapeutic significance - carbohydrates, glycosides, tannins and phenolic compounds, lipids, proteins, volatile oils, resins and resin combinations, alkaloids and terpenes.

UNIT: V **15Hrs**

PLANTS WITH MEDICINAL USES

Sources, characteristics and medicinal uses of drugs containing carbohydrates – Acacia gum, honey. Drugs containing glycosides – Digitalis, Aloes. Drugs containing tannins – Tannic acid, Drugs containing lipids – castor oil, neem oil. Drugs containing volatile oils – Turpentine oil. Drugs containing alkaloids – cinchona, ergot. Plants with antimicrobial, antidiabetic, hepato-protective activity with few examples each.

TEXT BOOKS:

1. Satoskar R.S. & Bhandarkar S.D., (1998) Pharmacology and pharmacotherapeutics Volume I & Volume II

BOOK OF REFERENCE:

1. Mohammed Ali, (1994). Text book of Pharmacognosy, CBS Publishers and Distributors, New Delhi.
2. Trease, G.E. and Evans, W.C (1997)- Pharmacognosy, 14th and15th Edition, W.B. Saunders Company
3. Anil Kumar De (1996) Environment chemistry New Age International (p) Ltd., Publisher, New Delhi.
4. Kokate, C.K.; Purohit, A.P & Gokhale, S.B. (1997).Pharmacognosy, Nirali Prakasan, Pune.
5. Peter B. Kaufmann, et al. (1999): Natural Products from Plants, C.R.C. Press.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI -2
DEPARTMENT OF BIOCHEMISTRY
SEMESTER VI
NME 2: NON MAJOR ELECTIVE PAPER - II NUTRITION AND DIETETICS

CREDITS: 4 **CODE: U14BC6NMT01**
HRS/WK: 4

General and instructional objectives:
The student learns about the constitutents of food and the ideal diet for various stages of life and diet therapy.

UNIT: I
NUTRITIONAL STATUS:
Introduction to Nutrition – Food as a source of nutrient – Function of food, definition of nutrition. Interrelationship between nutrition and health – visible symptoms of good health. **CONSTITUENTS OF FOODS:**
Carbohydrates – Functions, sources and deficiency. Proteins – Functions, sources, essential aminoacids and deficiency.

UNIT: II
Fats – Functions, sources, essential fattyacids and deficiency. Fibres – Definition, sources, role of fibre in human nutrition, Minerals – Macronutrients – Calcium, Phosphorous, Sodium and Pottasium.
Micronutrients – Iron and Iodine – their sources, function requirements and deficiency.

UNIT: III VITAMINS:
Definition and classification, fat soluble Vitamin C and B (Thiamine, Niacin, Riboflavin, Pyridoxine, Cyanacobalamin) – sources, functions, deficiency and requirement. Hypervitaminosis - A & D.

UNIT: IV
NUTRITION IN HEALTH:
Factors to be considered in formulating diets for different income groups. Nutritional and food requirements to meet the needs of Infant and pre-school children Pregnant and Lactating women.

UNIT: V
Concepts of diet therapy, growth and scope of dietetics. Therapeutic diets: Diet in Diabetes Mellitus.Diseases of Liver – Hepatitis and Cirrhosis. Diseases of the renal system– Uremia & renal stones Diseases of Gastrointestinal Tract-Peptic Ulcer. Diseases of the heart & Circulatory system- Atherosclerosis

TEXT BOOKS:

1. Swaminathan, M., (1985) Hand Book of Food and Nutrition. The Bangalore Printing and publishing Co., Ltd., 2nd Edn.,

REFERENCE:

1. Swaminathan, M., (1985) Advanced Text Book on Food and Nutrition. The Bangalore Printing and Publishing Co., Ltd., 2ndEdn.
2. Shunbhangini, A.Joshi, (1992) Nutrition and Dietetics, Tata McGram Hill Publishing Co., Ltd., New Delhi.
3. Sue Rodwell Williams, (1985) Nutrition and Diet Therapy, the C.V.Mosby.

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HOLY CROSS COLLEGE (AUTONOMOUS) TIRUCHIRAPALLI -2
DEPARTMENT OF BIOCHEMISTRY
SEMESTER VI
NME 2: NON MAJOR ELECTIVE PAPER - II HOME MANAGEMENT
CREDITS: 2 **CODE: U14BC6NMT02**
HRS/WK: 2

General Instructional Objectives:

- The student learns about basic food groups, composition and nutritive values of different food groups; types of spoilage and methods of preventing them; different cooking methods.
- The student's gains knowledge about a comfortable and convenient house and the application and principles of art in home and importance of time and energy management.

UNIT: I
FOOD SCIENCES:
ICMR recommended basic five food groups. General composition and nutritive value of cereals; pulses and nuts; milk and meat products; vegetables and fruits.

UNIT: II
FOOD PRESERVATION:
Food spoilage – Definition, causes, types of spoilage and preventing methods; Preservation of fruits -sugar concentrates; jam and jelly. Pickling - Principle, types and spoilages encountered in pickles.

UNIT: III
COOKING AND COOKING METHODS:
Cooking – preliminary preparations and objectives of cooking; methods of cooking; advantages and disadvantages of different cooking and cooking methods
HEALTH AND NUTRITION EDUCATION:
Introduction, nutrition and prevention of infection, safe drinking water, environmental sanitation. Immunization schedule.

UNIT: IV
HOUSING AND INTERIOR DECORATION:
Features to be considered in house construction - orientation grouping, roominess, lighting, ventilation, storage facilities, flexibility and safety.
Flower arrangement - types of arrangement, selection of vases, flowers and accessories.
Home furnishing – Selection, arrangement and care of furniture in different rooms, furnishing material, draperies and curtains, floor coverings and accessories.

UNIT: V
FAMILY RESOURCE MANAGEMENT:
Resources - Classification of family resources. Management process - Planning, controlling and evaluation.Time and energy management – Importance of time and energy. Guidelines in planning time schedule. Fatigue – types and ways of overcoming fatigue.

TEXT BOOK:

1. Srilakshmi, B. (2001). Food Science, New Age International (P) limited publishers, New Delhi.

REFERENCES:

1. Srilakshmi, B. (2001). Food Science, New Age International (P) limited publishers, New Delhi.
2. Shanthi Ghosh, (1997). Nutrition and Child Care - A Practical Guide. Jaypee Brothers Medical Publishers (P) Ltd., New Delhi.
3. Chinthapalli Vidya, (1996). A Text Book of Nutrition. Discovery Publishing House, New Delhi.
4. Deshpande, R.S. (1985). Build your own home. Poona United Book Corporation.
5. Man Home Management for Indian families, Kalyani Publishers, New Delhi.

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HOLY CROSS COLLEGE (AUTONOMOUS),
TRICHIRAPPALLI-2 DEPARTMENT OF BIOCHEMISTRY
SEMESTER VI
Skill Based Elective 5
For candidates admitted from 2015 onwards
TOOLS FOR BIOINFORMATICS

CREDIT: 2 **CODE: U15BC6SBP06**

HOURS/WEEK: 2

1. Nucleotide Sequence database
   - Genbank
   - DDBJ
   - EMBL
2. Protein Sequence database
   - Swissprot
3. Protein Structure Database
   - PDB
4. Literature Database
   - Pubmed, OMIM
5. Visualization Tools
   - Rasmol
6. Metabolic Pathway Database
   - KEGG
7. Map Viewer

RESEARCH METHODOLOGY

CODE: U13DS6SBT06

HRS /WEEK: 2 **CREDITS: 2**

COURSE OBJECTIVE:

To help the students develop research skills

To expose the students to the concept of research and to implement a research project.

UNIT: 1- INTRODUCTION TO RESEARCH

Definition, type, nature and scope of research - Research design

UNIT: 2 –DATA COLLECTION

Types – Primary and secondary data – Data Processing – Hypothesis testing

UNIT: 3- PLAN AND EXECUTION

Methodology – plan and execution – Analysis - Documentation

UNIT: 4- FORMAT AND PRESENTATION OF PROJECT REPORT

Art of writing and Structure of a project report – Viva - voce

UNIT: 5- PROJECT

Project Work

BOOKS FOR REFERENCE

1. Kothari C.R. Research Methodology, New Delhi: New Age International (P) Ltd Publishers, 2009. Reprint
2. Rahim F.A. Thesis Writing: A Manual for researchers, New Delhi: New Age International Publishers, 1988. Print.
3. Gopalana. Thesis Writing. Chennai: Vijay Nicole, 2005.Print.
4. Oliver, Paul, Writing Your Thesis. New Delhi: Sage Publication, 2008.Print.