ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE - 27
GUIDELINES, LIST AND SYLLABUS OF OPEN ELECTIVES FOR
UNDER GRADUATE STUDENTS OFFERED UNDER CHOICE BASED CREDIT SYSTEM (CBCS)

CONTENTS

General guidelines for open electives (UG PROGRAMMES) under CBCS

- Undergraduate students who have enrolled for the programme in the academic year 2015-2016 and subsequent batches come under CBCS
- Students will have to select open electives in the fourth semester along with their Major papers
- B.A. and B.Sc. Students will have to choose 3 open electives of 30 hours each from a pool of elective papers offered under Electives 1, 2 and 3 respectively
- B.Com. and Professional courses (B.C.A., B.S.W., and B.A. Visual Communication) will have to choose 2 open electives of 30 hours each from a pool of elective papers offered under Electives 1 and 2
- Means of evaluation and attendance requirements for open electives is same as the other major papers
- Registration of open electives to be done online. **Online registration will begin on 18th November 2019 in between 4-5 pm. It will remain open after that**
- Selection of electives is on first come first serve basis
- For registration log in to https://sjc.linways.com/student/ using your User name and Password
- Click on Menu and then Open elective
- List of open electives with their availability will be shown
- Select the Open electives of your choice from the pool provided
- If you are not sure of your options, reselect the electives of your choice and click apply
- Once you have submitted your options, the selected electives will be displayed on your screen
- Options once submitted cannot be changed under any circumstances
- You can then view your chosen open elective under Selected Open Elective

LIST OF OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS FOR UNDER GRADUATE STUDENTS

Sl. No.		DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for each OE
1	PHYSICAL SCIENCES	PHYSICS	PHOE 4118	1. The Universe and Me	70
			PHOE 4218	2. Medical Physics	70
			PHOE 4318	3. Wonders of Physics	70
2		MATHEMATICS	MAOE 4118	Quantitative Methods For Competitive Examinations	300
3		ELECTRONICS	ELOE 4118	Digital Electronics and General Electricals	120
4		COMPUTERSCIENCE	CSOE 4118	Basic Programming skills	140
5		STATISTICS	STOE 4118	Descriptive Statistics	70
6	NATURAL SCIENCES	CHEMISTRY	CHOE 4118	1.Cosmetic Chemistry	140
			CHOE 4218	2.Industrial and Material Chemistry	140
			CHOE 4318	3.Chemistry of Food Production	140
7		BOTANY	BOOE 4118	Applied Botany	210
8		ZOOLOGY	ZOOE 4118	A Journey into the Animal world and Human life	210
9		ENV. SCIENCE	ENVOE 4118	Environment and Health	40
10		MICROBIOLOGY	MBOE 4118	Microbial Diseases: Causes, Prevention and Cure	70
11		BIOTECHNOLOGY	BTOE 4118	Biotechnology Now and Beyond	140
12	SOCIAL SCIENCES	HISTORY	HISOE 4118	Tourism in Karnataka	65
13		ECONOMICS	ECOE 4118	1.Insurance Services	65
			ECOE 4218	2.Agro-Food Marketing	65
			ECOE 4318	3.Economics of Rural Development and Agriculture	65
			ECOE 4418	4.Basic Microeconomics For Non-Economist	65
			ECOE 4518	5. Globalization and the individual	65
14		POLITICAL SCIENCE	PSOE 4118	1.Civil Services	65
			PSOE 4218	2. Development: Concept and Issues	65
			PSOE 4318	3. Electoral politics and process in India	65
15		SOCIOLOGY	SOOE 4118	Characteristics of Indian Society	130
16		INDUSTRIAL RELATIONS	IROE 4118	Human Resource Management	65
17		ENGLISH	ENGOE 4118	Readings in Popular Culture	65
		COMMUNICATIVE ENGLISH	CEOE 4118	Public Speaking as Story-Telling	65
18		JOURNALISM	JOUOE 4118	Journalism as Story-Telling	65
19		PSYCHOLOGY	PSYOE 4118	Psychology and Life	65
20	PROFESSIONAL	BCA	BCAOE 4118	Web Development	130
21		BVC	BVCOE 4118	1.Reading Images	65
			BVCOE 4218	2.Film Appreciation	65
22		BSW	SWOE 4118	Basic Human Rights Approach	130
23		B.Com	BCOMOE 4118	1. Fundamentals of stock markets	280
			BCOMOE 4218	2.Marketing Management	420

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE - 27
CHOICE BASED CREDIT SYSTEM (CBCS)
LIST OF OPEN ELECTIVES TO BE OPTED BY PHYSICAL SCIENCE STUDENTS

Open electives to be opted by PHYSICAL SCIENCE (PCM, PEM, PMC, MEC AND EMS) students are as follows:			
ELECTIVE 1	CHEMISTRY	CHOE 4118	1.Cosmetic Chemistry
		CHOE 4218	2.Industrial and Material Chemistry
		CHOE 4318	3.Chemistry of Food Production
	BOTANY	BOOE 4118	Applied Botany
	ZOOLOGY	ZOOE 4118	A Journey into the Animal world and Human life
	ENV. SCIENCE	ENVOE 4118	Environment and Health
	MICROBIOLOGY	MBOE 4118	Microbial Diseases: Causes, Prevention and Cure
	BIOTECHNOLOGY	BTOE 4118	Biotechnology Now and Beyond
NOTE : PCM STUDENTS CANNOT OPT CHEMISTRY FROM ELECTIVE 1			
ELECTIVE 2	HISTORY	HISOE 4118	Tourism in Karnataka
	ECONOMICS	ECOE 4118	1.Insurance Services
		ECOE 4218	2.Agro-Food Marketing
		ECOE 4318	3.Economics of Rural Development and Agriculture
		ECOE 4418	4.Basic Microeconomics For Non-Economist
		ECOE 4518	5. Globalization and the individual
	POLITICAL SCIENCE	PSOE 4118	1.Civil Services
		PSOE 4218	2. Development: Concept and Issues
		PSOE 4318	3. Electoral politics and process in India
	SOCIOLOGY	SOOE 4118	Characteristics of Indian Society
	INDUSTRIAL RELATIONS	IROE 4118	Human Resource Management
	ENGLISH	ENGOE 4118	Readings in Popular Culture
	COMMUNICATIVE ENGLISH	CEOE 4118	Public Speaking as Story-Telling
	JOURNALISM	JOUOE 4118	Journalism as Story-Telling
	PSYCHOLOGY	PSYOE 4118	Psychology and Life
NOTE : EMS STUDENTS CANNOT OPT ECONOMICS FROM ELECTIVE 2			
ELECTIVE 3	BCA	BCAOE 4118	Web Development
	BVC	BVCOE 4118	1.Reading Images
		BVCOE 4218	2.Film Appreciation
	BSW	SWOE 4118	Basic Human Rights Approach
	B.Com	BCOMOE 4118	1. Fundamentals of stock markets
		BCOMOE 4218	2.Marketing Management
	NOTE : PMC AND MEC STUDENTS CANNOT OPT OPEN ELECTIVES FROM BCA COURSE		

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE - 27
CHOICE BASED CREDIT SYSTEM (CBCS)
LIST OF OPEN ELECTIVES TO BE OPTED BY NATURAL SCIENCE STUDENTS

Open electives to be opted by NATURAL SCIENCE (CBZ, CEB/Z, MCB/Z, CBBT/CZBT) students are as follows:			
ELECTIVE 1	**PHYSICS**	**PHOE 4118**	**1. The Universe and Me**
		PHOE 4218	**2. Medical Physics**
		PHOE 4318	**3. Wonders of Physics**
	MATHEMATICS	**MAOE 4118**	**Quantitative Methods For Competitive Examinations**
	ELECTRONICS	**ELOE 4118**	**Digital Electronics and General Electricals**
	COMPUTERSCIENCE	**CSOE 4118**	**Basic Programming skills**
	STATISTICS	**STOE 4118**	**Descriptive Statistics**
ELECTIVE 2	**HISTORY**	**HISOE 4118**	**Tourism in Karnataka**
	ECONOMICS	**ECOE 4118**	**1.Insurance Services**
		ECOE 4218	**2.Agro-Food Marketing**
		ECOE 4318	**3.Economics of Rural Development and Agriculture**
		ECOE 4418	**4.Basic Microeconomics For Non-Economist**
		ECOE 4518	**5. Globalization and the individual**
	POLITICAL SCIENCE	**PSOE 4118**	**1.Civil Services**
		PSOE 4218	**2. Development: Concept and Issues**
		PSOE 4318	**3. Electoral politics and process in India**
	SOCIOLOGY	**SOOE 4118**	**Characteristics of Indian Society**
	INDUSTRIAL RELATIONS	**IROE 4118**	**Human Resource Management**
	ENGLISH	**ENGOE 4118**	**Readings in Popular Culture**
	COMMUNICATIVE ENGLISH	**CEOE 4118**	**Public Speaking as Story-Telling**
	JOURNALISM	**JOUOE 4118**	**Journalism as Story-Telling**
	PSYCHOLOGY	**PSYOE 4118**	**Psychology and Life**
ELECTIVE 3	**BCA**	**BCAOE 4118**	**1. Web Development**
	BVC	**BVCOE 4118**	**1.Reading Images**
		BVCOE 4218	**2.Film Appreciation**
	BSW	**SWOE 4118**	**Basic Human Rights Approach**
	B.Com	**BCOMOE 4118**	**1. Fundamentals of stock markets**
		BCOMOE 4218	**2.Marketing Management**

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE - 27
CHOICE BASED CREDIT SYSTEM (CBCS)
LIST OF OPEN ELECTIVES TO BE OPTED BY SOCIAL SCIENCE STUDENTS

Open electives to be opted by <u>SOCIAL SCIENCE</u> (HEP, IES, EPS,CPE AND EJP) students are as follows:			
ELECTIVE 1	**CHEMISTRY**	**CHOE 4118**	**1.Cosmetic Chemistry**
		CHOE 4218	**2.Industrial and Material Chemistry**
		CHOE 4318	**3.Chemistry of Food Production**
	BOTANY	**BOOE 4118**	**Applied Botany**
	ZOOLOGY	**ZOOE 4118**	**A Journey into the Animal world and Human life**
	ENV. SCIENCE	**ENVOE 4118**	**Environment and Health**
	MICROBIOLOGY	**MBOE 4118**	**Microbial Diseases: Causes, Prevention and Cure**
	BIOTECHNOLOGY	**BTOE 4118**	**Biotechnology Now and Beyond**
ELECTIVE 2	**PHYSICS**	**PHOE 4118**	**1. The Universe and Me**
		PHOE 4218	**2. Medical Physics**
		PHOE 4318	**3. Wonders of Physics**
	MATHEMATICS	**MAOE 4118**	**Quantitative Methods For Competitive Examinations**
	ELECTRONICS	**ELOE 4118**	**Digital Electronics and General Electricals**
	COMPUTERSCIENCE	**CSOE 4118**	**Basic Programming Skills**
	STATISTICS	**STOE 4118**	**Descriptive Statistics**
ELECTIVE 3	**BCA**	**BCAOE 4118**	**Web Development**
	BVC	**BVCOE 4118**	**1.Reading Images**
		BVCOE 4218	**2.Film Appreciation**
	BSW	**SWOE 4118**	**Basic Human Rights Approach**
	B.Com	**BCOMOE 4118**	**1. Fundamentals of stock markets**
		BCOMOE 4218	**2.Marketing Management**

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE - 27
CHOICE BASED CREDIT SYSTEM (CBCS)
LIST OF OPEN ELECTIVES TO BE OPTED BY PROFESSIONAL PROGRAMME STUDENTS

Open electives to be opted by VOCATIONAL COURSE (BCA, BSW, BVC, AND B.COM) students are as follows:			
ELECTIVE 1	CHEMISTRY	CHOE 4118	1.Cosmetic Chemistry
		CHOE 4218	2.Industrial and Material Chemistry
		CHOE 4318	3.Chemistry of Food Production
	BOTANY	BOOE 4118	Applied Botany
	ZOOLOGY	ZOOE 4118	A Journey into the Animal world and Human life
	ENV. SCIENCE	ENVOE 4118	Environment and Health
	MICROBIOLOGY	MBOE 4118	Microbial Diseases: Causes, Prevention and Cure
	BIOTECHNOLOGY	BTOE 4118	Biotechnology Now and Beyond
	PHYSICS	PHOE 4118	1. The Universe and Me
		PHOE 4218	2. Medical Physics
		PHOE 4318	3. Wonders of Physics
	MATHEMATICS	MAOE 4118	Quantitative Methods For Competitive Examinations
	ELECTRONICS	ELOE 4118	Digital Electronics and General Electricals
	COMPUTERSCIENCE	CSOE 4118	Basic Programming Skills
	STATISTICS	STOE 4118	Descriptive Statistics
BCA STUDENTS CANNOT OPT OPEN ELECTIVES OFFERED BY COMPUTER SCIENCE DEPARTMENT			
ELECTIVE 2	HISTORY	HISOE 4118	Tourism in Karnataka
	POLITICAL SCIENCE	PSOE 4118	1.Civil Services
		PSOE 4218	2. Development: Concept and Issues
		PSOE 4318	3. Electoral politics and process in India
	INDUSTRIAL RELATIONS	IROE 4118	Human Resource Management
	ECONOMICS	ECOE 4118	1.Insurance Services
		ECOE 4218	2.Agro-Food Marketing
		ECOE 4318	3.Economics of Rural Development and Agriculture
		ECOE 4418	4.Basic Microeconomics For Non-Economist
		ECOE 4518	5. Globalization and the individual
	PSYCHOLOGY	PSYOE 4118	Psychology and Life
	BCA	BCAOE 4118	Web Development
	BVC	BVCOE 4118	1.Reading Images
		BVCOE 4218	2.Film Appreciation
	BSW	SWOE 4118	Basic Human Rights Approach
	B.Com	BCOMOE 4118	1. Fundamentals of stock markets
		BCOMOE 4218	2.Marketing Management
	NOTE : STUDENTS CANNOT OPT ELECTIVES FROM THE HOST DEPARTMENT EX. B.Com students cannot opt electives from Commerce Department • Commerce students cannot opt open electives offered by Economics and Industrial Relation departments.		

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for each OE
PHYSICS	PHOE 4118	1. The Universe and Me	70
	PHOE 4218	2. Medical Physics	70
	PHOE 4318	3. Wonders of Physics	70

PHOE 4118 -The Universe and Me

Learning outcome

1. What distinguishes the methods of science from other human activities?
2. To understand and appreciate the universe which eventually helps us to think about who you are and where you and the human race are going?
3. What astronomy can tell us about our place in the universe? (How was the universe created? Where did the earth, moon and the sun come from? What are the stars and the planets made of? How do we fit in? What is our place in the universe?)

Syllabus **Total hours : 30**

1. Introduction to Astronomy

The changing perceptions of the universe – Geocentric, heliocentric and the present day perceptions of the universe. Solar System – Solar system and its origin. Sun and Sun like stars – properties, stellar classification, the birth, death and resurrection of the stars. Galaxies – The Milky Way Galaxy, classification of galaxies. **(15 hours)**

2. Windows to the Universe

Electromagnetic spectrum – Optical, radio, UV, micro, IR, X-ray and gamma ray astronomy.Visible windows – Optical astronomy, optical telescopes, functions of telescopes.Invisible windows – Radio-astronomy, radio-telescope, advantages and disadvantages. **(10 hours)**

3. Cosmology

The Origin and Evolution of the Universe – The Expanding Universe, Hubble's Law, Age of the Universe, Big Bang Theory, CMBR, Dark energy and the accelerating universe. **(5 hours)**

Reference: 1. Universe, Roger A. Freedman and William J. Kaufmann III, W. H. Freeman and company, New York
2. Astronomy: The Evolving Universe, Michael Zeilik, Cambridge University Press.

PHOE 4218 MEDICAL PHYSICS

Total hours: 30

Learning outcome

1. To promote the application of Physics
2. Understand the anatomy of the nervous system and its signal measurements.
3. Analyze and understand the applications of the imaging techniques transmission(x- ray and ultrasound)
4. Updating the knowledge in recent trends in medical field.

Unit I: MECHANICS OF HUMAN BODY

Static , Dynamic and Frictional forces in the Body – Composition, properties and functions of Bone– Heat and Temperature – Temperature scales – Clinical thermometer – thermography – Heat therapy – Cryogenics in medicine – Heat losses from body – Pressure in the Body – Pressure in skull, Eye and Urinary Bladder. **(6 hrs)**

Unit II: PHYSICS OF RESPIRATORY AND CARDIOVASCULAR SYSTEM

Body as a machine – Airways – Blood and Lungs interactions – Measurement of Lung volume Structure and Physics of Alveoli – Breathing mechanism – blood Pressure – direct and indirect method of measuring. **(6 hrs)**

Unit III: ELECTRICITY IN THE BODY

Nervous system and Neuron – Electrical potentials of Nerves – Electric signals from Muscles, Eye and Heart – Block diagram and working to record EMG – Normal ECG waveform – Amplifier and Recording device – Block diagram and working to record ECG – Patient monitoring – Pace maker. **(6 Hrs)**

Unit IV: SOUND AND LIGHT IN MEDICINE

General properties of sound – Stethoscope – Generation, detection and characteristics of Ultrasound– Ultrasound imaging technique – A scan and B scan methods of ultrasound imaging – properties of light – Applications of visible UV,IR light , and Lasers in medicine – Microscope – Eye as an optical system- Elements of the Eye. **(6 Hrs)**

Unit V: DIAGNOSTIC X- RAYS AND NUCLEAR MEDICINE

Production and properties of X- rays – Basic Diagnostic X-ray Machine – X-ray image - Live X-ray image – Radioactivity sources for nuclear medicine – Basic instrumentation and clinical applications Principles of Radiation Therapy- Nuclear medicine imaging devices – Radiation sources. **(6 Hrs)**

BOOKS FOR REFERENCE:

1. John R. Cameron and James G. Skofronick, John Wiley &Sons –Medical Physics, Wiley – InterscicencePublications ,1978.
2. R.S.Khandpur – Handbook of Biomedical Instrumentation, Tata McGraw Hill Publication Co.,Delhi,1987.

PHOE 4318 -Wonders of Physics

Learning outcome

i) To induce a sense of wonder and awe among the students when they look at the world around them.
ii) To rationalize the thoughts and build a bridge between the science that they study in the course and its application in their daily life.

Total hours: 30

Syllabus

1. Science: A wonder of reality

Introduction, Aristotelian science, Science - tracing back its origin, what is physics, why physics, the three fundamental entities of reality – Space, time and matter. **(3 hours)**

2. Space

a) Universe by design: From backyard to the big bang – A brief history of cosmology; world-views in science and cosmological models, twentieth century cosmology, more recent developments in cosmology, tools for explaining the universe, the big bang model, fine-tuned universe, the law of cause and effect, A pale blue dot but a privileged planet.

b) Frontiers of Astronomy: From dawn to dusk, exploring the night sky, recent discoveries in the solar system, other worlds, cosmological distance and measurements, death of massive stars – supernova and black holes **(8 hours)**

3. Time

a) A Physical quantity: The International System (SI) of measurement for physical quantities, The unit of time, Measuring time with atomic clocks, Determining position with the aid of precise time measurements, Shortest and longest time-span, Time constants and periods, Time constants and oscillation periods in physics, Time in astronomy, Time in biological systems, Other aspects of physical time.

b) An anthropological quantity: Introduction, Attributes of time, application of information science in interpreting time, the five levels of time, eternity, ideas of eternity among people, sense of eternity among people. **(5 hours)**

3. Matter

Properties of matter, Matter and energy, wave particle duality, logic and physics, materialism, the equation of life and death, Erwin Schrödinger and the birth of information science. **(6 hours)**

4. Love of Physics

Powers of ten, from nucleus to deep space; measurements, uncertainties and stars, bodies in motion, the rainbow, harmonies of strings and winds, wonders of electricity, mysteries of magnetism, energy conservation, physical phenomena in living systems, inventions that conquered the world, discoveries that revolutionized the world, physics in our daily life. **(8 hours)**

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
MATHEMATICS	MAOE 4118	Quantitative Methods for Competitive Examinations	300

MAOE 4118 Quantitative Methods for Competitive Examinations

Learning outcome

Students acquire the skills and tactics to tackle quantitative aptitude questions.

Students learn logical reasoning. The fundamentals in relevant fields (which students have learnt and probably forgotten) are revisited and strengthened.

The course aim to make the student competent and confident in facing quantitative aptitude questions.

Syllabus **Total hours: 30**

1. **Play with numbers : ARITHMETIC** (**7 hours)**
   Decimals - Exponents and Roots – Fractions – Integers – Percent – Ratio - Real Numbers

2. **Earth Measures: GEOMETRY** (**8 hours)**
   Circles - Lines and Angles – Polygons – Quadrilaterals - Three-Dimensional Figures - Triangles

3. **I connect arithmetic and geometry: ALGEBRA**
   I am the unknown between the known (**8 hours)**
   Applications - Coordinate Geometry – Functions - Graphs of Functions - Operations with Algebraic Expressions - Rules of Exponents - Solving Linear Equations - Solving Linear Inequalities - Solving Quadratic Equations

4. **I have huge information, can you interpret it : DATA ANALYSIS** (**7 hours)**
   Counting Methods - Data Interpretation Examples - Distributions of Data - Random Variables and Probability Distributions - Graphical Methods for Describing Data - Numerical Methods for Describing Data – Probability

BIBILIOGRAPHY

1. BARRON'S NEW GRE, 19TH EDITION.
2. HIGHER ALGEBRA BY H S HALL AND S R KNIGHT
3. GEOMETRY BY S L LONEY

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
ELECTRONICS	ELOE 4118	Digital Electronics and General Electricals	120

ELOE 4118: Digital Electronics and General Electricals

Syllabus **Total hours: 30**

UNIT 1: Introduction to Digital Electronics **(15 hours)**

Decimal, binary, octal and hexadecimal number system and their inter conversion. digital codes, BCD (8421) code, Gray, Excess 3, ASCII and bar codes, arithmetic operation in binary and hexadecimal, BCD addition, Sign magnitude conversion, 1's and 2's complements subtraction, signed number arithmetic addition

Positive and negative logic, basic logic gates, AND, OR and NOT gates, Boolean algebra-laws and theorems, NAND and NOR gates, De-Morgan's theorems, XOR and XNOR gates- symbol, truth table, realization using basic gates, NAND and NOR gates as universal gates. Simplification of logic expression using Boolean algebra.

UNIT 2: General Electricals **(10 hours)**

Alternating current (AC) and Direct current (DC), graphical and symbolic representation of AC and DC. AC parameters, peak value, peak to peak value, rms value, period, frequency of voltage and current. Power, power rating.

Sources of electric energy - Batteries, working principle - rechargeable batteries, working principle. AC generation, AC generator- Single phase and poly phase system- salient and non salient pole generator, power formula, single line representation of power system, power distribution system.

Domestic Electric wiring- phase neutral and earthing (colour codes), need for earthing- fuse and plugs- wiring fundamentals- typical wiring diagram- construction of extension board.

Applications of electricity -lighting (incandescent bulb, LED and fluorescent lamp), heating and induction motors- working.

Books Recommended:

1. Digital fundamentals: T.L.Floyd , Universal Book Stall,8th edition,2005.

2. Modern digital electronics R.P Jain –TMH publication, 3rd edition, 2003.

Reference books:

1. Fundamentals of digital circuits: A Anand Kumar, PHI, 3rd edition,2004.

2. Digital logic and computer design: M. Morris Mano – PHI4th edition,2002

3. Digital principles and application: Malvino and Leach –TMH 5th edition, 2000

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
COMPUTERSCIENCE	CSOE 4118	Basic Programming Skills	140

CSOE 4118 Basic Programming Skills

Syllabus **Total hours: 30**

Learning outcome

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

- To provide an in-depth training for developing programming skills.
- To understand and develop programs independently.
- To understand the methods of debugging and correcting programs.
- To provide a proper foundation for learning other programming languages.

1. Introduction to Programming

Problem Solving Using Computers**:** Language Classification, Problem Analysis, Algorithm and Flowchart design. **Algorithms:** Steps in developing algorithms, advantages and disadvantages. **Flowcharts:** Symbols used in developing flowcharts, advantages and disadvantages. Coding, testing and debugging. Documentation and maintenance. Program development and modular design. **(5 Hours)**

2. Introduction to C Programming:

History, Structure of a C program, C Conventions, Character Set, Identifiers, Keywords, Simple Data types, Modifiers, Variables, Constants, Operators (Arithmetic operator, relational operator, logical operator, ternary operator, unary operator, shorthand operator, bit-wise operator and arithmetic operator) Operator precedence. Input and Output operation: Single character input and output, formatted input and output, Buffered input. **(5 Hours)**

Control Structures:
Introduction, Conditional statement, if statement, if-else statement, nested if statement, else-if statement and switch statement. Goto statement. Looping statement, while statement, do-while statement, for statement, break and continue, nested for statement. **(10 Hours)**

Arrays:
Introduction (One and two dimensional), Declaration of arrays, Initialization of arrays, processing with arrays. String manipulation, declaration of string arrays, string operations.

(5 Hours)

Functions:
Introduction, advantages of subprograms, Function definition, function call, Actual and formal arguments, local and global variables, function prototypes, types of functions, recursive functions, arrays and functions.

(5 Hours)

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
STATISTICS	STOE 4118	Descriptive Statistics	70

STOE 4118 Descriptive Statistics

Learning outcome

This paper introduces to basic statistical methods and their applications in different fields and also it deals with the techniques used in describing and summarizing important characteristics of statistical data along with different methods of data collection, introduction to probability, univariate and bivariate data analysis

Syllabus **Total hours: 30**

Unit-1: Basic Statistics:

1. Statistics: Meaning and role as a decision making science **(1 hour)**
2. Basic concepts: Population, Sample, Types of data, Types of scales - nominal, ordinal, ratio and interval. Variables and attributes, discrete and continuous variables. **(2 hours)**
3. Representation of data: frequency tables and pivot tables. stem and leaf diagram, bar plots, histogram, pie chart, scatter plots **(3 hours)**

Unit-2: Probability theory:

1. Probability: Random experiment, trial, sample space, events, classical, definition of probability. Properties of probability. Additive law, Multiplicative law and their applications **(3 hours)**

Unit-3: Data collection methods:

1. Sample surveys: Sources of data collection, Principal steps in a sample survey, sampling and Non-sampling error, Requisites of a good questionnaire. Drafting of questionnaires and schedules and their pre-test. Pilot surveys. **(3 hours)**

2. Basic concepts: Census and Sampling, Types of Sampling, non – probability sampling, Subjective and Judgement sampling. Probability sampling, Simple random sampling, stratified random sampling, systematic sampling and cluster sampling (only definitions and their applications) and procedures of selecting a sample by above techniques. **(3 hours)**

Unit-4: Univariate data analysis:

1. Central Tendency: Measures of Central tendency, Arithmetic mean, weighted mean, combined mean, median, mode, Geometric Mean, Harmonic Mean and their applications **(4 hours)**

2. Dispersion: Measures of Dispersion, range, quartile deviation, mean deviation, standard deviation and their applications. Relative Measures of Dispersion, Coefficient of Variation and their applications **(4 hours)**

Unit-5: Bivariate data analysis:

1. Correlation: measures of correlation, Scatter diagram, Karl Pearson's correlation coefficient, Spearman's Rank correlation coefficient and their properties with their applications **(3 hours)**

2. Regression: Simple linear regression analysis, regression coefficients and their properties, Interpretations of slope and intercept. Fitting straight line. Coefficient of determination. Meaning of Multiple regression analysis **(4 hours)**

References:

1. Goon A.M., Gupta M.K., Das Gupta.B. (1991): Fundamentals of Statistics Vol.I, World Press, Calcutta.
2. Gupta, S.C., and V.K.Kapoor (2001): Fundamentals of Mathematical Statistics: Sultan Chand & Sons.
3. Rajmohan: A Textbook of Statistics Vol -1, Benaka Books
4. Descriptive Statistics (Statistical Methods), Arun Kumar and Alka Chaudary, Krishna Publication
5. Quantitative techniques, C.R. Kothari, Vikas Publishing House PVT Ltd
6. Survey Sampling, Parimal Mukhopadhyay, Narosa Publishing House
7. Mukhopadhyay. P (1996). Sample surveys. Calcutta Publishing House.
8. Statistical methods (combined volume), N G Das, Tata McGraw-Hill Education
9. Fundamentals of Statistics Volume 1, A M Gun, B Dasgupta, M K Gupta, World Press

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
CHEMISTRY	CHOE 4118	1.Cosmetic Chemistry	140
	CHOE 4218	2.Industrial and Material Chemistry	140
	CHOE 4318	3.Chemistry of Food Production	140

CHOE 4118 Cosmetic Chemistry

Syllabus **Total hours: 30**

Learning Outcome:

This course aims to provide broad- based science knowledge with an emphasis on the personal care sector, such as cosmetic raw materials, formulations, quality control, cosmetic regulations etc.

1 – Introduction to Cosmetics and Perfumes **(1 Hour)**

2 – Hair care products **(5 Hours)**

Shampoos – principal constituents – thickeners and foam stabilizers – perfumes – preservatives- conditioning agents – antidandruff shampoos.
Hair cream – composition – hair dyes – types – constituents - dye removals

3 – Skin care Products **(4 Hours)**

Skin cleansers – classifications – cold cream – cleansing milk – moisturizers – hand and body lotions – sun screen lotions – constituents

4 – Colour Cosmetics **(5 Hours)**

Lipstick – constituents- manufacturing methods- lip glosses- nail polish- formulation- manufacture- face powder- constitution

5 – Dental Products **(5 Hours)**

Oil care product - product categories – tooth paste – tooth powder – oral rinses – mouth washes – comparison between synthetic and herbal oral product

6 – Bath Preparations **(5 Hours)**

Bath powders – soap and detergents – constituents of soaps and detergents – manufacture –mechanism of cleansing action

7 - Essential oils and their importance in Cosmetic Industry **(5 Hours)**

Eugenol, geraniol, sandalwood oil, Eucalyptus oil, rose oil, 2-phenyl ethyl alcohol, jasmine, civetone, muscone.

REFERENCES

- *Modern Technology of Cosmetics*, Asia Pacific Press Inc, New Delhi, 2004
- E. Stocchi*: Industrial Chemistry*, Vol 1, Ellis Horwood Ltd. UK
- P.C Jain, M. Jain: *Engineering Chemistry*, Dhanpat Rai & Sons, Delhi
- Sharma B.K & Gaur H, *Industrial Chemistry,* Goel Publishing House, Meerut (1996)

CHOE 4218 Industrial and Material Chemistry

Syllabus **Total hours: 30**

Learning Outcome:

Students are exposed to do industrial chemistry and material science. This brings awareness in students to the happenings in the industry and leads to job opportunities. The students are also exposed to recent advanced fields like nanotechnology.

INDUSTRIAL MATERIALS: **(7 Hours)**

Refractories: Properties, classification, determination of PCE values. Abrasives: Classification and application. Glass: Composition, raw materials, varities of glass-borosilicates, optical and safety glass-composition and uses. Cement: Raw materials, setting of cement.

PETROLEUM AND PETROCHEMICALS: **(4 Hours)**

Origin of petroleum, composition, octane number, petrol, diesel, kerosene, naphtha, lubricants, LPG, synthetic petrol, petrochemicals.

NANOTECHNOLOGY: **(8 Hours)**

Definition, nano domain, properties of nanomaterial
Applications of nanomaterials (i) Medicine-Gold sol (ii) Photo Voltaic cell (in solar cells) (iii) Self-cleaning glasses-ZnO, SnO, TiO (iv) Antibacterial materials-AgO (v) Catalytic material (vi) Super capacitors

WATER CHEMISTRY: **(3 Hours)**

Principles and applications of aqueous chemistry, water quality, parameters and standards, hardness of water. Use of zeolites in removal of hardness of water

FUELS: **(5 Hours)**

Characteristics, Calorific value, coal varities, reserves, coke,gaseous fuels, biofuels.

EXPLOSIVES AND PROPELLANTS: **(3 Hours)**

Explosives- Classification and applications
Propellants-Characteristics, classification and application.

REFERENCES:

- E. Stocchi*: Industrial Chemistry*, Vol 1, Ellis Horwood Ltd. UK
- Sharma B.K & Gaur H, *Industrial Chemistry,* Goel Publishing House, Meerut (1996)

CHOE 4318 Chemistry of Food Production

Syllabus **Total hours: 30**

HEALTH AND NUTRITION

CHEMISTRY OF FOOD PRODUCTION **(8 Hours)**

Chemical composition of soil. Factors affecting the productivity of soil. Plant nutrients- nonmineral, primary, secondary and micronutrients and their natural sources. Nitrogen fixation. Chemical fertilizers: manufacture, advantages and disadvantages of ammonium sulphate, calcium ammonium nitrate, urea and calcium superphosphate. Micronutrient deficiencies and their remedies. Plant growth enhancers. Pesticides and their classification. Insecticides- harmful effects of DDT and parathion. Herbicides: Selective and non selective herbicides with examples.

CHEMISTRY OF NUTRITION **(12 Hours)**

Nutrition and nutrients, classes of nutrients, general nutritional needs of human beings, ways of assessing the nutritional status of a human being. Malnutrition, nutrient requirements-recommendations-Dietary allowance per day (RDA), caloric data of nutrients and calculation of caloric value of food. Basal metabolic rate (BMR). Factors affecting BMR. Function, daily needs, food sources of carbohydrates, proteins and fats; problems associated with excess and deficiency of carbohydrates, proteins and fats. Minerals - functions of nutrient minerals, health issues associated with deficiency of Ca, Iodine, Fe, K and Na in human body. Vitamins- sources and deficiency effects of vitamins A, D, E, F, K, B complex and C.

FOOD ADDITIVES **(5 Hours)**

Definition and classification, preservatives, antimicrobial & antioxidant preservatives, food color, pH control in food, sequestrates, flavor enhances, sweeteners, anticaking agents, stabilizers and thickeners, surface active agents (emulsifiers), Roles of polyhydric alcohols as food additives.

FOOD ADULTERATION **(3 Hours)**

Adulterants- definition, examples of adulterants in food and beverages, harmful effects of food adulteration. Detection of adulteration in edible oil, milk, beverages, spices and pulses.

CHEMISTRY OF COOKING **(2 Hours)**

Leavening of bread, fermentation

REFERENCES:

1. Chemistry: Impact on Society, M.D. Joesten, D.O.Johnston, J.T. Netterville and J.L.Wood, Saunders College Publishing, 1988.
2. Chemistry of food and nutrition, H.C. Sherman, Agrobios (India) 2009
3. Pesticides in the modern world: Risks and benefits, Margarita Stoitcheva, InTech, 2011
4. E Source: Chemgeneration. Com/milestones/food-and –agriculture.html

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
BOTANY	BOOE 4118	Applied Botany	210

BOOE 4118 Applied Botany

Syllabus **Total hours: 30**

1. Ethnobotany

Introduction, scope and objectives
Plants used as: a) Food b) medicine c) intoxicants and beverages d) Resins and oils **(8 hours)**

2. Biofertilizers

General account about the microbes used as biofertilizer
Organic farming – Green manuring and organic fertilizers, recycling of biodegradable municipal, agricultural and Industrial wastes – biocompost making methods, types and method of vermicomposting – field Application.
(7 hours)

3. Mushroom Cultivation

Introduction: History and introduction; Nutritional and medicinal value of edible mushrooms; Poisonous mushrooms.

Cultivation: Equipments for mushroom spawn, Laboratory, culture room, spawn production mushroom farm layout and mushroom shed; Oyster mushroom cultivation –substrate, spawning, pre-treatment of substrate. Maintenance of mushroom. Cultivation of white button mushroom – spawn, composting, spawning, harvesting.

Processing and Storage: short term and long term storage. **(15 hours)**

Suggested Readings

1. Dubey, R.C., 2005 A Text book of Biotechnology S.Chand& Co, New Delhi.
2. Kumaresan, V. 2005, Biotechnology, Saras Publications, New Delhi.
3. John JothiPrakash, E. 2004. Outlines of Plant Biotechnology.Emkay -Publication, New Delhi.
4. Sathe, T.V. 2004 Vermiculture and Organic Farming. Daya publishers.
5. SubhaRao, N.S. 2000, Soil Microbiology, Oxford & IBH Publishers, New _Delhi.
6. Vayas,S.C, Vayas, S. and Modi, H.A. 1998 Bio-fertilizers and organic _Farming AktaPrakashan, Nadiad 55

Mushroom Cultivation:

a. Bahl, N. 1988. Handbook of Mushroom.Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi 37
b. Krishnamoorthy, A.S., Marimuthu, T. and Nakkern, S. 2005 Mushroom Biotechnology .TNAU Press, Coimbatore, India
c. Harander, S. 1991. Mushrooms.The Art of Cultivation Sterling Publishers.
d. Tripathi, D.P. 2005. Mushroom Cultivation.Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi.

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
ZOOLOGY	ZOOE 4118	A Journey into the Animal world and Human life	210

ZOOE 4118 A Journey into the Animal world and Human life

Syllabus **Total hours: 30**

UNIT–I	**INTRODUCTION TO ANIMAL WORLD**	**10 hours**
1.1	Brief Introduction to the Animal diversity, Outline classification, general characters with suitable examples, eco-economic importance and comparison between phyla	4 hrs
1.2	Contributions of Linnaeus, Darwin and Mendel. Taxonomic Hierarchy, Connecting links, and human genetic traits with examples	1 hr
	Parasitology: lifecycle pattern of tapeworm and round worm	1 hr
1.3	Identification of poisonous and non-poisonous snakes, anti-venom Reproduction patterns in animals with suitable examples, courtship	1 hr
1.4	Parental care in scorpion, octopus, crocodile, tilapia, Surinam toad, kangaroo	1 hr
	Migration of fishes and birds, techniques to track migration	1 hr
15	Parental care in scorpion, octopus, crocodile, tilapia, Surinam toad, kangaroo	1 hr
1.6	Migration of fishes and birds, techniques to track migration	
UNIT–II	**HUMAN BODY (ANATOMY AND PHYSIOLOGY)**	**6 hours**
	A brief description of the structure and functions of the following systems:	
2.1	Digestive system	1 hr
2.2	Respiratory system	1 hr
2.3	Circulatory system	1 hr
2.4	Excretory system and Reproductive system	2 hrs
2.5	Nervous system and Endocrine system	1 hr
UNIT–III	**HEALTH AND DISEASES**	**9 hours**
3.1	Communicable diseases: TB, Leprosy, Disease outbreak (Epi and pandemic) and vector borne diseases	2 hrs

3.2	Lifestyle related non-communicable diseases: hypertension, coronary heart disease (CHD), Diabetes mellitus, obesity and mental ill Health	1 hr
3.3	Social health problems: Smoking, alcoholism, AIDS. Causes, treatment and prevention	1 hr
3.4	Cancer: types, causes, and treatment	1 hr
3.5	Genetic diseases: Genetic disorders, positive and negative eugenics. Blood grouping and transfusion	2 hrs
3.6	Environmental and occupational health hazards: Allergy, Bronchitis, Radiation sickness, health care professionals, silicosis, noise induced hearing loss, first Aid	2 hrs

UNIT – IV	**ECONOMIC ZOOLOGY AND WILDLIFE CONSERVATION**	**5 hours**
	Brief account of vermiculture, aquaculture, sericulture and apiculture	
4.1	Conservation biology: In-situ and Ex-situ, megadiverse countries, Biodiversity hotspots, Citizen Science, env. movements	2 hrs
4.2	Threats to wildlife: IUCN Red and green books, conflict and Mitigation Animal behavior and Anthropomorphism	1 hr
4.3	Threats to wildlife: IUCN Red and green books, conflict and Mitigation	1 hr
4.4	Animal behavior and Anthropomorphism	1 hr

REFERENCE BOOKS

1. INVERTEBRATES. Vol-1. By Kotpal, rastogi publications.
2. INVERTEBRATES – Structure and function. By Barrington. ELBS.
3. INVERTEBRATE ZOOLOGY. By Meclisten. Oxford Publishing House.
4. HUMAN ANATOMY AND PHYSIOLOGY, 6th edition. By Elaine N. MArieb, Benjamin – Cummings publication.
5. A TEXT BOOK OF PHYSIOLOGY. By D. Emslie-Smith, Churchill Livingstone publication, 1988.
6. THE SCIENCE OF ENTOMOLOGY. By William S. Romoser and John G. Stoffolano Jr.
7. FUNDAMENTALS OF ENTOMOLOGY. By Richard J. Elzinga.
8. WILDLIFE ECOLOGY, CONSERVATION AND MANAGEMENT. Second edition, By Anthony R E Sinclair, John M. Fryxell and Graeme Caughley.
9. TEXT BOOK OF ANATOMY AND PHYSIOLOGY FOR NURSES AND ALLIED HEALTH SCIENCES. By Indu Khurana & Arushi, CBS Publishers and distributors, 2010.
10. DISEASES AND DISORDERS, Vol-2. By Marshall Cavendish, 2007.

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
ENVIRONMENTAL SCIENCE	ENVOE 4118	Environment and Health	40

ENVOE 4116 Environment and Health

Syllabus **Total hours: 30**

Learning outcome

To understand the need for Environmental sanitation
To acquire the knowledge of Non-communicable and Communicable diseases
To acquire the knowledge of Nutrition and Dietetics
To acquire the knowledge of Occupational health hazards

1.1 Dimensions of health- Physical, mental and social health; Spiritual health. Disease triangle. Health Justice

(5 hours)

2.1 Aero-allergens: Dust mites- Pollens

2.2 Water borne endemic disease: Fluorosis , Arsenic poisoning and Methemoglobinemia

2.3 Soil borne endemic disease: Melioidosis

2.4 Vector borne diseases: Plauge and Malaria; emerging diseases: Dengue, Chikungunya, Zika, Ebola, Swine Flu, Bird Flu, Severe Acute Respiratory Syndrome (SARS), *Middle East Respiratory Syndrome* (MERS); Zoonosis- Leptospirosis; Kyasanur forest disease (KFD) and Toxoplasmosis.

2.5 Drug safeties: Thalidomide Tragedy; Antibiotic stewardship; New Delhi *Antibiotic-Resistant superbug*.

2.6 Environmental Sanitation and Hygiene: Safe disposal of human excreta; Solid waste disposal; Sanitation value chain.

(15 hours)

3.0 Malnutrition: Vitamin deficiency diseases and Mineral deficiency diseases; Folic acid requirement during pregnancy; Food Safety- Adulterants and preservatives; Pesticide Toxicity: Endosulfan and DDT; Genetically Modified Food.

(5 hours)

4.0 Occupational health: Sick Building Syndrome; Noise and Radiation; Stress and Fatigue; Carpal tunnel syndrome (CTS) Methyl mercury and cerebral palsy; Synergistic effect; Cigarette smoking and pregnancy complications – Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003. **(5 hours)**

References:

1. Bedi and Yashpal. 1971. Handbook of Hygiene and Public Health. Atma Ram &Sons, Delhi.
2. Park.k 2009.Park's Textbook of Preventive and Social Medicine, 20th Edition.Misc Publ.

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
MICROBIOLOGY	MBOE 4118	Microbial Diseases: Causes, Prevention and Cure	70

MBOE 4118 Microbial Diseases: Causes, Prevention and Cure

Syllabus **Total hours: 30**

Learning outcome:

Microbes are tiny organisms, too tiny to see without a microscope, yet they are abundant on Earth. They live everywhere: in air, soil, rock, and water. Some live happily in searing heat, while others thrive in freezing cold. Some microbes need oxygen to live, but others do not. Though microscopic, one can't overemphasize the importance of microbiology. Society benefits from microorganisms in many ways. In contrary to those microorganisms also have harmed humans, animals, plants and so on, and disrupted society over the millennia. Microbial diseases undoubtedly played a major role.

This elective draws our relationship closer to microbes. This relationship involves not only the beneficial effects but also familiarize us with the harmful effects of certain microorganisms. Here we will bring to you the ways microbes affect our lives by causing diseases. We will also try and learn the measures to be taken to prevent the spread of microbial diseases and if affected to treat them.

1. **Introduction to microbial biodiversity** – distribution, abundance, ecological niche and types. Definition of infection and disease.
   Classification of infections; localized, generalized, endemic, epidemic, sporadic and pandemic. Classification of diseases as communicable and non communicable with examples. **(5 hours)**

2. **Sources of infection**: - Air, humans, animals, insects, soil, water and food. **(3 hours)**

3. **Methods of transmission of infection**:- Contact, inhalation, ingestion, inoculation, insects, congential, iatrogenic and laboratory infections. **(2 hours)**

4. Causes prevention and treatment of infections /disease **(10 hours)**

5. Hospital acquired infection, prevention and control (CDC) **(2 hours)**
   Disinfection: - types of disinfection procedures **(1 hour)**
   Vaccines and Immunization schedule **(3 hours)**
   Chemotherapy - Use and abuse **(4 hours)**

REFERENCES:

1. Jacquelyn G.Black, (2008), Microbiology Principles and explorations, JohnWiley& sons Ltd.
2. Prescott, Harley & Klein's,(2008), Microbiology, Mac Graw Hill Higher education.
3. Ananthanarayan and Paniker; Text book of Microbiology (2006); 8th Edition; Orient Longman publication, Hyderabad.
4. David Greenwood, Richard C.B. Slack and John. F. Peutherer; Medical Microbiology(2008), 7th Edition, Elsevier India Private Ltd., New Delhi.
5. Jawetz, Melnick and Adelbergs; Medical Microbiology (2010); 25th Edition; McGraw Hill Companies, USA.

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
BIOTECHNOLOGY	BTOE 4118	Biotechnology Now and Beyond	140

BTOE 4118 Biotechnology Now and Beyond

Syllabus **Total hours: 30**

Learning outcome:

The term 'Biotechnology' may sound futuristic. This paper deals with the introduction to Biotechnology that will interest student to understand the application of this field today. Biotechnology has a role in the daily life and there are concepts one needs to know about. The paper covers a clear introduction for these concepts in the first units. The content will help students understand genes, genetic diseases, drug reactions and genetically modified organisms.

Unit 1-The Cell: **(2 hours)**
Cell theory: The basic unit of life, structure of a cell (general, plant and animal)-1 hr
General account of living cells-1 hr

Unit 2-DNA: **(2 hours)**
Discovery of DNA as a genetic material-1 hr
Structure of DNA-1 hr

Unit 3- Genes and Genomes: **(2 hours)**
Gene concept, concept of genomes-1 hr
Model organism and their genomes -1 hr

Unit 4- Applications of DNA studies: **(4 hours)**
In Agriculture, Environment, Food and forensics- 1 hr each

Unit 5- Genetic Engineering and Cloning: **(4 hours)**
Aim, scope and principles of genetic engineering-1 hr
GE Insulin-1 hr
Introduction to cloning –Example Dolly -2 hr

Unit 6- Bioinformatics: **(4 hours)**
Databases-1 hr,
Sequencing-2 hr,
Human genome project-1 hr

Unit 7- Biotechnology in the media: **(2 hours)**

Unit 8- Bioethics, Biosafety and IPR: **(2hours)**
Social, Moral and Environmental ethics, Biosafety, Biosafety guidelines -1 hr
IPR and patent process -1 hr

Unit 9- Genetically Modified Crops: **(2 hours)**
Introduction to BT cotton-1hr
Bt Cotton scenario in India-1hr

Unit 10 Pharmacovigilance: **(2 hours)**

Pharmacovigilance in India-1 hr
Introduction to adverse drug reactions-1 hr

Unit 11- **Genetic diseases:** **(2hours)**
Introduction to common genetic disorders-1 hr
Genetic counseling and diagnostics-1 hr

Unit 12-**Stem Cells biology**: **(2hours)**
Introduction to stem cells-1 hr
Applications and ethical issues-1 hr

Reference –

1. Biotechnology Now and Beyond-(Contact Biotechnology department for copy of the reference book)

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
HISTORY	HISOE 4118	Tourism in Karnataka	65

HISOE 4118 Tourism in Karnataka

Syllabus **Total hours: 30**

1. Introduction – Meaning and nature of Tourism **(2 hours)**
2. Basic Components of Tourism **(3 hours)**
3. Types of Tourism **(3 hours)**
4. Basic Infrastructure **(3 hours)**
5. Supportive Services **(4 hours)**
6. Sustainable Tourism and its Importance's **(3 hours)**
7. Tourism and Karnataka: World Heritage Sites (Hampi, Pattadakal, Western Ghats) **(6 hours)**
8. Conservation of Cultural Heritage and Resources - Protection of Ancient Monuments **(6 hours)**

Books for study and reference:

1. G. S. Batra : Tourism in the 21st Century
2. A.K. Bhatia : International Tourism : Fundamentals and Practices
3. Jagmohan Negi : Tourism and Travel : Principles and Concepts
4. Ratandeep Singh : Tourism Today, Volumes I, II and III. 6. Ram Acharya : Culture and Heritage of India.
5. Denis Foster : An Introduction to Travel and Tourism
6. B V Rao : Tourism.

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
ECONOMICS	ECOE 4118	1.Insurance Services	65
	ECOE 4218	2.Agro-Food Marketing	65
	ECOE 4318	3.Economics of Rural Development and Agriculture	65
	ECOE 4418	4.Basic Microeconomics For Non-Economist	65
	ECOE 4518	5. Globalization and the individual	65

ECOE 4118 Insurance Services

Total hours: 30

Syllabus

Course Objective: to provide an overview of the working of the insurance sector

MODULE I: BASIC CONCEPTS (5 Hours)
Meaning of actuarial science - Concept of Risk. - Classification of Risks - Assessment of Risk-Transfer of Risk -.The Concept of Insurance – Classification of Insurance Principles of Insurance -Basic, Economic, Legal, and Financial
SELF STUDY: - Insurance as tool to transfer of risk

MODULE II: LIFE AND HEALTH INSURANCE (10 Hours)
Life Insurance- Traditional Plans, ULIP plans. Types of claim, Under Life Insurance Policy- survival benefit, maturity claims, early death claims, death claims, Accident benefit and disability benefit claims, claims under critical illness settlement options. Health Insurance
SELF STUDY: Insurance Products in India

MODULE III: GENERAL INSURANCE (10 Hours)
Fire Insurance, Marine Insurance & Agricultural Insurance. Group Insurance–Nature and Type
SELF STUDY:-Motor Insurance

MODULE IV: APPLICATIONS AND SCHEMES (5 Hours)
Applications - Proposal form and related documents -Documents for proof of age, Medical reports, special medical reports - Policy conditions, duplicate policy, types of revivals including calculations. Premium: Premium calculation, Days of grace, Non-Forfeiture Options, Lapse.

REFERENCE BOOK:
1. Dorfman Introduction to Risk Management and Insurance 10th Edition PEARSON 2015

ECOE 4218 Agro-Food Marketing

Total hours: 30

Syllabus

Course Objective: To provide an over view of the marketing of agro produce

MODULE I: AGRICULTURAL AND ECONOMIC DEVELOPMENT (5 Hours)
Role of Agriculture in Economic and Rural Development. Marketing of agricultural produce, status of agro-food industry, features of agro-food industry, marketing problems, marketing philosophy and process, market environment. Present status of food retail marketing system in India: Organized and Un-organized marketing system.

MODULE II: ORGANIZED MARKETING SYSTEMS (5 Hours)
Formats of Organized Marketing systems- Discounters (Subhiksha, Reliance Fresh), the value-for-money store (Nilgiris, Big Bazaar, Cooperative Stores), the experience shop (Food world, Trinetra), the home delivery (Fabmart), super stores and wide reach stores (Reliance Fresh, Spencer, Food Mart), etc. E-marketing. Retailing and FDI: Retailer's efficiency and competitiveness, employment opportunities, franchising, cash and carry wholesale operations and strategic license agreements.

MODULE III: UN-ORGANIZED MARKETING SYSTEM (5 Hours)
Formats of Un-organized Marketing System: Kirana Stores and Hawkers, viz. the road side hawkers, mobile retailers, including open format more organized outlets and small to medium food retail outlets.

MODULE IV: MARKETING INFRASTRUCTURE (15 Hours)
Post-harvest Handling and Packaging, Grading Facilities, Transportation, Storage, Cold Storage and Refrigerated Containers/Vans, Processing and Value Addition, Telecommunication, Market Yards and Sub-yards, Investment Requirements, Schemes for Encouraging Private Investment
Role of Information Technology and telecommunication in marketing of agricultural commodities, Market research, Market information service, electronic auctions (e-bay),

REFERENCE BOOKS:
1. Armstrong Gary and Philip Kotler (2012), 'Marketing: An Introduction', 11th ed. Prentice Hall, Upper Saddle River.
2. Crawford (1997), 'Marketing and Agribusiness Texts', FAO.
3. FAO (2009), 'Agribusiness Handbook: Food Retail'.
4. Kotler, P and Keller, KL. (2008). 'Marketing Management'. 13th ed. Upper Saddle River, New Jersey: Prentice Hall.
5. Peter J. Paul and Jerry Olson (2009), 'Consumer Behaviour and Marketing Strategy', 9th ed. McGraw-Hill, United States

ECOE 4318 Economics of Rural Development and Agriculture

Total hours: 30

Syllabus

Course Objective: To provide an overview of rural economy

MODULE I: INTRODUCTION TO RURAL DEVELOPMENT (5 Hours)

Meaning of Rural Development- Basic Elements of Development-Objectives of Development- Strategies of Rural Development- Policies for Rural Development-Need for Rural Development policy-Rural Development under Five year Plans.

MODULE II: EMPLOYMENT AND RURAL INDUSTRIES (15 Hours)

Rural Measures-Rural Income-Size, Growth and Occupational Structure of Rural Population-Employment under employment and unemployment in rural areas. Sources of rural credit Policies for Rural Development. Types of Rural Development Programmes in India. Growth and Development of Rural Industries in India- Cottage and rural industries-Problems and perspectives. Rural Industrial during the planning period.

Module III: INFRASTRUCTURE RURAL AGRICULTURE (10 Hours)

Agriculture and the Rural Economy of India- Planning for Village Industries. Technical changes in traditional agriculture. Rural Infrastructure-Rural Transport-Rural Electricity-Rural Education-Rural Housing-Rural Health, Sanitation, Water Supply

REFERENCE BOOKS:

1. Vasant Desai : Fundaments of Rural development, Himalaya publishing house.
2. Mehta SR:Rural development policies and programmes, Sage publication,New Delhi
3. Srivastav M and AK Singh: Rural development in India: Deep and Deep publication,New Delhi 1988

ECOE 4418 Basic Microeconomics for Non-Economist

Syllabus **Total hours: 30**

Course objective: To provide basic knowledge about the principles of individual economic behavior

MODULE I: BASIC BUILDING BLOCKS OF MICROECONOMIC THEORY (10 Hours)
Scope of microeconomic theory- concept of 'choice' in microeconomic theory - idea of opportunity cost; absolute price and relative price – production possibility curve; positive and normative economics; market demand and supply curve – factors affecting demand and supply curve – market equilibrium; Government's intervention in the market- basic concept of elasticity.

MODULE II: CONSUMERS AND FIRMS: TWO PILLARS OF THE ECONOMY (10 Hours)
Choice and preferences of consumers (demand side) – idea of budget line and indifference curve; equilibrium of the consumer; production decision by firms (supply side) – concept of cost and production – input choice decision of firm

MODULE III: IDEA OF MARKET IN MICROECONOMIC THEORY (10 Hours)
Idea of market – different forms of market structure – Two extreme cases: perfectly competitive market; monopolistic market; different forms of monopoly: natural monopoly; various forms of price discrimination.

REFERENCE BOOK:
1. Sen, A. (2007): Microeconomics: Theory and Application. Oxford University Press.

ECOE 4518 GLOBALIZATION AND THE INDIVIDUAL

Total hours: 30

Syllabus

COURSE OBJECTIVES:
- To describe the main issues, dynamics and debates surrounding globalization
- Synthesize knowledge of globalization with individual experiences

MODULE I: AN OVERVIEW OF GLOBALIZATION (10 Hours)
Definition, global interdependency, causes and effects of globalization, developing countries, uneven development, poverty and the market. Individual in a globalised economy-3 'Rs' -reaction, resistance and resilience.

MODULE II: GLOBALIZATION, TRADE, FINANCE AND LABOUR MARKETS (10 Hours)
Trade agreements and the globalization- commodity markets – commodity chains -global value chain-MNCs, role of technology .Bretton woods - the rise of global finance. Changing geographical division of labor, product and process Outsourcing, the global worker

MODULE III: GLOBALSIATION, EDUCATION, HEALTH AND THE ENVIRONMENT (10 Hours)
Education–growing international markets. Health-global determinants of health-Global environmental issues, urbanization.

REFERENCES BOOKS:
1. Manfred, S. (2003). Globalization: A very short introduction.
2. Scholte, J. A. (2005). *Globalization: A critical introduction*. Palgrave Macmillan

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
POLITICAL SCIENCE	PSOE 4118	1.Civil Services	65
	PSOE 4218	2. Development: Concept and Issues	65
	PSOE 4318	3. Electoral politics and process in India	65

PSOE 4118 Civil Services

Course Description:

The main objectives of this Open Elective paper (under CBCS), is to enable students from a non-humanities background understand the core elements of the Civil Services and motivate them to pursue career in civil services.

I Introduction

- Evolution of Civil Services: Ancient, Medieval & British Legacies.
- Meaning of Civil Services
- Characteristics of Civil Services
- Functions of Civil services
- Changing role of Civil Services in a globalizing world

II **Civil Services in India**

- Classification of Civil Services
- Public Service commissions
- Recruitment to Civil services
- Generalist and Specialists

III **Other Issues**

- Discipline in Civil Services
- Constitutional provisions & Conditions of Civil Services
- Values and Ethics in Public Service
- Making Civil Services a Career

SELECT REFERENCES:

1. Kumar Jwala- Governance in Ancient Indian political system(2009)
2. S.R.Maheshwari- Public Administration in India(2017)
3. B.L.Fadia & Kuldeep Fadia- Public Administration (Administrative Theories & Practice) (2016)
4. S.L.Goel & Shalini Rajneesh- Public Personnel Administration(2002)
5. P.D.Sharma & B.M. Sharma-Indian Administration(2009)
6. C.G.Somaiah- The Honest Always Stand Alone (2010)

JOURNALS:

1. Mainstream
2. Seminar
3. Indian Journal of Public Administration

PSOE 4218 Development: Concept and Issues

Total hours: 30

Syllabus

Course Description

This course is intended to introduce under graduate students to the diverse perspectives on development. A course like this cannot do justice to the enormous scholarship in the field. There are areas that will not be covered here, inevitably. The objective is to deal with some of the fundamental debates, concepts, ideas and thinkers to give students and overview and assist them to take this reading forward. Above all, the intention is to make you a critical observer and reader of Development.

Students will be expected to do all the readings: There will be a few lectures; students will be required to answer questions based on specific readings, prepare commentaries and engage in discussion.

Students will be required to photocopy reading material at their own expense.

Regular class attendance is assumed. Absentees will find it difficult to fulfill the objectives of this course. Classroom dynamics and methodologies will feature in the tests and exams.

Course Details

Brief History: Overview Samuel Huntington and Myron Wiener, Understanding Development; Almond and Powell- The concept of Political Development.

Glossary of terms/jargon, concepts, ideas and thinkers

Select Readings:

1.)Wolfgang Sachs, 2.)E F Schumacher, 3.) Gunnar Myrdal, 4.)AG Frank, 5.)Samir Amin, 6.)Claude Alvares , 7.)Ashish Nandy, 8.)Rajni Kothari, 9.)Vandana Shiva, 10.)P Sainath, 11.)Jean Dreze and Amartya Sen, 12.)MK Gandhi, 13.)Naomi Klein, 14.) Immanuel Wallerstein, 15.)Martha Nussbaum, 16.)Jagdish Bhagwati 17.) J.C Kumarappa

PSOE 4318 ELECTORAL POLITICS AND PROCESS IN INDIA

Syllabus **Total hours: 30**

Course Description: The envisioned objective of the course is twofold: One, to familiarize the students with the dynamics of politics in India; and Second, to enable them to understand the functioning of some institutions that mould the political domain in India.

I. Political Parties and the Party System in India:

Meaning of Political Party; Political Parties in India; Features of Indian Party System; Classification of Political Parties

(10 Hours)

II. Elections and the Electoral System:

Meaning of Election; Basic electoral laws; Types of elections; Election Commission of India; Representation of Peoples Act, 1950 ; A thumbnail sketch of elections held in India since Independence; Voting Behaviour; Political defections

(10 Hours)

III. The Changing Nature of the Indian State:

The nature of political power in India; changing dimensions of the Indian State (Ideological, Developmental and Welfare)

(10 Hours)

Essential Readings:

Paul Brass. - The Politics of India since Independence.
Partha Chatterjee. - State and Politics in India.
D.D. Basu -Introduction to the Constitution of India.
Zoya Hasan. - Parties and Party Politics in India.
Christophe Jaffrelot- Religion, Caste and Politics in India.
Nirja.Gopal Jayal and Pratap.Bhanu Mehta. -The Oxford Companion to Politics in India.
Rajni Kothari. -'The Congress "System" in India', in Hasan, Z. (ed.) Parties and Party Politics in India
Yogendra Yadav and Suhash Palshikar- 'Party System and Electoral Politics in the Indian States, 1952-2002: From Hegemony to Convergence', in deSouza, P.R. and Sridharan, E. (eds.) India's Political Parties

Journals:

Economic and Political Weekly
Mainstream
Seminar
Indian Journal of Political Science

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
SOCIOLOGY	SOOE118	Characteristics of Indian Society	130

SOOE118 Characteristics of Indian Society

Syllabus **Total hours: 30**

Learning outcome

The students entering this course are from different regions of India. They are new to Sociology. Therefore, an introductory paper on Indian Society will enable them to learn Sociology and relate their learning to their own social realities. These students will be able to grasp the concepts when explained to them in the Indian setting. It is also the objective of the Department that students should develop an interest towards Sociology.

Unit 1 – The Basic Social Structure of Indian Society **(10 hours)**

i) Dimensions of Indian Society
j) Racial/caste classification
k) Linguistic diversity/pluralism
l) Religious pluralism
m) Geographical diversity
n) India – unity in diversity

Unit 2- Tribal Communities **(10 hours)**

a) Geographical distribution of tribal communities
b) Scheduled tribes
c) Tribes
d) Developmental programmes
e) Changing face of Tribal life

Unit 3- Women in Modern India **(10 hours)**

a) Demographic Profile
b) Status of Women- Continuity and Change
c) Constitutional Provisions, Special laws and Women‟s Empowerment
d) Women and Media

Books for Reference:

1. G.S. Ghurye: Caste and Race in India: Popular Prakashan, Bombay (1969)
2. Kapadia K.M.: Marriage and Family in India, Oxford University Press (1980)
3. Ram Ahuja: Indian Social System
4. M.N.Srinivas: Caste in Modern India
5. A.R.Desai: Rural Sociology
6. Dube S.C.: Indian Society
7. Verma R.C: Tribes through the ages
8. Bhowmik K.L: Tribal India.
9. Narpat Singh: Changing Status of Indian Women, Vista International Publishing House, New Delhi (2008)
10. Y.K. Sharma: Indian Society: Issues and Problems, Lakshmi Narain Agarwal (2007)
11. C.N. Shankar Rao: Sociology of Indian Society, S.Chand & Co. Ltd. (2006)
12. N. C Shankar Rao: Principles of Sociology, S.Chand & Co. Ltd. (2006)
13. Dr. Lipi Mukhopadhyay: Tribal Women in Development, Publications Division (2002)

Additional Readings:

- B.N. Singh & Manas Chatterjee (Ed): Tribes in India, RBSA Publishers
- Fuller. C.K. (Ed): Caste Today, Oxford University Press.
- Veena Das, Dipankar Gupta, Patricia Oberoi (Ed): Tradition, Pluralism and Indentity, Sage Publications
- Sharma. K.L.: Social Inequality in India, Rawat Publications.

Websites:

1. www.indianchild.com/Indian_society.htm
2. www.geocities.com/Tokyo/shrine/4287/people.htm
3. www.socioweb.com/
4. sociosite.net/
5. sosig.ac.uk/sociology

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
INDUSTRIAL RELATIONS	IROE 4118	Human Resource Management	65

IROE 4118 Human Resource Management

Syllabus **Total hours: 30**

Learning outcome

Personnel who work for Industries/organizations are increasingly being recognized as one of the most significant of all resources. They are aptly termed Human Resource. Human Resource Management forms an important aspect of Industrial Relations. This Open Elective aims at the following:
1. To sensitize the students from Non-Industrial Relations Combination, with the concept of Industrial Relations and Human Resource Management.
2. To make students aware of various aspects of Human Resource Management.

Module 1: INDUSTRIAL RELATIONS & HUMAN RESOURCE MANAGEMENT

Meaning of Industrial Relations and Human Resource Management. Important definitions. Nature and scope. Functions of HRM. Human Resource Audit-meaning, purpose, method and limitations of HR Audit. **(6 hours)**

Module 2: HUMAN RESOURCE INFLOW

Recruitment-Types of recruitment and sources of recruitment-with special reference to advertisements in print media and audio visual media-including web sites. Selection Process. Promotion-meaning and types. Merit Vs Seniority criteria. Transfers-meaning, types and reasons for transfer. Demotion-meaning and reasons for demotion. **(10 Hours)**

Module 3: TRAINING AND DEVELOPMENT

Meaning. Importance of training and development. Methods of training and development. **(6 hours)**

Module 4: WORK ENVIROMENT

Fatigue, Monotony and Boredom-causes and effects. Industrial Accidents and Industrial Safety. Legal Provisions for Safety, Health and Welfare of workers in India. Challenges faced by H.R. Managers **(8 hours)**

BOOKS FOR REFERENCE:

1. Flippo, Edwin B, Principles of Personnel Management, McGraw Hill book Co., New Delhi
2. Mamoria, C.B., Personnel Management, Himalaya Publishing House, Mumbai, 2000
3. Aswathappa K, Human Resource Mangement, Tata McGraw-Hill Publishing company Limited, New Delhi, 2008
4. Yoder, Dale, Personnel Management and Industrial Relations, Prentice-Hall of India, New Delhi
5. Venkata Ratnam, C.S., Industrial Relations, Oxford University Press, New Delhi, 2006
6. Aswathappa K, Organisational Behaviour, Himalaya Publishing House, Mumbai, 2007
7. Kapoor, N.D., Elements of Industrial Law, Sultan Chand & Sons,New Delhi, 2015

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
ENGLISH	ENGOE 4118	Readings in Popular Culture	65

ENGOE 4118 Readings in Popular Culture

Syllabus **Total hours: 30**

Course Description

The course will offer an introduction to Cultural Studies through an exploration of the ideas of Raymond Williams and Stuart Hall in relation to experiences such as popular cinema, popular music and online experience. Students from IV Semester BA, BSc and BCom may opt for this course.

The course is organized into four modules. The **Introductory** module will look at notions of culture, and allow the student to understand the different ways in which popular culture is theorised.

The **Popular Cinema** module will look at narratives of stardom as they emerge in specific cinematic traditions such as Bollywood and regional cinema. Experiences such as theatre-going in Bangalore will receive critical attention.

The **Popular Music** module will require the student to look at specific phenomena such as the worlding of Indian music with specific reference to A.R. Rahman. Other case studies such as the parodic music of Weird Al Yankovic, immigrant music by Asian Dub Foundation , and Bob Dylan's transition from folk music to a larger audience will also be taken up.

Twitter and Reddit will be the objects of scrutiny in the **Online Experience** module. The experiences of sociality that each space offers will receive critical attention.

Assessment

Students may pick one area of interest to write a 1500-word essay for Internal Assessment. The Mid-Semester Test and the End-Semester Examination will test the student on his/her understanding of the concepts discussed, and their ability to parlay experience into discussion and critical commentary.

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
COMMUNICATIVE ENGLISH	CEOE 4118	Public Speaking as Story-Telling	65

CEOE 4118 PUBLIC SPEAKING AS STORY-TELLING

Syllabus **Total hours: 30**

Course Description

The course will offer practical exercises in public speaking with a focus on story-telling.

A short module in Received Pronunciation and speech-training will also be offered as part of the course. **(8 hours)**

Scripting for such occasions will be examined through practical exercises. **(4 hours)**

Dramatised Reading. JAM, Extempore, Improv and Slam Poetry exercises will also be held, with an emphasis on performance before live audiences. **(10 hours)**

The art of MC-ing will be explored as well. **(8 hours)**

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
JOURNALISM	JOUOE 4118	Journalism as Story-Telling	65

JOUOE 4118 Journalism as Story-Telling

Syllabus **Total hours: 30**

Course Description

The course will offer an introduction to the ways in which the digital age has transformed journalism. The course is organized around readings in the new forms that are emerging, ranging from podcasts, to graphic journalism, to layered narratives. The course also has a practice dimension in that students will receive some training in how to use digital resources for storytelling.

The course is organized into four modules. The **Introductory** module will offer readings in digital storytelling, featuring analyses of the developments of the last decade by media historians.

The **Graphic Journalism** module will examine the ways in which journalism has borrowed from the graphic novel tradition, as also from new ways of building relationships between visuals and text.

The **Podcast Module** will examine the forms of cultural commentary that this genre supports.

The **Experience** module will offer the student training in using WordPress and allied resources for digitally inflected storytelling.

Assessment
Students may pick one area of interest to write a 1500-word essay for Internal Assessment. The Mid-Semester Test and the End-Semester Examination will test the student on his/her understanding of the concepts discussed, and their ability to parlay experience into discussion and critical commentary.

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
PSYCHOLOGY	PSYOE 4118	Psychology and Life	65

PSYOE 4118 Psychology and Life

Syllabus **Total hours: 30**

Preamble

Psychology is the scientific and systematic study of human behavior and its mental processes. Human behavior however is still puzzling and mysterious to us. The various approaches and theories of human behavior are introduced to help students develop a better understanding and appreciation of one's own self and that of others. Psychology aims at providing the students with a general overview of the subject of psychology. More importantly, this course aims to facilitate personal development or growth of students through enrichment activities and peer group interactions.

Learning outcome

1. On completion of this course, students should know and understand the major theoretical aspects and methods of psychology.
2. Have knowledge of the basic contents of psychology.
3. They should be able to integrate into life what their knowledge of psychology.
4. To rationalize human behavior.
5. To integrate scientifically and systematically application into academia.
6. To understand the fundamental processes underlying human behavior and the process of human development and change from biological and psychosocial perspective.

UNIT - 1 INTRODUCTION (5 Hours)

i. **Definition & goals of Psychology**.
ii. **Many View Points in Psychology** –Behaviorism, Psychodynamic, Humanistic Psychology.
iii. **Types of Psychological research** - observation, case Studies, Survey method, The correlational methods, the experimental method
iv. **Application of Branches of Psychology**

UNIT - 2 BIOLOGICAL FOUNDATIONS OF BEHAVIOUR (5 Hours)

i. **An overview of the Nervous System**; Neurons and Nervous(Structures of the neuron, neural impulse, synapse, neurotransmitters)
ii. **Central Nervous System**:
iii. **The Brain** – Structure of the brain; brain stem; structure of the cortex; association areas of the cortex (Broca's area and Wernicke's area)
iv. **The Spinal Cord** – The Peripheral Nervous System – The Somatic Nervous System and the Autonomic Nervous System.
v. **Endocrine glands**.

UNIT 3: INDUSTRIAL AND CONSUMER PSYCHOLOGY (5 Hours)

i. **Definition, Goals,** Forces and Fundamental concepts -Nature of people and nature of organization.
ii. **History** of industrial Psychology and Organizational Behavior,
iii. **Areas of Industrial psychology**.
iv. **I-O Psychology as a career:** Training & Employment.

v. **Scope of Consumer Psychology; Nature and Scope of Advertising;** Types of Advertising Appeals-Trademarks, Product Image, Product Packaging, Sex in Advertisements and Women in Advertisement. Consumer Behaviour and Motivation: Buying Habits and Brand Loyalty, Product Pricing.

UNIT 4: PUBERTY AND ADOLESCENCE (5 hours)

i. Definition

ii. **Physical Development**- Adolescent's growth spurt, primary, secondary sexual characteristics, signs of sexual maturity.

iii. Eating disorders and Nutrition

iv. Substance abuse – risk factor of drug abuse, gate way drugs – alcohol – marijuana and tobacco; **STD's –** sexually transmitted diseases.

UNIT 5: ABNORMALITY (5 hours)

i. Definition: Defining abnormality, criteria for abnormality – statistical, social, personal discomfort, maladaptive. Myths and Misconceptions of abnormal behavior. DSM IV/V

ii. **Types of Mental Illness**: Anxiety based disorders, Somatoform disorders and Dissociative disorders, Mood disorders, Schizophrenia.

UNIT 6: COUNSELLING (5 hours)

i. **Definition & goals of counselling:** Definition of Counselling, Goals of Counselling, Scope of Counselling. Difference between Counselling, Guidance and Psychotherapy. Current Trends.

ii. **Process of counselling:** Client-Counsellor Relationship establishment, Problem Identification and Exploration. Working in a Counselling relationship: Leading, Multifocused responding, Accurate empathy, self disclosure, immediacy, Transference and Counter Transference. Solution Application and Termination. Issues related to termination - Follow-up, Referral and Recycling.

iii. **PERSONAL ASPECTS OF COUNSELLING SKILLS**: Counselling Skills: Communication Skills :Non –verbal and Verbal Communication Skills. Variables affecting the Counselling Processes: Counsellor Variables – Age, Experience, Sex, Interest, Perceptual Sensitivity, Personal Adjustment, Personal Security, Genuineness, Counsellor's Attitude and Beliefs, Rapport, Empathy. Portrait of an Effective Counsellor. Counsellee factors.

iv. **ETHICS IN COUNSELLING:** Codes of Professional Ethics, Ethical Principles: Respect for Autonomy, Beneficence, Nonmaleficence, Justice, Fidelity. Ethical Theory: Relationship between Ethics and Law; Common Ethical violations by Mental Health Professionals.

REFERENCES:

- Baron,R.A. Psychology.(1995). 3rd edition.Delhi:Prentice Hall. Munn,N.L.,Fernald,L.D., & Fernald,P.S.(1997)
- John. W Santrock, Psychology Essentials 2, H Edition (Updated 2006, Tata McGraw Hill Publication.
- Feldman. R.S. understanding Psychology, IV edition, 2006, Tata McGraw Hill Publication.
- Diana E. Papalia, Sally Wendkos Olds, Ruth Dusking Feldman, Human Development, 9th edition, Tata McGraw Hill Publication
- Robert C Carson, James N Butcher, Susan Mineka, Jill M Hooley, Abnormal Psychology 13th edition
- Robert.L.Gibson, Marianne.H. Mitchell, Introduction to counselling and guidance. 7th edition, Prentice Hall India Private Limited.
- **Schultz D.P. and Schultz E.S** –Psychology & Work Today Eighth Edition ,Pearson Education,Inc.and Dorling Kinderssley Publishing Inc.

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
BCA	BCAOE 4118	Web Development	130

BCAOE 4118 Web Development

Syllabus **Total hours: 30**

Learning outcome

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

- To provide an in-depth training for web development skills.
- To understand and develop l web pages independently.
- To understand the methods of debugging and correcting anomalies.
- To provide a proper foundation for learning other tools of web development.

1. **Internet Basics:** Introduction to internet and its applications, E-mail, telnet, FTP, E-commerce, video conferencing, e-business. Internet service providers, domain name server, internet address, World Wide Web and its evolution, uniform resource locator (URL), browsers – internet explorer, netscape navigator etc. search engine, web saver – apache, proxy server, HTTP protocols **(10 hours)**

2. **Web Designing Technologies:** Introduction to HTML, ASP, JSP, Java scripts, VB scripts, HTML/DHTML – file creation, HTML tags, titles footers, text formatting, forms, images, lists, tables, linking documents, front page editing, frame sets, order list, un-order list, special characters **(10 hours)**

3. **Java Script** Introduction to Java script, writing java script into HTML, Building of Java Script Syntax Data types of variables, arrays, operators, expressions, programming construct of conditional checking, loop ends functions, dialogue boxes **(5 hours)**

4. **CSS:** Understanding the importance of CSS, Types: inline, internal and external with examples. **(5 hours)**

REFERENCE BOOKS

1. E. Balaguruswamy, Programming with JAVA, A Primer, 2nd Edition., TMH 2. (1999), (Chapter 2 – 16) 3. KenArnold & James Gosling, The Java Programming Language, Addison – Wesley, (1998) 4. Patrick Naughton & Herbert Schildt,

2. JAVA 2: The Complete Reference, 3rd Edition, TMH, (1999). 5. Internet 6-in-1 by Kraynak and Habraken, Prentice Hall of India Pvt. Ltd., New Delhi 6. Internet for Everyone by Alexis Leon and Mathews Leon; Vikas Publishing House Pvt. Ltd., New Delhi 7. HTML – 4 for World Wide Web by Castro Addison Wesley (Singapore) Pvt. Ltd., New Delhi 8. Principles of Web Designing Joel Sklar, Web Warrior Series Available with Vikas Publishing House Pvt. Ltd., New Delhi

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
BVC	BVCOE 4118	1.Reading Images	65
	BVCOE 4218	2.Film Appreciation	65

BVCOE 4118 Reading Images

Objective: The course will enable students to understand, interpret, and critically analyse visuals in various media texts.

Unit 1: Basic Notions

How to read an image? Objective of Semiotics, Defining Signs, Types of Semiosis, Representation. **(10 hours)**

Unit 2: Models of the Sign

The Saussurean model, Denotation, Connotation, Myth, Articulation & Intertextuality. **(10 hours)**

Unit 3: Case studies of films, TV shows, advertisements, news, and internet memes. **(10 hours)**

Internal Activities:

1. Analysis of media visuals

2. Presentations on relevant topics

References:

- Walter Benjamin, *Illuminations (trans.,* 1968)
- Louis Althusser, *Lenin and Philosophy, and Other Essays* (1969, trans. 1971)
- Raymond Williams, *Culture and Society, 1780-1950* (1960) and *Marxism and Literature* (1977)
- Stuart Hall et al, *Culture, Media, Language* (1980)
- Fredric Jameson, *Marxism and Form* (1971) and *Postmodernism, or the Cultural Logic of Late Capitalism* (1991)
- Terry Eagleton, *Criticism and Ideology* (1976) and *Marxism and Literary Criticism*
- David Harvey, *The Condition of Postmodernity* (1989

BVCOE 4218 FILM APPRECIATION

Syllabus **Total hours: 30**

Course Description

Film appreciation is a course that explores the world of film and filmmaking. We will examine the styles of film, and the techniques used in making a film, and some of the film forms. This course will introduce the art, technology, language, and appreciation of films.

Unit 1: The Value of Film Viewing: Film as an experience. Understanding Cinema **(5 Hours)**

Unit 2: Film History: World and Indian **(5 Hours)**

Unit 3: Film Techniques: Shot, Camera Angles, Mise en Scene, Montage **(10 Hours)**

Unit 4: Film Styles and Movements, Genre **(10 Hours)**

Suggested Activity:

Analysis of different film genre based on the theories covered

Internal Activities:

1. Background research on concepts related to films
2. Presentation of Film Directors as suggested in the course

Key Texts:

1. Bordwell D & Thompson K [1990] *Film Art – An Introduction*. Knopff, NY.
2. Mast, S & Cohen, M (ed) [1985] *Film Theory and Criticism*. Oxford, OUP.
3. Monaco, James [1986] *How to Read a Film*. Delhi, Macmillan.

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
BSW	SWOE 4118	Basic Human Rights Approach	130

BVCOE 4118 Basic Human Rights Approach

Syllabus **Total hours: 30**

Learning outcome

- Basic awareness on human rights.
- To provide an overview of social legislation and familiarize students with Pertinent legislations
- To educate the students about the existing judicial system & it's functioning.

Unit I Basic Concept **(8 Hours)**

- What are Human Rights?
- Human Right Values- Dignity, Liberty, Equality, Justice, Unity in Diversity, Ethics and Morals
- Meaning and significance of Human Rights Education

Unit II Human rights of disadvantaged groups **(8 Hours)**

- Status of SC/ST and Other Indigenous People in the Indian Scenario
- The Minorities and Human Rights
- Sex Workers
- Migrant Laborers

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Unit III Role of Different Bodies **(4 Hours)**

- Role of Advocacy Groups:
- Role of Professional Bodies: Press, Media, Lawyers, Educational Institutions
- Role of Corporate Sector, NGO's.

Unit IV Government Services on Public Interest **(3 Hours)**

- Right to Information Act – Procedure for petitioning an RTI
- Public Interest Litigation

Unit V Documentaries **(7 Hours)**

- India Untouched
- Prostitutes of God
- Chakravyuh

References:

1. Introduction to the Constitution of India Brig kishore Sharma.
2. Handbook of Human Rights Jayant Chaudhary
3. Family Law I A Saiyed.
4. Bare Acts of various legislations.
5. Social Legislation in India: Gangrade K D
6. Social Policy & Social Development in India: Kulkarni P D

DEPARTMENT	CODE	TITLE OF THE OPEN ELECTIVE (OE)	Total No. of Seats available for OE
B.Com	BCOMOE 4118	1. Fundamentals of stock markets	280
	BCOMOE 4218	2.Marketing Management	420

BCOMOE 4118 Fundamentals of Stock Markets

Learning outcome

- To develop conceptual understanding of fundamentals of Financial Markets and Stock Trading
- To familiarize students with the Indian financial systems, market mechanisms and instruments of investment from individual and corporate perspective

Course Contents

Unit 1 - Primary market (06 Hours)
Features of primary market and its classification, Methods of floating issues in primary market, IPO process (Elaborate discussion of all the steps), SEBI requirement and guidelines for IPOs, Factors to be considered during IPO process, IPO grading process.

Unit 2 - Secondary market (06 Hours)
Features of secondary market, Players in secondary market, Working of stock exchange, Stock exchange brokers, Membership eligibility conditions, Depository (Functions and Benefits), Regulatory framework of stock exchange, Online trading procedure, Trading & settlement mechanism. Calculation of Indices.

Unit 3 - Fundamental and Technical Analysis (10 Hours)
Concept of fundamental and technical analysis

Self-Study (04 Hours)
Functions of Merchant Bankers in issue process, Functions of Brokers.

Suggested readings:

- Bhole, L.M. Indian Financial Institutions, Markets and Management (2014), McGraw Hill, New York.
- Gurusamy, Financial Markets and Institutions, (2013) 3rd edition, Tata McGraw Hill.
- K. Venkataramana, Stock & Commodity Markets (2015), SHBP.
- Khan, Indian Financial Systems (2015), 6th edition, Tata McGraw Hill Saunders, Financial Markets and Institutions (2014), 3rd edition, Tata McGraw Hill.

BCOMOE 4118 Marketing Management

Learning outcome

- To give students a basic understanding of the elements of marketing and marketing management

Course Contents

Unit 1 - An Introduction to Marketing (04 Hours)
Meaning, nature, concepts marketing environment (Micro and Macro) Basic elements of Marketing Mix
Marketing Management (meaning and scope)

Unit 2 - Marketing Mix (16 Hours)
Product: Concept, Product classifications Major product decisions: Product attributes Branding, Packaging and labeling New product development Product life cycle. Pricing: Significance Factors affecting price determination pricing methods and strategies Market skimming and penetration pricing policies. Distribution: Channels of Distribution-Meaning, importance and functions Distribution Logistics: Meaning, importance and decisions. Promotion: Meaning and importance promotion mix promotion Methods.

Unit 3 Segmentation, Targeting and Positioning (06 Hours)
Segmentation: Meaning and bases of segmentation Target marketing strategies positioning: Meaning and importance, major bases for positioning

Self-Study 04 Hours
Scope of Marketing, Benefits of Segmentation

Suggested readings:

- CSV Murthy: Business Ethics Czimkota, Marketing Management, Vikas Publishing House (P) Ltd.
- Gary Armstrong and Philip Kotler, The Essentials of Marketing, Pearson Education, New Delhi.
- Majaro Simon, The Essence of Marketing, Prentice Hall, New Delhi.
- McCarthy and Pereault; Basic Marketing, McGraw Hill.
- Michael Etzel, Bruce J. Walker, and W. J. Stanton, Marketing, McGraw Hill, New York.
- Philip Kotler and Gary Armstrong, Principles of Marketing, Prentice Hall of India. New Delhi.
- RajanSaxena, Marketing Management, Tata McGraw Hill, Publishing Co., New Sontaki: Marketing Management

NOTE : If any queries, can mail the CBCS coordinator

Dr. Syed Wajeed
CBCS – Coordinator
Associate Professor,
Dept. of Microbiology,
St. Joseph's College (Autonomous),
Bangalore – 560027
wajeed@sjc.ac.in