# KARNATAKA STATE OPEN UNIVERSITY

# **PROGRAMME GUIDE**

# M.Sc in CLINICAL NUTRITION AND DIETETICS



# DEPARTMENT OF POST GRADUATE STUDIES AND RESEARCH IN CLINICAL NUTRITION AND DIETETICS

Mukthagangothri, Mysore - 570 006

#### Vice-Chancellor's Message

#### Dearest Learners.....

I believe am extravagant to be the heartiest Vice-Chancellor of Karnataka State Open University and solemnly welcome you to pursue your study through distance mode. The higher education sector is passing through a rapid transformation, both in India and across the world and I believe that the Karnataka State Open University is setting and achieving new standards of pedagogic quality. The conventional teaching of education and measurement of performance have changed in the new era. The 'classroom' is no longer confined to the physical space of the four walls of learning. The knowledge question has become a dynamic pushing everyone to make lifetime engagement by continuous upgrading of skills and understanding. Karnataka State Open University has never backed to embrace the challenges exerted in the new context of higher education.

Karnataka State Open University (KSOU) was originated through its pioneer Institute of Correspondence Course and Continuing Education (ICC & CE), which was established in 1996 under the state act. KSOU has inscribed its motto "**Higher Education to Everyone Everywhere**" by adopting various strategies to reach the students globally. University welcomes all age group of learners above 18 years of age. University has regional centres in different districts of Karnataka for smooth functioning and operations for students' accomplishments. KSOU believes in accessing to sustainable and quality education through distance mode, hence, utilization of modern techniques of teaching have gathered best understanding. Few of the strategies include 'KSOU connect' which has helped in online teaching and learning, 'KSOU App' for provision of information in finger tips.

Karnataka State Open University offers under-graduate, post-graduate and research programmes in different streams of Arts, Humanities, Commerce, Science, Education and Management. KSOU also offers Diploma and certificate programmes in various subjects. University is encouraging the concepts of Skill development, Virtual labs, E-Content, E-Radio, E-Video for better approaches of students. University has adopted the guidelines of UGC in establishing grievance cell and placement cells, so that students are addressed during their stay as student as well as for their way forward. In order to maintain the standards of the University "Centre for Quality Assurance" (CIQA) is established which is gearing up for further accreditations of the University. University encourages SC/ST students and girl students with BPL by extending financial support through scholarships of State Government.

I wish the programme at Karnataka State Open University opted by you will provide the best of the knowledge and sustain your professional escalation and learning.

Yours sincerely Dr. S. Vidyashankar

# MESSAGE FROM DEAN (ACADEMIC) Dean Academic's Message

#### Dear Learner

Heartily welcome you all to our Karnataka State Open University (KSOU). KSOU is the only Privileged University in the state to provide higher education through distance mode. KSOU has become one of the pioneers in providing best quality education in India and World by offering different courses in Arts, Humanities, Science, Education, Commerce and Management through distance education. This was possible with the untiring efforts of our teaching faculty and administrators which imparts the services with present scenarios and current developments of Higher education for students to compete internationally. KSOU has been successful in shaping the contemporary system to conceivable form through various technologies like skill development, visual labs and E-Programmes.

Karnataka State Open University is providing the study material or self-learning material in virtual as well as actuals for better utilization by students. The self-learning materials have been written by respective experts in concerned areas in simpler words for better understanding. Hope the best utilizations of self-learning materials are ensured. Apart from learning through books/E-books our faculty have initiated in conducting online classes through KSOU-connect and also weekend classes for students in different professions. Wish the conductive classes will be well anticipated by the learners. Apart from the mentioned prospective services, faculty members will also conduct Personal Contact Programme (PCP) for specified days based on the courses and subjects opted at the University. Generally, evaluation will be based on internal assignment and theory examination, however, practical examinations, visit reports, tests, dissertation thesis will also be considered based on the subjects chosen.

With these initiatives, I warmly welcome you all to endeavour in the field of education, acceleration of your knowledge, enhancement in your career approaches through Karnataka State Open University.

Yours sincerely Prof. Kamble Ashok

### A WORD FROM CHAIRPERSON

Dear Learner,

Welcome to M.Sc. in clinical Nutrition and Dietetics Course at Karnataka State Open University. Hope your deliberations to acquire knowledge in the coming two years will be fruitful and provide stars to your professional career. Department of Food Science and Nutrition at Karnataka State Open University has always been and will be enthusiastic in accomplishing good rapport between student and teacher. We are available for frequent conversations; provide information through E-mails, WhatsApp and also website about ongoing events of course, University, sister concern associations of Nutrition like Indian Dietetic Association and Nutrition Society of India and also placements.

Students on completion of the course are privileged to gain experience with laboratory instrumentation, hospital dietary services and community services. The students are trained to be specialised in meal planning, food nutrition, diet therapy, research skills and client care. Students learn how to protect the body from disease and aging through lectures, experiments and trainings. Students acquire technical knowledge in biochemistry and dietetics thus familiarizing with food culture and modern environmental dietary habits. Students are educated and trained to be dieticians who can widely support the eating habits of people. The trained dietitians will have the skills to work in hospitals, welfare institutions, school cafeterias, business establishments that serve lunches, health industries and within their own homes. The curriculum developed will ensure holistic approaches to enable themselves as professionals who can manage health consultations and nutritional counselling.

Department of Food Science and Nutrition is constantly leading or are involved in cutting edge research and engaging in some of the most interesting and applicable classes. We conduct classes through online, personal contact programme where practical classes in laboratory, hospitals and clinics are ensured. Self-learning materials provided will help as notes for frequent study to students of the classes conducted.

With hopefulness and optimism, I wholeheartedly welcome you all once again to M.Sc. in clinical nutrition and dietetics at Karnataka State Open University.

With all the best wishes

Dr. Hemalatha M.S. Chairperson, DOS&R in Food Science and Nutrition

#### **1. DEPARTMENT OF STUDIES IN FOOD SCIENCE AND NUTRITION**

Department of Food science and Nutrition at Karnataka State Open University was established in the year 2001. Earlier, certificate courses were conducted in collaboration with Department of Food science and Nutrition, University of Mysore. In the year 2010, Diploma in Nutrition and Health education and PG Diploma in Nutrition and Dietetics were introduced. Certificate course in Food Preservation was converted to Diploma in Food Preservation technology in order to accommodate Food technologists for higher prospective in Food Industries. Keeping view in the demand for Dieticians in Hospitals and Nutritionists in Drug Companies, Department came forward in starting M.Sc. in Clinical Nutrition and Dietetics. From the year 2021 we are also offering M.Sc. in Food and Nutrition Sciences also

The Department of Food Science and Nutrition comes under the ambit of **School of Sciences**. The various programs offered by the department are as follows:

- ♦ Master of Science in Clinical Nutrition and Dietetics (M.Sc. CND)
- ✤ Master of Science in Food and Nutrition Sciences (M.Sc. FNS)
- General Bachelor of Science in which Food Science and Nutrition is optional (B.Sc. (Biochemistry, Microbiology, Food Science and Nutrition)
- Bachelor of Science in Home science (B.Sc. Human Development, Psychology, Human Nutrition)
- Post-Graduation Certificate in Nutrition and Dietetics (PGCND)
- Diploma in Nutrition and Health Education (DNHE)
- ✤ Certificate in Nutrition and Food (CNF)

#### a. Faculty Details

Sl.	Name and	Specialization	Email ID and
No	Designation		Phone Number
1	Dr. Hemalatha M. S.	Food Science, Nutrition Science,	drmshemap@gmail.com
	Chairperson	Food chemistry	9880983081
2.	Dr. Anitha C.	Community Nutrition, Clinical	anithaksou@gmail.com
	Assistant Professor	Nutrition and Food Science	9916030230
3.	Dr. Krishnaraj V. Assistant Professor (Contract basis)	Food Science, Nutrition Science	kitty_fsn@yahoo.co.in 8722221499

### 2. PROGRAMME: MASTER OF SCIENCE IN CLINICAL NUTRITION AND DIETETICS

Micronutrient deficiencies are widespread throughout the world. More than half of women and children are anemic, reduction in vitamin-A deficiency and Iodine deficiency disorders is sub-optimal. Under nutrition is associated with HIV/AIDS as emerged as a public health problem. Alterations in the life styles and dietary intake have further led to the increasing prevalence of obesity and associated diseases like diabetes mellitus and coronary heart disease. Many of these health/medical conditions can often be corrected to restore optimal nutritional health before serious health problems emerge. The term commonly used to manage these medical conditions through nutrition intervention is clinical nutrition therapy/ dietetics. A growing community and government concern with the health of women and children and the role of nutrition has raised the profile of the work of dietitians and their importance to public health. A demand exists for dietitians in rural communities and a range of research studies and professional literature indicates a need for a rural perspective to dietitian education. A growing and ageing population has also boosted demand for dietitians. Dietitians enjoy a rewarding career helping to improve individuals' health and general wellbeing whether it is by modifying their diet or managing a condition such as diabetes or food allergies. Some reasons for studying

The present Program, "M.Sc. in Clinical Nutrition and Dietetics", therefore, has been designed to train individuals to function as medical nutrition therapist. It focuses on providing knowledge and development of appropriate skills and attitudes in the learners for nutritional diagnostic, therapy and counselling services for the purpose of disease management. The Program provides an in-depth review on proper diet, life style strategies and therapeutic nutrient intervention to correct nutritional insufficiencies, promote optimal health, and prevent, manage or correct medical problems.

# 2.1 MISSION AND OBJECTIVES

### a. Mission:

- To impart the knowledge and skill to the learners and thereby increase his/her professionalism.
- To provide education at affordable cost to the masses.
- To create effective human resources by employing the ICT.
- To enhance the capacity of the learners to realize their individual, corporate and social responsibility.
- To impart education such that the learners inculcate moral, civil and ethical values.
- To provide education to the learners to embrace the philosophy of learn, earn and return.

### b. Objectives:

- To provide an advanced learning of core principles and specialize Knowledge in the field of Clinical Nutrition and Dietetics
- To develop appropriate skills and attitudes in nutritional diagnostic therapy and counseling services for the purpose of disease management/malnutrition
- To enhance the requirements of health professionals and nutritionists/dieticians in different sectors
- To train nutritionists to abreast with latest nutrition knowledge, leadership skills as active partner in health care development
- To provide professional nutrition services in a wide variety of settings including academic, government, corporate, military and community based organizations

# 2.2 PROGRAM OUTCOMES:

- > Provide students with core competence in nutrition and dietetics applications.
- > Train students with knowledge and skills in dietetics and clinical nutrition
- Inculcate students to excel in Nutritionists, dieticians, entrepreneurship, and research with ethical standards

#### **3. DELIVERY MECHANISM**

The delivery mechanism followed in this University is different from that of conventional universities. The Open University system is more learners centric, and is geared to cater to the needs of motivated students assuming that the student is an active participant in the teaching-learning process. Instruction to student is imparted through-

- \* Printed Self-Learning Material.
- \* Audio visuals.
- \* Counselling/PCP

#### a. SLM by Print Media

SLM takes the role of a teacher in distance education system. The study material in English provided to you along with this programme, guide are called self-learning material as it facilitates learning on your own. The study material is exhaustive and easy to understand. The SLM have been divided into blocks and units. Each block has one credit value which denote 30 hours of study for one block, be it studying, discussing with counsellors, attending classes, writing assignment and so on.

Objectives are given in the beginning of each unit which tells what is expected of you by learning that unit. Check your progress questions are given in content so that you can measure your progress while studying the material. References are given at the end of each unit which gives you sources for furtherance of your study.

#### b. Audio-visuals

In an endeavor to impart education to reach the unreached, the university has a system to provide information by audio-visuals. The Department has developed various audio lectures on various topics by involving well experienced academicians. The study material will be broadcasted by FM radio and other channels. The limited visuals are also pressed into action to clarify many issues during teaching learning process.

#### c. Counseling/ PCP

The university delivers the instructions **in English** through counseling/PCP; counseling may be weekend, while the PCP will be conducted for a period around 10 or more days at stretch. Well experienced teachers working in the department and from other universities will deliver lectures; thereby they clear many intricacies which may occur on the SLM. The academic counselors will help you to prepare yourself not only to face the examination with confidence besides, your carrier also.

# 4. PROGRAMME STRUCTURE AND SYLLABUS

	Course Code	Course Title	its CP		M	ax. Ma	rks	Mini Passi mark	mum ng ss	Exam
Semester			Cred	Counseling/Hours	Internal Assessmen	Term end exam	Total Marks	Internal Assessment	Term end exam	Duration of 1 (hours)
	MCNDDSC-1.1	Nutritional Biochemistry	4	12	20	80	100	08	32	3
	MCNDDSC-1.2	Human Physiology	4	12	20	80	100	08	32	3
	MCNDDSC-1.3	PRACTICALS – A	2	60	10	40	50	04	16	3
	MCNDDSC-1.4	PRACTICALS – B	2	60	10	40	50	04	16	3
	MCNDDSE-1.5	Human Nutrition	3	09	20	80	100	08	32	3
Ι	MCNDDSE-1.6	Research Techniques and Statistics	3	09	20	80	100	08	32	3
	MCNDDSE-1.7	Public Health Nutrition	3	09	20	80	100	08	32	3
	MCNDDSE-1.8	Basics of Food Science	3	09	20	80	100	08	32	3
	ELMCND01	Interdisciplinary Elective -1	2	06	10	40	50	04	16	1 <sup>1/2</sup>
		Total	20	168	110	440	550	44	176	-

DSC: Discipline Specific Core; DSE: Discipline Specific Elective

	Course Code	Course Code Course Title Max. Marks		Course Title Sold Max. Marl		·ks	Minir Passir mark	num ng s	am	
Semeste			Credit	Counseling/PC	Internal Assessment	Term end exam	Total Marks	Internal Assessment	Term end exam	Duration of Ex (hours)
	MCNDDSC-2.1	Nutrition through life cycle	4	12	20	80	100	08	32	3
	MCNDDSC-2.2	Basics of Diet Therapy	4	12	20	80	100	08	32	3
	MCNDDSC-2.3	PRACTICALS – A	2	60	10	40	50	04	16	3
	MCNDDSC-2.4	PRACTICALS – B	2	60	10	40	50	04	16	3
	MCNDDSE-2.5	Assessment of Nutritional Status	3	09	20	80	100	08	32	3
II	MCNDDSE-2.6	Nutrient and Drug Interactions	3	09	20	80	100	08	32	3
	MCNDDSE-2.7	Nutritional Deficiency Disorders	3	09	20	80	100	08	32	3
	MCNDDSE-2.8	Nutrition Research Methods	3	09	20	80	100	08	32	3
	ELMCND –02	Interdisciplinary Elective -2	2	06	10	40	50	04	16	11/2
		Total	20	168	110	440	550	44	176	-

DSC: Discipline Specific Core; DSE: Discipline Specific Elective

	Course Code Course Title			ours	Max. Marks			Minimum Passing marks		hours)
Semester				Counseling/PCP Ho	Internal Assessment	Term end exam	Total Marks	Internal Assessment	Term end exam	Duration of Exam (
	MCNDDSC-3.1	Medical nutrition therapy-1	4	12	20	80	100	08	32	3
	MCNDDSC-3.2	Medical Nutrition therapy -II	4	12	20	80	100	08	32	3
	MCNDDSC-3.3	PRACTICALS – A	2	60	10	40	50	04	16	3
	MCNDDSC-3.4	PRACTICALS – B	2	60	10	40	50	04	16	3
Ш	MCNDDSE-3.5	Food Service Management	3	09	20	80	100	08	32	3
111	MCNDDSE-3.6	Inborn Errors of Metabolism	3	09	20	80	100	08	32	3
	MCNDDSE-3.7	Nutrition requirements in extreme environments	3	09	20	80	100	08	32	3
	MCNDDSE-3.8	Food and Nutrition Security	3	09	20	80	100	08	32	3
	MCNDSEC-1-T	Computer Applications in Dietetics-Theory	2	06	10	40	50	04	16	1 <sup>1/2</sup>
l		Total	20	168	110	440	550	44	176	-

DSC: Discipline Specific Core; DSE: Discipline Specific Elective; SEC: Skill Enhancement Course

er	Course Code	Course Title	S	P Hours	Max. Marks			Minimum Passing marks		um (hours)
Semest			Credit	Counseling/PCI	Internal Assessment	Term end exam	Total Marks	Internal Assessment	Term end exam	Duration of Exe
	MCNDDSC-4.1	Nutrition Support Systems	4	12	20	80	100	08	32	3
	MCNDDSC-4.2	Nutrition Counselling	4	12	20	80	100	08	32	3
	MCNDDSC-4.3	PRACTICALS – A	2	60	10	40	50	04	16	3
	MCNDDSC-4.4	PRACTICALS – B	2	60	10	40	50	04	16	3
IV	MCNDDSE-4.5	Medical Ethics & Laws	4	12	20	80	100	08	32	3
	MCNDDSE-4.6	Medical Microbiology	4	12	20	80	100	08	32	3
	MCNDDSE-4.7	Dissertation	8	24	20	80	100	08	32	3
	MCNDSEC-2	Computer Applications in Dietetics-Practical	2	06	10	40	50	04	16	1 <sup>1/2</sup>
		Total	22	168	110	440	550	44	176	-

DSC: Discipline Specific Core; DSE: Discipline Specific Elective; SEC: Skill Enhancement Course

Note: Any 2 Discipline specific electives should be selected in all the semesters; however, in Semester IV you have to choose either dissertation or Discipline specific electives 4.5 & 4.6.

# **Interdisciplinary Electives**

1   KANNADA   ELK-01   空気気をする気気 不急を気気 不急を気気 マス あっぷう も気気 不急をする マス あっぷう たい なきます マス きあっぷう マス きゅう かん しゅう しゅう かん しゅう しゅう かん しゅう かん しゅう しゅう かん しゅう かん しゅう かん しゅう しゅう かん しゅう かん しゅう しゅう かん しゅう	
2ENGLISHELE-01Indian Literature -IELE-02Indian Literature -II3HINDIELH-01Vyavaharik Hindi VyakaranELH-02Hindi Cinema4TELUGUELT-01TilakELT-02Telugu Samskruthi Samaajam5HISTORYELHS-01Ancient World Civilisations (Egypt, Mesopotamia, Greek, Roman, Inca, Chinese)ELHS-02Social Reform Movement in India6ECONOMICSELEC-01Economic Policies of India Since 1991ELEC-02Institutions for International Development7POLITICAL SCIENCEELP-01Local Government in India.ELP-02Indian Constitution Indian Constitution8PUBLIC ADMINISTRATIONELPA-01Indian Polity-1ELPA-02Indian Polity-29SOCIOLOGYELS-01Invitation toELS-02Study of Indian	ದ್
3HINDIELH-01Vyavaharik Hindi VyakaranELH-02Hindi Cinema4TELUGUELT-01TilakELT-02Telugu Samskruthi Samaajam5HISTORYELHS-01Ancient World Civilisations (Egypt, Mesopotamia, Greek, Roman, Inca, Chinese)ELHS-02Social Reform Movement in India6ECONOMICSELEC-01Economic Policies of India Since 1991ELEC-02Institutions for International Development7POLITICAL SCIENCEELP-01Local Government in India.ELP-02Indian Constitution Study of Indian8PUBLIC ADMINISTRATIONELPA-01Indian Polity-1ELPA-02Indian Polity-29SOCIOLOGYELS-01Invitation toELS-02Study of Indian	Π
4TELUGUELT-01TilakELT-02Telugu Samskruthi Samaajam5HISTORYELHS-01Ancient World Civilisations (Egypt, Mesopotamia, Greek, Roman, Inca, Chinese)ELHS-02Social Reform Movement in India6ECONOMICSELEC-01Economic Policies of India Since 1991ELEC-02Institutions for International Development7POLITICAL SCIENCEELP-01Local Government in India.ELP-02Indian Constitution8PUBLIC ADMINISTRATIONELPA-01Indian Polity-1ELPA-02Indian Polity-29SOCIOLOGYELS-01Invitation toELS-02Study of Indian	
5HISTORYELHS-01Ancient World Civilisations (Egypt, Mesopotamia, Greek, Roman, Inca, Chinese)ELHS-02Social Reform Movement in India6ECONOMICSELEC-01Economic Policies of India Since 1991ELEC-02Institutions for International Development7POLITICAL SCIENCEELP-01Local Government in India.ELP-02Indian Constitution8PUBLIC ADMINISTRATIONELPA-01Indian Polity-1ELPA-02Indian Polity-29SOCIOLOGYELS-01Invitation toELS-02Study of Indian	l —
6ECONOMICSELEC-01Economic Policies of India Since 1991ELEC-02Institutions for International Development7POLITICAL SCIENCEELP-01Local Government in India.ELP-02Indian Constitution8PUBLIC ADMINISTRATIONELPA-01Indian Polity-1ELPA-02Indian Polity-29SOCIOLOGYELS-01Invitation toELS-02Study of Indian	L
7POLITICAL SCIENCEELP-01Local Government in India.ELP-02Indian Constitution8PUBLIC ADMINISTRATIONELPA-01Indian Polity-1ELPA-02Indian Polity-29SOCIOLOGYELS-01Invitation toELS-02Study of Indian	
8PUBLIC ADMINISTRATIONELPA-01Indian Polity-1ELPA-02Indian Polity-29SOCIOLOGYELS-01Invitation toELS-02Study of Indian	1
9 SOCIOLOGY ELS-01 Invitation to ELS-02 Study of Indian	
Sociology Society	
10JOURNALISM ANDELJ-01Aspects ofELJ-02Aspects of JournalisMASS COMMUNICATIONCommunication - ICommunication - ICommunication - II	ism I
11ANCIENT HISTORY AND ARCHEOLOGYELA-01World heritage sites of IndiaELA-02Cultural History of Hoysalas	
12EDUCATIONELED-01Foundations of EducationELED-02Higher Education	
13COMMERCEELC -01Personal Financial PlanningELC -02Entrepreneurship Development	
14MANAGEMENTELM -01Disaster ManagementELM -02E-Commerce	
15   BIOCHEMISTRY   ELMBC -01   Basics of Bioinorganic and Biophysical chemistry for Biology graduates.   ELMBC -02   Basic Bioorganic chemistry for Biology	ogy
16 BIOTECHNOLOGY ELMBT -01 Biotechnology ELMBT -02 Fundamentals of   Principles and applications applications Fundamentals of Biotechnology	
17 CHEMISTRY ELMC -01 Open Elective I ELMC -02 Open Elective II	
18 CLINICAL NUTRITION AND DIETETICS ELMCND-01 Healthy lifestyles and nutrition ELMCND-02 Nutraceuticals and health foods	
19COMPUTERELMCS -01Mobile AppELMCS -02E-Commerce	

	-	•			
	SCIENCE		Development		
20	ENVIRONMENTAL	ELMES -01	Basics of	ELMES02	Advances in
	SCIENCE		Environmental		Environmental
			Science		Science
21	GEOGRAPHY	ELMG01	Introduction to	ELMG-02	Geography of
			Physical Geography		Karnataka
22	MATHEMATICS	ELMM01	Fundamentals of	ELMM02	Combinatorics and
			Mathematics		Graph Theory
23	MICROBIOLOGY	ELMMB-01	Microbial World and	ELMMB –02	Microbes in
			Microbial Diversity		Sustainable
					Agriculture and
					Development
24	PHYSICS	ELMP-01	Mechanics	ELMP-02	Waves and Optics
25	PSYCHOLOGY	ELMPSY-01	Introduction to	ELMPSY -02	Psychology in
			Psychology		Everyday Life
26	INFORMATION	ELMIT –01	Green Computing	ELMIT-02	E-Commerce
	TECHNOLOGY				
27	BOTANY (NEW)	ELMBOT-01	Plant-Microbe	ELMBOT –	Plant Diversity and
			Interactions	02	Human Welfare
28	ZOOLOGY (NEW)	ELMZ-01	Parasites Vectors &	ELMZ-02	Essential of
			communicable		Reproductive Health
			diseases		_
29	FOOD AND	ELMFNS -01	Food Psychology	ELMFNS -02	Nutritional
	NUTRITION				Management in
1		1	1	1	-

#### Note:

- A. I and II Semester Open elective (Interdisciplinary Electives) syllabus are attached in Annexure I and Annexure II respectively.
- B. The Students may contact respective department chairperson in case of any queries regarding open elective course. The contact details available in the university website.

# MASTER OF SCIENCE IN CLINICAL NUTRITION AND DIETETICS

# I SEMESTER

# **DSC-1.1: NUTRITIONAL BIOCHEMISTRY**

4 Credits

#### **BLOCK - 1: WATER & CARBOHYDRATE**

#### **Unit-1: WATER**

Chemical and physical properties, Distribution of water in the body, Role of water, Water balance, Fluid balance, Special properties of water (Bonding properties, water as a solvent).

#### **Unit 2: CARBOHYDRATES**

Structure of monosaccharides, disaccharides and polysaccharides. Stereochemistry of Monosaccharides. Linkage in sucrose, lactose and maltose. Homopolysaccharides and heteropolysaccharides (starch, cellulose and glycogen). Physico-chemical properties of carbohydrates.

#### Unit 3: CARBOHYDRATE METABOLISM

Digestion and absorption of carbohydrates, Carbohydrates metabolism: Glycolysis, Gluconeogenesis, Hexose monophosphate shunt and Citric acid cycle. Utilization and storage, hormonal regulation of blood glucose. Regulation of carbohydrate metabolism. Metabolic disorders and inborn errors.

#### **BLOCK - 2: PROTEINS AND LIPIDS**

#### **Unit 4: AMINO ACIDS**

Sources, digestion, absorption, utilization and storage, essential amino acids, amino acid balance and toxicity, amino acid pool. Structure, stereochemistry and reactions of amino acids. Peptide bond and its properties. Denaturation and renaturation of proteins. Anfinsen's experiment.

#### **Unit 5: PROTEINS**

Composition, Chemistry, Reactions, Digestion and Absorption. Iso-electric points of proteins. Metabolism: deamination, transamination, decarboxylation, Urea Cycle. Primary, secondary, tertiary and quaternary structure of proteins (with one examples each). Inborn errors of protein metabolism.

#### Unit 6: LIPIDS

Composition, Reactions, Fat Constants, Digestion and Absorption. Essential fatty acids. Occurrence and properties of fatty acids, esters of fatty acids, cholesterol, phosopholipids, glycolipids, sphingolipids, cerebrosides and gangliosides and their metabolism.

#### **Unit 7: OXIDATION OF FATTY ACIDS**

Mitochondrial and peroxisomal  $\beta$ -oxidation, - and - oxidation, oxidation of unsaturated and odd chain fatty acids, ketone bodies. Biosynthesis of fatty acids, desaturases. Triglycerols, Phospholipids and glycosphingolipids-synthesis and degradation. Metabolism of Lipoproteins (Chylomicrons, LDL, HDL and VLDL). Cholesterol metabolism and regulation.

#### **BLOCK - 3: NUCLEIC ACIDS & BIOCHEMICAL TECHNIQUES.**

#### **Unit 8: NUCLEIC ACIDS**

Structure, Biosynthesis and breakdown of purine and pyrimidine nucleotides. DNA organization, forms, replication and repair. Central dogma of molecular biology and its modifications.

#### Unit 9: RNA

Structure, types, synthesis and processing (in prokaryotes and eukaryotes). Regulation of gene expression (lac operon). Transcription with Post-transcriptional modifications.

#### **Unit 10: GENETIC CODE**

General features, Ribosomes (in prokaryotes and eukaryotes) Translation and post-translational modifications, Genetic mutations, RNA as an enzyme.

#### **Unit 11: BIOCHEMICAL TECHNIQUES**

Spectroscopic techniques: Working and instrumentation of Calorimeter and Spectrophotometer. Chromatography: Principle, instrumentation and working of gel permeation, ion exchange and affinity chromatography. HPLC.

Electrophoresis: Principle, instrumentation and working of native and SDS electrophoresis for proteins. Agarose gel electrophoresis for Nucleic acids.

Centrifugation: Principle and working of centrifugation with reference to cell fractionation (continuous and discontinues density gradient centrifugation).

# BLOCK-4: ENZYMES & THEIR APPLICATION IN FOOD, BEVERAGE & NUTRIGENOMICS.

#### **Unit 12: ENZYMES**

Definition, Isolation and purification of enzymes, Classification, nomenclature and general properties like effects of pH, substrate and temperature on enzyme catalyzed reactions. Michaelis – Menten equation. Significance of kinetic constants. Turnover number Kinetics: Single substrate reactions, bisubstrate reactions (Cleland's notation- ordered, ping pong, & random ordered bi-substrate enzyme catalyzed reactions).

### Unit 13: ENZYME INHIBITION & ACTIVATION

Competitive, non-competitive & uncompetitive, product inhibition, irreversible inhibition & suicide inhibition. Importance of Ki. Allosteric enzymes, Aspartyl transcarbamylase. Cooperativity – Binding of ligands to macromolecules – positive effecters, negative effecters. Homotropic & hero tropic effecters.

#### Unit 14: VITAMINS AS COENZYMES, STRUCTURE & ACTION

NAD+ FAD, TPP, PLP, biotin, CoA, folic acid & lipoic acid. Multimolecular & multienzyme complexes – e.g. LDH. Multifunctional enzyme (DNA polymerase) multi enzyme complex (PDC).

#### Unit 15: USE OF ENZYMES IN FOOD & BEVERAGE INDUSTRY

Carbohydrates, Proteases, lipases, oxidoreductases, hydrolases (eg: Cheese, fruit, juice, Wine, Meat tenderizing & dairy). Enzyme Technology- Production of enzymes- Amylase, Protease, Lipase, Lactase and pectinase, Application of enzymes and immobilized enzymes. Enzymes of clinical importance or diagnostic enzymes.

#### **Unit 16: GENETIC RECOMBINATION AND NUTRIGENOMICS**

Elementary knowledge of DNA recombinant technology. Nucleic acid hydrolyzing enzymesendo- & exo- nuclease. Restriction enzymes, Chimeric DNA, Cloning, Genomic library and cDNA library, Basic principles of nutrigenomics and Metabalomics.

# REFERENCES

Lehninger AC, Nelson DL and Cox MM (2001) Principles of Biochemistry. 4th Edition, W.H. Freeman Company, USA.

Voet D and Voet JG (2004) Biochemistry. 3rd Edition. John Wiley & Sons Inc. USA.

Berg JM, Tymoczko JL, Stryer L (2011) Biochemistry. International Edition, Seventh Edition, W.H. Freeman & Co.

Murray R K, Grannen DK, Mayes PA and Rodwell VW (2012) Harper's Illustrated Biochemistry. Twenty Ninth Edition, Lange Medical Book, Mc Graw Hill Edition

# **DSC-1.2: HUMAN PHYSIOLOGY**

#### **BLOCK-1 : CELL, CELL ORGANELLES, MAJOR TISSUES, BONE AND BLOOD**

Unit-1. Cell and its membranes

Unit-2. Cell organelles and tissues

Unit-3. Bone and its development

Unit-4. Blood and formed elements

# BLOCK-2 : HEART, BLOOD CIRCULATION, RESPIRATORY AND INTEGUMENTARY SYSTEM.

Unit-5. Blood vessels and heart: Cardio circulatory system

Unit-6. Circulatory and lymphatic system

Unit-7. Respiratory system

Unit-8. The integumentary system

#### **BLOCK-3 : DIGESTIVE, EXCRETORY, ENDOCRINE AND REPRODUCTIVE** SYSTEM

Unit-9. Digestive system Unit-10. Digestion and absorption of nutrients Unit-11. Excretory system Unit-12. Reproductive system

#### **BLOCK- 4: SPECIAL SENSES, ENDOCRINE, NERVOUS AND IMMUNE SYSTEM**

Unit-13: Special senses Unit-14: Endocrine system Unit-15. Nervous system Unit-16. Immune system

# REFERENCES

Muthaiya N. M (2006), Human Physiology, 4th Edition, Jaypee Brothers Medical Publishers Ltd, New Delhi.(Unit IV,V).

Arumugam N.(2016), Human Physiology,5th Edition, Sarah's Publication, Kanyakumari.(Unit I,II,III).

Guyton, A.C, and Hall., J. B. (2010): Text Book of Medical Physiology, 9<sup>th</sup> Edition, W.B. Sanders company, Prime Books (Pvt.) Ltd., Bangalore

S.Subramanian and S.M.Kutty (1971) Text Book of Physiology, Orient Longman.

Chatterjee CC (1988) Text Book of Medical Physiology. W B Sounder's Co. London.

# **DSE-1.3: HUMAN NUTRITION**

#### **3** Credits

#### **BLOCK -1: BODY COMPOSITION AND ENERGY REQUIREMENTS**

#### Unit 1: Techniques for measuring body composition

Methods of studying body composition- underwater weighing, air displacement technique, DXA (dual X-ray absorptiometry), skinfold caliper, bio-impedance.

#### Unit 2: Body compositional changes in life cycle

Changes during growing period, adults and elderly, pregnancy and lactation, factors affecting body composition. Body composition changes during lifecycle. Nutritional disorders and effect on body composition- protein energy malnutrition, cancer, renal failure and thyroid related disorders

#### **Unit 3: Energy requirement**

Basic principle, requirements, determination of food energy, Basal and resting metabolism. Methods to determine energy requirements & expenditure. Thermogenesis, adaptation to altered energy Intake, latest concepts in energy requirements and recommendations for different age groups.

#### Unit 4: Energy metabolism and physical performance

Physiology of Exercise - Fuels for Exercise – Carbohydrates, Fats, Proteins, Controlling the rate of energy production. Storing energy – high energy phosphates, basics of energy systems – ATP-PC system, Glycolytic system and Oxidative system. Energy expenditure and fatigue- energy expenditure at rest and exercise (Basal and resting metabolic rates) metabolic rate during submaximal exercise, maximal capacity for aerobic exercise, anaerobic effort and exercise capacity.

#### **Unit- 5: Regulation of Food Intake**

Role of hunger and satiety centers, effect of nutrients, physical activity and regulation of food intake, Factors affecting food choices and regulation of food intake- hunger, appetite, satiety and role of hormones, neurotransmitters. Episodic and Tonic signals for appetite control

#### **BLOCK - 2 : MACRO NUTRIENTS**

#### **Unit 6: Carbohydrates**

Occurrence and physiological functions, Lactose intolerance. Dental caries. Artificial sweeteners. Role of dietary fiber in health and disease. Disorders related to carbohydrate metabolism. Glycemic index and glycemic load of foods and their uses, intrinsic and extrinsic

factors affecting glycemic index.

#### **Unit 7: Proteins**

Concepts of essential and non-essential amino acids- their role in growth and development. Physiological functions of proteins. Requirements, nitrogen balance concept. Methods for evaluating protein quality. Protein energy malnutrition-clinical features and biochemical changes.

#### Unit 8: Lipids

Concepts of visible and invisible fats. EFA, SFA, MUFA, PUFA- sources and physiological functions. Role of lipoproteins and cholesterol, triglycerides in health and disease.

#### Unit 9: Dietary fiber

Components of dietary fiber, types of dietary fiber, Effects of dietary fiber, Potential health benefits of dietary fiber, recommended intake of fiber.

### **BLOCK -3 : MICRONUTRIENTS**

#### Unit 10: Fat soluble vitamins – Vitamin A, D, E & K

Functions, Sources, Requirements, metabolism, digestion, Absorption, Utilization, Storage, Excretion, Toxicity, deficiency.

#### Unit 11: Water soluble vitamins - Thiamine, niacin, riboflavin, pyridoxine, Vitamin C

Functions, Sources, Requirements, metabolism, digestion, Absorption, Utilization, Storage, Excretion, Toxicity, deficiency.

#### Unit 12: Minerals- macro and micro minerals

Functions, Sources, Requirements, metabolism, digestion, Absorption, Utilization, Storage, Excretion, Toxicity, deficiency.

### Unit 13: Water and electrolytes

Body water compartments. Regulation of water balance, disorders of water imbalance, role of electrolyte in human nutrition, electrolyte imbalance

# REFERENCES

Shubhangini A. Joshi(1992)' "Nutrition and Dietetics" Tata Mc Grow- Hill publishing Company Ltd, New Delhi.

Srilakshmi. B – "Nutrition Science", V Edn, New Age International (P) Ltd, Publishers, Chennai.

Passmone R.and Eastwood M.A(1986), "Human Nutrition and Dietetics", English language book Society/Churchill Livingstone, Eigth edition, Hong Kong.

Shils, M.E.; Olson, J.; Shike, M. and Roos, C. (1998): Modern Nutrition in Health and Disease. 9th edition. Williams and Williams. A Beverly Co. London.

#### **DSE-1.4: RESEARCH METHODS AND STATISTICS**

#### **BLOCK-1: RESEARCH: METHODS, DESIGNS AND HYPOTHESIS**

- **Unit 1 Introduction to Research:** What is research? Need of research; Problem solving and scientific method; Terminologies used in research; Scope of research areas, types and problems; Elements and ethics in research.
- **Unit 2 Research Approaches:** Types–Qualitative and Quantitative; Historical, Descriptive, Experimental, Surveys, Participative;
- **Unit 3 Research Designs:** Research process steps, concepts and constructs; Research problems and statements; Review of literature; Definition of terms; Assumptions, Limitations.
- **Unit 4 Research Hypothesis**: hypothesis; types of hypothesis; types of errors; methods to control errors.
- **Unit 5 Sampling:** Population and sample; Factors influencing sampling; Characteristics of a good sampling design; sample size; sampling technique; Problems of sampling.

# **BLOCK -2:DATA TOOLS: COLLECTION, PRESENTATION, INTERPRETATION**

- **Unit 6 Tools and method of data collection:** Methods of data collectionquantitative, qualitative; Tools for data collection and their development; Validity and reliability of tools; Feasibility of study; Conduct of research.
- **Unit 7 Analysis and Interpretation of data:** Qualitative and quantitative analysis; Interpretation of data; Conclusion and generalizations; Summary and discussion.
- **Unit 8 Reporting and utilizing results:** Communication of research results; Writing research report, methods and style; Writing style for scientific article for publication.
- **Unit 9 Introduction to Statistics:** Basic concepts related to statistics; Significance and scope of statistics; Levels of measurement.
- **Unit 10 Organization and Presentation of data:** Classification and tabulation of the data; Diagrammatic and Graphical representation of the data.

#### **BLOCK 3: STATISTICAL METHODS AND APPLICATIONS**

- **Unit 11 Descriptive Statistics:** Measure of Central tendency Mean, Median, Partition values, Mode; Measures of variability Range, Quartile deviation, Mean deviation, Standard deviation.
- **Unit 12 Measures of Relationship:** Correlation need and meaning; scatter diagram method, Karl Pearson's coefficient of correlation, Rank order correlation; Simple linear regression analysis.
- **Unit 13 Theoretical Frequency distributions:** Need and meaning; Probability; Binomial distribution; Poisson distribution; Normal distribution.
- **Unit 14 Testing of Hypothesis:** Parametric tests t-test, ANOVA; Chi-square test test of independence, goodness of fit; Non-Parametric tests Sign test, Median test, Mann Whitney U test.
- Unit 15 Use of Computers in data analysis: Data compilation, data management, use of statistical packages.

#### REFERENCES

- Kothari, C.R. (2000): Research Methodology: Methods and Techniques, Wishwa Prakashan, New Delhi.
- Kumar, A. (1997): Social Research Method (The Art of Scientific Investigation), Anmol Publication, New Delhi.

Kumar, A. (2002): Research Methodology in Social Sciences, Sarup and Sons, New Delhi.

McBurney, D.H. (2001): Research Methodology, Thomson-Wadsworth, Australia.

Pande, G.C. (1999): Research Methodology in Social Sciences, Anmol Publication, New

Wayne Goddard and Stuart Melville, "Research Methodology: An Introduction"

Ranjit Kumar, 2nd Edition, "Research Methodology: A Step by Step Guide for beginners"

# **DSE-1.5: PUBLIC HEALTH NUTRITION**

## **3** Credits

#### **BLOCK 1: NUTRITIONAL PROBLEMS**

**Unit 1: Nutrition Problems of India-** Common nutritional disorders: Protein Energy Malnutrition, Vitamin A deficiency, anemia, iodine deficiency disorders, fluorosis and their control and management.

Unit 2: Role of nutrition in Health and Disease- Undernutrition: global and Indian prevalence of undernutrition, risk factors consequences

**Unit 3: Demography and population statistics** – Definition and its relation to community health, Stages of the demographic cycle and their impact on population. Age pyramid, Sex ratio, Dependency ratio, Density of population, Demographic and socio-economic transitions

**Unit 4: Nutritional Epidemiology** – Health Statistics, Nutritional epidemiology, Life Expectancy. Demographic transition Fertility & fertility indicators Population

Projections and Dynamics Need for population control measures

**Unit 5: National Nutritional Policy-** National programs in nutrition and their evaluation, Nutrition and Health Transitions, Poverty alleviation, Economic Transition, Food Consumption Pattern

#### BLOCK -2: DEFICIENCY DISORDERS, COMMON INFECTIONS AND FOOD BORNE DISEASE

Unit 6: Deficiency Disorders- Micronutrient deficiency disorders: prevalence, risk factors,

Overnutrition: Evolutionary principle, Obesity: prevalence and risk factors: Physical

activity and inactivity, screening of those at nutritional risk, Life style diseases,

Interventions that worked globally

Unit 7: Common Infections- Infection through gastrointestinal tract, food borne illness,

Respiratory tract

Unit 8: Skin- Infection through skin and mucous membrane

Unit 9: Arthropod borne infections, Food poisoning

Unit 10: Guidelines for prevention of non- communicable diseases

# **BLOCK -3: ENVIRONMENTAL SANITATION AND SOCIAL HEALTH PROBLEMS**

Unit-11: Environmental hazards and food chain.

Unit-12: Food handlers and food safety

Unit-13: Control of hazards associated with different foods – Food toxins and AdulterationUnit-14: Food safety control programs- Enrichment, FortificationUnit 15: Social Health Problems- Smoking, Alcoholism, Drug Addictions, AIDS

#### REFERENCES

- Bamji, M.S, Rao, N.P and Reddy, V. (2003), Textbook of Human Nutrition, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi. (Unit III).
- Dandiya, P.C, and Zafer, Z.Y.(2003) Health education and community pharmacy, Vallabh Prakashan Printers, New Delhi. (Unit I).
- Gibney, M.J, Margetts, B.M, Kearney, J.M and Arab, L. (2005). Public Health Nutrition, Blackwell Publishing, USA. (Unit II).
- Park. K, (2005) Park's Textbook of Preventive and Social Medicine, 18th edition, Banarsidas Bhanot Publishers, Jabalpur. (Unit IV and Unit V).
- Khader, V. (2003) Foods, Nutrition and Health, Kalyani Publishers, New Delhi.
- Ramachandran, L. and Dharmalingam, T. (2005) Health Education, Vikas Publishing House Pvt. Ltd., New Delhi.

## **DSE-1.6: BASICS OF FOOD SCIENCE**

# **3** Credits

#### **BLOCK 1: PLANT PRODUCTS**

Unit 1: Properties of foods, Acids, bases and buffers, chemical bond, colloids. Type, Structure, composition, primary & secondary processing, processed products uses.Unit 2: Cereals, Cereal Products and Millets: Types, composition, malting, processing, cooking techniques, fermentation other food uses.

Unit 3: Pulses, Legumes, nuts and oil seeds - Types, composition, milling,

germination, cooking & processed products. Oilseeds - Use of oilseeds and

oilseed meals, soya bean and groundnut - composition, processing and food uses.

Unit 4: Fruits and vegetables: Composition, pectin's, plant acids, types of pigments,

effect of cooking on colour and texture of vegetables.

**Unit 5:** Sugar and jaggery: Principles of sugar crystallization, stages of cookery and role in Indian traditional sweet preparations, manufacturing of candies and sweets.

#### **BLOCK 2- ANIMAL PRODUCTS**

Unit 6: Milk and milk products: Composition, physic-chemical properties of milk and

nutritional importance of milk, processing of milk, Classification and study of milk products-Cream, Butter, Ghee, Khoa, Chhanna, Paneer, Cheese, Ice-cream, Fermented milk products. Various defects in milk products.

Unit 7: Eggs: Quality grading, structure, composition, Classification, nutritive value,

functional properties and products.

Unit 8: Poultry: composition, classification, nutritive value and processing

Unit 9: Flesh foods: Types, composition, structure of muscle, conversion of muscle to meat-

physico - chemical changes, cooking and processing, Slaughtering types, post-mortem

changes and grading of meat, tenderization and curing of meat

Unit 10: Marine foods: Types, composition, cooking and processing.

#### **BLOCK- 3: FOOD PROCESSING, SPICES, FATS & OILS**

Unit 11: Processing of foods: Primary, secondary and tertiary processing, historical

perspective, traditional technologies used in food processing.

Unit 12: Effects of processing on components, properties and nutritional value of foods.

Special reference to pickles, potato chips

Unit 13: Brief manufacturing process beverages: coffee, tea, cocoa, alcoholic beverages (fruit

wines) and ready to serve beverages.

Unit 14: Spices and their products- types and health benefits, Fumigation and Irradiation of

Spices, flavouring compounds, processing, nutritive value, adulteration of some common spices of India

**Unit 15:** Fats and oils: Properties, manufacture, uses in food systems (as cooking media and shortening). Rancidity- types, mechanism and prevention. Uses of fat replacers in processed foods.

# REFERENCES

Srilakshmi B, (2005), Dietetics, New Age International Publishers, New Delhi

Swaminathan M (1979) Food Science and Experimental foods. Ganesh and Co, Madras.

Mudambi SR and Rao SM (1986) Food Science. Wiley Eastern Ltd. New Delhi.

Bennion M and Hughes D (1975) Introductory foods Macmillan Publishing Co. Inc. New york.

Brich CG, Spencer M and Cancerron AG (1977) Food Science. Pergamon Press, New York.

Gopalan C, Ramasastri PN and Balasubramanian SC (1977) Nutritive value of Indian Foods. National Institute of Nutrition, Hyderabad.

# **OEL-1: HEALTHY LIFESTYLES AND NUTRITION**

## **3** Credits

#### **BLOCK 1: INTRODUCTION TO FOOD AND NUTRITION**

**Unit 1.-** Factors affecting food habits, choices and dietary patterns – Definition of Food, Nutrition, Health, Fitness. Interrelationship between nutrition and health, concept of a desirable diet for optimum nutrition, health and fitness.

Unit 2-. A brief review of nutrients in general -

- a. Energy and macronutrients Carbohydrates, Protein, Fat functions, sources deficiency disorders and recommended intakes.
- b. Micronutrients: Minerals calcium, Iron, Iodine, and other elements, Vitamins Fat Soluble & Water Soluble.

Unit 3: Nutritional assessment- Anthropometric, biochemical, clinical, dietary and

**Biochemical assessments** 

**Unit 4:** Basic principles of planning diet –, RDA for Indians, Food groups, Dietary guides and balanced diets.

#### **BLOCK 2: PLANNING OF DIET**

**Unit 5:** Principles of planning a normal diet: characteristics of a normal diet, meeting nutrient requirements of individuals and family. Use of Dietary guidelines for Indians.

Unit 6: Objectives of diet therapy- Regular diet and rationale for modifications in energy

and other nutrients, texture, fluid, soft diets etc.

Unit 7: Role of dietician in hospital- specific functions, team approach in patient care,

psychological consideration, interpersonal relationship with patients. Nutrition and medical ethics. Hospital dietary- scope and importance, types of food service, quality management.

Unit 8: Nutrition counseling: definition, concept, role of clinical dietician, the recipient and

counseling environment and goals of counseling. An overview of systems approach to nutritional care and its components (planning, implementation and evaluation).

### REFERENCES

Srilakshmi B (2004) Nutrition Science. New Age International (P) Ltd, Publishers.

Kango M (2005) Normal Nutrition, Curing diseases through diet. First Edition CBS Publications.

Paul S (2003) Text Book of Bio-Nutrition, Fundamental and Management. RBSA Publishers.

Williams SR (2000) Nutrition and Diet Therapy. Sixth Edition C.V. Melskey Co.

- Mudambi SR and Rajagopal MV (1997) Fundamentals of Foods and Nutrition. New Age International (P) Ltd, Publishers.
- Swaminathan M (1999) Essential of Food and Nutrition. Vol I and II, Bappco publications, Madras.
- Corinne, H. Robinson 2010– "Normal and Therapeutic nutrition", Oxford and IBH publishing company, Bombay.
- B. Srilakshmi 2012"Dietetics", 4th edition, New age international publisher, Chennai

### SEMESTER

### **DSC-2.1: NUTRITION THROUGH LIFE CYCLE**

Π

4 Credits

#### **BLOCK-1 NUTRIENT REQUIREMENTS AND RECOMMENDATION**

Unit-1 Nutrient Requirements and Method to Determine Requirements.

Unit-2 Nutrient Recommendations -Computing RDA, Uses and Limitation of RDA

Unit-3 Concepts and Principles for Development of EAR, Dris

Unit-4 Role of WHO, ICMR and IOM in Computing Nutrient Recommendation

#### **BLOCK-2 NUTRITIONAL AND FOOD REQUIREMENTS DURING YOUNGER AGE**

- Unit-5 Nutritional and Food Requirement for Infancy
- Unit-6 Nutritional and Food Requirement for Pre-School Age (1-6years)
- Unit-7 Nutritional and Food Requirement for School Age (6-12 Years)
- Unit-8 Nutritional and Food Requirement during Adolescence

# BLOCK-3 NUTRITIONAL AND FOOD REQUIREMENTS DURING ADULTHOOD AND ELDERLY

Unit-9 Nutritional Requirements Food adequacy for Adults

Unit-10 Nutritional and Food Requirement during Geriatric Unit-

11 Nutritional and Food Requirement for Pregnant WomenUnit-

12 Nutritional and Food Requirement for Lactating Mother

### **BLOCK-4 NUTRITION AND FOOD REQUIREMENTS FOR PHYSICAL FITNESS**

Unit-13 Exercise, fitness and health

Unit-14 Nutrient requirement during Exercise

Unit-15 Foodborne illness and food safety

Unit-16 Approaches to the management of fitness and health in weight management

## **REFERENCES:**

Shubhangini A Joshi (2021), text book of Nutrition and Dietetics, 5th Edition, McGraw Hill Publishers, New York City (USA).

Srilakshmi B (2019), Text book of Dietetics - Multi Colour 8th Edition, New Age International (P) Ltd., Publishers, New Delhi-110 002, India.

Procter S B, and Campbell C G (2014), Position of the Academy of Nutrition and Dietetics: nutrition and lifestyle for a healthy pregnancy outcome, J Acad Nutr Diet. 2014; 114(7):1099-1103. doi: 10.1016/j.jand.

Judith E Brown et al., (2010) Nutrition Through the Life Cycle, 4th edition Paperback – Publisher: Cengage Learning, Inc;

Shubhangani Joshi, A., (2002), Nutrition and Dietetics, Tata Mc.Graw Hill Publishing Co., Ltd., New Delhi.

Venkatachalam P.S. and Rebello L.M. (1996). Nutrition for Mother and Child. NIN ICMR. Hyderabad.

Williams Sue Rodwell, (1985); Nutrition and Diet therapy, Times Mirror/Mosby College Publishing St.Louis.

# **DSC-2.2: BASICS OF DIET THERAPY**

#### 4 Credits

#### **BLOCK 1: BASIC CONCEPTS OF DIET THERAPY**

- Unit 1 Introduction to Clinical Nutrition and Dietetics.
- Unit 2 Basic Principles of Dietetics Practice
- Unit 2 Interrelationship between food, nutrition and health.
- Unit 3 Therapeutic and normal diets, Health care setup and dietetic care.
- Unit 4 Meeting nutrient requirements of individuals in health and sickness.

#### BLOCK 2: APPROACHES/ STRATEGIES FOR IMPROVING NUTRITION AND HEALTH STATUS OF THE COMMUNITY

- Unit -5 Health based interventions: immunization, provision of safe drinking water/ sanitation, prevention and management of diarrheal diseases
- Unit -6 Food based interventions: food fortification, dietary diversification, supplementary feeding and biotechnological approaches.
- Unit -7 Education based interventions: growth monitoring and promotion (GMP), health / nutrition related behavior change communication.
- Unit 8 Nutrition for special children.

#### **BLOCK 3: NUTRITION DIAGNOSIS AND INTERVENTION**

- Unit 9 Overview of Nutrition Diagnosis and Intervention
- Unit 10 Food and Nutrient Delivery: Planning the Diet with Cultural Competency
- Unit 11 Food and Nutrient Delivery: Bio-active substance and Integrative Care
- Unit 12 Educations and Counselling: Behavioral Change

#### **BLOCK 4: FOOD AND NUTRIENT DELIVERY: NUTRITION SUPPORT METHODS**

- Unit 13 Rationale and Criteria for Appropriate Nutrition Support
- Unit 14 Enteral and Parenteral Nutrition
- Unit 15 Refeeding Syndrome and Transitional Syndrome
- Unit 16 Nutrition Support in Long Term, Home Care and Ethical Issues

# **REFERENCES:**

Cataldo, Corinne B., Whitney, Eleanor N. and Linda Kelly DeBruyne (2003): Nutrition and Diet Therapy – Principles and Practice, West Publishing Co. St. Paul,

Townsend, Carolyn E. & Roth, Ruth A (2003): Nutrition and Diet Therapy 8 th ed., Delmar Publishers, Albany, USA.,

Shils, Moshe S, Benjamin Caballero, A., Catherine Ross and Robert J. Cousins: Modern Nutrition in Health and Disease, 10th ed. Lippincott, Williams & Wilkins, Baltimore, USA, 2005.

Mohan K. L. and Krause M.V (2002), 2nd edition Food, Nutrition and Diet Therapy, W.S. Suders Co, Philadelphia.

Robinson, Corinne, H., Marilyn R. Lawler, Wanda L. Chanoweth & Anne E. Garwick: Normal and Therapeutic Nutrition, 17th ed. Macmillan Publishing Co. New York, USA, 1996.

Swaminathan M (1985): Essentials of Food and Nutrition, Volume I and II, 2nd ed. Ganesh, Madras, India.

Williams, Sue R. (1999), Basic Nutrition and Diet Therapy, 1st ed. Elsevier Science, New York.

### DSE-2.3: ASSESSMENT OF NUTRITIONAL STATUS

#### **BLOCK - 1: NUTRITIONAL STATUS ASSESSMENT AND SURVEILLANCE**

Unit - 1: Meaning, Need, Objectives and Importance

Unit - 2: Community, Regional, National and International Surveillance Systems.

Unit - 3: Rapid Assessment Procedures (secondary health data) and Growth Chart

Unit - 4: Methods of Nutritional Assessment

#### **BLOCK - 2: NUTRITIONAL ASSESSMENT AND NUTRITION SURVEY**

Unit - 5: Clinical Signs and Nutritional Anthropometry

Unit – 6: Biochemical and Dietary Evaluation

Unit - 7: Planning and types of Survey

Unit - 8: Field Work, Data Analysis, Interpretation and Action plan

# BLOCK – 3: NITRITIONAL ASSESSMENT FOR SPECIAL PROBLEM IN DIFFERENT GROUP

Unit - 9: Young Children Unit - 10: Schoolchildren Unit - 11: Pregnant and Lactating Women

Unit - 12: Adults

# **REFERENCES:**

Antia. P, Clinical Nutrition and Diet Therapy, Oxford publication.

Robinson C.H, et.al., (1990) Normal and Therapeutic Nutrition, Seventeenth Edition, Mac Milan Publishers.USA.

B Srilakshmi (2019), Text book of Dietetics - Multi Colour 8th Edition, New Age International (P) Ltd., Publishers, New Delhi-110 002, India.

Bamji M.S. and Vinodini Reddy (1998) Text Book of Human Nutrition, Ford and IBH Publishing Co. Ltd New Delhi.

Garrrow J.S James W. P.T. and Ralph A (2000) Human Nutrition and Dietetics, 10th edition, Churchill Livingston, London.

Park K, (2005): Park's Textbook of Preventive and Social Medicine, Banarsidas Bhanot Pub., Jabalpur.

Srilakshmi. B, (2005): Dietetics, V Edition, New Age International (P) Ltd, Publishers, Chennai.

Dr. Swaminathan.M, Food and Nutrition, 2nd Edition 1985, Reprint 2006. The Bangalore Printing and Publishing

# **DSE-2.4: NUTRIENT AND DRUG INTRACTIONS**

# **3** Credits

#### **BLOCK - 1: DRUG AND NUTRIENT INTERACTION**

Unit - 1: Drug – Drug / Drug-Nutrient Interaction

Unit - 2: Pharmacologic Aspects of Food-Drug Interactions

Unit - 3: Food and Drug Interaction in Digestive Tract

Unit - 4: Food and Drug Interaction in Malabsorption Syndrome

#### **BLOCK - 2: LIVER, PANCREAS AND BILIARY SYSTEM**

Unit - 5: Food and Drug Interaction in Viral Infections of LiverUnit - 6: Food and Drug Interaction in Viral Diseases of Gall Bladder and PancreasUnit - 7: Food and Drug Interaction in DiabetesUnit - 8: Drug and Nutrients Interaction with HIV/AIDS

# BLOCK – 3: FOOD AND DRUG INTERACTIONS IN OTHER CLINICAL CONDITIONS

Unit - 9: Inborn Errors of Metabolism and Bone Diseases

Unit - 10: Food and Drug Interaction in Kidney Diseases

Unit - 11: Food and Drug Interaction in Coronary Heart Disease (CHD)

Unit - 12: Food and Drug Interaction in Lung Diseases

### **REFERENCES:**

Joseph I. Boullata, Vincent T. Armenti, (2010), Handbook of Drug-Nutrient Interactions, Second Edition, Humana Press, c/o Springer Science Business Media, LLC, 233 Spring Street, New York.

Chan L-N, (2006) Drug–nutrient interactions. In: Shils ME, et al., eds. Modern nutrition in health and disease, 10th edition. Philadelphia, PA: Lippincott Williams & Wilkins, 1539–1553.

Mahan, L.K., Escott-Stump, S., Raymond, J.L., & Krause, M.V. (2012). Krause's Food & the Nutrition Care Process. St. Louis, MO: Elsevier/Saunders.

McCabe, B.J., Frankel, E.H., Wolfe, J.J., eds (2003,) Handbook of Food-Drug Interactions. CRC Press, Boca Raton, FL.

Bamji M.S. and Vinodini Reddy (1998) Text Book of Human Nutrition, Ford and IBH Publishing Co. Ltd New Delhi.

#### DSE-2.5: NUTRITIONAL DEFICIENCY DISORDERS 3 Credits

# BLOCK-1: MACRONUTRIENT DEFICIENCY DISORDERS ETIOLOGY AND PREVALENCE

- Unit- 1: Carbohydrates: Overweight, Diabetes Aetiology, Prevalence, Consequences, Treatment and Dietary Guidelines.
- Unit- 2: Protein: PEM: Aetiology, Prevalence, Consequences, Treatment and Proteins, Diet, and Personal Choices.
- Unit- 3: Lipids disease: Hyperlipidemia, Aetiology Prevalence, Consequences, Treatment and Guide to Making Sense of Dietary Fat.

Unit-4: Functional Attributes of Macronutrients uses and their Substitutes.

#### BLOCK-2: MICRONUTRIENT –I, VITAMINS, DEFICIENCY DISORDERS AND TOXICITY

- Unit-5: Vitamin A and D, Deficiency Disorders, Aetiology Prevention, Consequences, Toxicity, Treatment and Dietary Guidelines.
- Unit- 6: Vitamin E and K, Deficiency Disorders, Aetiology Prevention, Consequences Treatment and Dietary Guidelines.
- Unit-7: B-complex Vitamins and Vitamin C, Deficiency Disorders, Aetiology Prevention, Consequences Treatment and Dietary Guidelines.
- Unit -8: Nutrition education and National Nutrient (Vitamins) Deficiency Control Programs.

#### BLOCK-3: MICRONUTRIENT-II, MINERALS DEFICIENCY DISORDERS AND TOXICITY

- Unit-9: Macro minerals- Calcium, Deficiency Disorders, Aetiology Prevention, Consequences Treatment and Dietary Guidelines.
- Unit-10: Micro minerals- Iron and Iodine Deficiency Disorders, Aetiology Prevention, Consequences Treatment and Dietary Guidelines.
- Unit-11: Micro minerals- Copper, Fluoride and Zinc Deficiency Disorders, Aetiology Prevention, Consequences, Toxicity, Treatment and Dietary Guidelines.
- Unit-12: Nutrition Education, National Supplementary Feeding and Nutrient (Minerals) Deficiency Control Programs.

# **REFERENCES:**

Bamji M.S. and Vinodini Reddy (1998) Text Book of Human Nutrition, Ford and IBH Publishing Co. Ltd New Delhi.

Srilaksmi. B. Nutrition Science. New age international Pvt. Ltd. New Delhi.

- B. Srilakshmi; Human Nutrition, New Age International (P) Limited, Publishers.
- Dr. Swaminathan.M, Food and Nutrition, 2nd Edition 1985, Reprint 2006. The Bangalore Printing and Publishing
## **DSE-2.5: NUTRITION RESEARCH METHODS**

**3** Credits

#### **BLOCK - 1: INTRODUCTION TO NUTRITION RESEARCH**

Unit - 1: Introduction- Nature, Purpose and Implications in Nutrition Research and Good Scientific Practices (GSP).

Unit - 2: Types of Scientific research and their role in Nutrition and Dietetics.

Unit - 3: Considerations for Including Different Population Groups in Nutrition Research.

Unit- 4: Writing Nutrition Science Articles.

#### BLOCK 2: SCHEDULE AND METHOD OF DIETARY INTAKE IN NUTRITION RESEARCH

Unit - 5: Preparation of Synopsis and Submission.

Unit - 6: Ethical clearance, and Final submission of the Project/Dissertation.

Unit-7: Methods Investigating Food-Related Behavior, Energy Expenditure and Intake Methods.

Unit - 8: Methods to Determine Dietary Intake, Food Composition.

#### **BLOCK 3: POPULATION STUDY DESIGN AND DATA ANALYSIS**

Unit - 9: Population-Based Studies, Intervention Studies.

Unit - 10: Data Analytical Methods for the Application of Systems Biology in Nutrition.

Unit - 11: Animal Models in Nutrition Research, Cellular Models in Nutrition Research.

Unit-12: Methods for Assessing Nutritional Status and Body Composition and Methods of Data Analysis.

### **REFERENCES:**

Julie A Lovegrove, Leanne Hodson, and Sangita Sharma, (2015), text book of Nutrition Research Methodologies, the Nutrition, Society Textbook Series, publisher John Wiley & Sons, Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK.

#### **OEL - 2: NUTRACEUTICALS AND HEALTH FOODS**

#### **BLOCK 1. NUTRACEUTICALS:**

Unit - 1: Introduction to Nutraceutical

- Unit 2: Use of Nutraceuticals in Traditional Health Sciences
- Unit 3: Functional Foods
- Unit 4: Development of Nutraceutical and Functional Foods

# BLOCK 2: FUNCTIONAL FOODS AND NUTRACEUTICALS OF PLANT, ANIMAL AND MIRCIBIAL ORIGIN

Unit - 5: Prebiotics and Probiotics

Unit - 6: Bio Active Peptides and Phyto- Chemicals

- Unit 7: Fats and Oils- Omega 3 Fatty Acids:
- Unit 8: Sugar Substitutes / Sweeteners

#### **REFERENCES:**

Tai Hu Guan, (2018), text book of Nutraceuticals and Health, Scitus Academics Publisher, Wilmington DE 19804, United States of America.

Wildman REC, (2016), Handbook of Nutraceuticals and Functional Foods, 2nd edition, CRC Press publishers, Boca Raton, Florida (USA).

Athapol Noomhorm, Imran Ahmad, Anil Kumar Anal (2014), Functional Foods and Dietary Supplements Processing, Effects and Health Benefits, first edition, published by John Wiley & Sons, Ltd. UK 111 River Street, Hoboken, NJ 07030-5774, USA

Wildman REC, (2001) Handbook of Nutraceutical and Functional Foods, CRC Press, USA.

Ghosh D et al, (2012) Innovations in Healthy and Functional Foods, CRC Press, USA.

Pathak YV (2011) Handbook of nutraceuticals Volume 2, CRC Press, USA.

2 Credits

### SEMESTER

## DSC 3.1: MEDICAL NUTRTION THERAPY-I

## **4** Credits

#### **BLOCK 1. NUTRITION CARE IN GASTROINTESTINAL TRACT DISORDERS**

Unit-1 Upper gastrointestinal system Unit-2 Other GIT problems Unit-3 Disorders of stomach Unit-4 Malabsorption syndrome

#### **BLOCK 2: NUTRITION CARE IN CARDIOVASCULAR DISEASE**

Unit-5 Dietary management of Cardio vascular diseases Unit-6 Nutritional care in acute and chronic conditions Unit-7 Lipoprotein metabolism and assessment Unit-8 Dietary management in Hypertension

#### **BLOCK 3: NUTRITION CARE IN KIDNEY DISEASES**

Unit-9 Albuminuria - micro and macro albuminuria and renal failure Unit-10 Dietary management in Nephritis Unit-11 Dietary management in Nephrosis Unit-12 Renal calculi

# BLOCK-4: NUTRITION CARE IN LIVER, GALL BLADDER, PANCREATITIS AND EYE DISORDER

Unit-13 Dietary management Liver diseases Unit-14 Nutritional care in gallbladder diseases Unit-15 Dietary management in Pancreatitis Unit-16 Nutrition Care in Eye Disorders

### **REFERENCES:**

Kelly Kane Kathy Prelack, (2019), text book of Advanced Medical Nutrition Therapy, publishers Jones & Bartlett Learning 5 Wall Street Burlington, MA 01803.

Shubhangini A Joshi (2021), text book of Nutrition and Dietetics, 5th Edition, McGraw Hill Publishers, New York City (USA).

III

Bamji M.S. and Vinodini Reddy (1998) Text Book of Human Nutrition, Ford and IBH Publishing Co. Ltd New Delhi.

B Srilakshmi (2019), Text book of Dietetics - Multi Colour 8th Edition, New Age International (P) Ltd., Publishers, New Delhi-110 002, India.

Garrrow J.S James W. P.T. and Ralph A (2000) Human Nutrition and Dietetics, 10th edition, Churchill Livingston, London.

Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd.

Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, Williams and Wilkins.

Escott-Stump, S. (1998): Nutrition and Diagnosis Related Care, 4th Edition, Williams and Wilkins.

Williams, S.R. (1993): Nutrition and Diet Therapy, 7th Edition, Times Mirror/Mosby College Publishing.

## **DSC 3.2: MEDICAL NUTRTION THERAPY-II**

## 4 Credits

#### **BLOCK 1 NUTRITION CARE IN METABOLIC DISEASES**

Unit-1 Dietary principles and management of metabolic disorders Uniy-2 Dietary principles and management in Weight management and Obesity Unit -3 2 Dietary principles and managing hyper glycaemia and diabetes mellitus Unit -4 Dietary principles and managing in Diseases of Endocrine system

#### **BLOCK 2 FEBRILE AND OTHER DISEASE CONDITIONS**

Unit -5 Dietary management of febrile diseases

Unit -6 Food allergy and poisoning

Unit -7 Feeding of Special groups

Unit -8 Rheumatic disorders

# BLOCK 3. NUTRITION AND CARE IN DEGENERATIVE DISEASES AND EATING DISORDERS

Unit -9 Neurological diseases

Unit -10 General principal of diet for cancer (home/hospital management)

Unit -11 General principles of diet for Cancer and AIDS (home/hospital management)

Unit -12 Eating disorders

### **BLOCK 4: NUTRITION FOR GENERAL CONDITIONS:**

Unit -13 Nutrition for bone health Unit -14 Nutrition for oral and dental health Unit -15 Nutrition support in pregnancy and pediatric cases Unit -16 Food and drug interactions

## **REFERENCES:**

Kelly Kane Kathy Prelack, (2019), text book of Advanced Medical Nutrition Therapy, publishers Jones & Bartlett Learning 5 Wall Street Burlington, MA 01803.

Shubhangini A Joshi (2021), text book of Nutrition and Dietetics, 5th Edition, McGraw Hill Publishers, New York City (USA).

Bamji M.S. and Vinodini Reddy (1998) Text Book of Human Nutrition, Ford and IBH Publishing Co. Ltd New Delhi.

B Srilakshmi (2019), Text book of Dietetics - Multi Colour 8th Edition, New Age International (P) Ltd., Publishers, New Delhi-110 002, India.

Garrrow J.S James W. P.T. and Ralph A (2000) Human Nutrition and Dietetics, 10th edition, Churchill Livingston, London.

Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd.

Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, Williams and Wilkins.

Escott-Stump, S. (1998): Nutrition and Diagnosis Related Care, 4th Edition, Williams and Wilkins.

Williams, S.R. (1993): Nutrition and Diet Therapy, 7th Edition, Times Mirror/Mosby College Publishing.

B Srilakshmi (2019), Text book of Dietetics - Multi Colour 8th Edition, New Age International (P) Ltd., Publishers, New Delhi-110 002, India.

Garrrow J.S James W. P.T. and Ralph A (2000) Human Nutrition and Dietetics, 10th edition, Churchill Livingston, London.

Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, Williams and Wilkins.

Escott-Stump, S. (1998): Nutrition and Diagnosis Related Care, 4th Edition, Williams and Wilkins.

Williams, S.R. (1993): Nutrition and Diet Therapy, 7th Edition, Times Mirror/Mosby College Publishing.

## **DSE 3.3: FOOD SERVICE MANAGEMENT**

## **3** Credits

#### **BLOCK -1: FOOD SERVICE ESTABLISHMENT**

Unit- 1: Definition and characteristic of food service institution

Unit- 2: types of food service establishment

Unit- 3: Principles of management - tools of management

Unit-4: Functions of management.

#### **BLOCK-2: PERSONNEL MANAGEMENT AND FOOD SERVICES**

Unit- 5: Recruitment, Selection, Induction and Training

Unit- 6: Supervision of Personnel, Labor Policies and Legislation.

Unit- 7: Types of Food Service,

Unit- 8: Styles of Service, Formal and Informal.

#### **BLOCK-3: AND EQUIPMENT AND FINANCIAL MANAGEMENT**

Unit- 9: Equipment's, Classification, Selection,

Unit-10: Maintenance and Care of equipment.

Unit-11: Cost account and keeping, inventory maintenance of account books, balance sheets, Food Costing.

Unit- 12: Institutional kitchen and Sanitation: Types of kitchen, layout of kitchen, kitchen design plan and work simplification.

#### **REFERENCES:**

Mohini Sethi and SurjetMalhan, (1987). Catering Management, "An Integrated Approach. Wiley Eastern Ltd.

Nathaniel, R. S. (1991) Catering Management for Hotel Restaurants and Institute, Surjeet Pub. Delhi 110 007.

P.N. Reddy, S.S. Gulshan. Principles of Business Organization and Management. Eurasia Publishing House, Ramnagar New Delhi.

West. B.B. Wood L., Harger, V.F. (1977) Food Service Institutions, John Wiley and sons, Inc., NewYork, V Ed.

West. B.B. Wood L., Harger, V.F. (1977) Food Service Institutions, John Wiley and sons, Inc. NewYork, V Ed. 2.

Shukla. M.C. (1982) Business Organization and Management S. Chand and Co., Ltd., Ramnagar, New Delhi.

## DSE 3.4: INBORN ERRORS OF METABOLISM

## **3** Credits

#### **BLOCK-1: DISORDERS OF METABOLISM**

Unit- 1: Disorders of Carbohydrates metabolism

Unit- 2: Disorders of fatty acid oxidation and mitochondrial metabolism

Unit- 3: Disorders of purine or pyrimidine metabolism

#### **BLOCK -2: AUTO IMMUNE DISORDERS-I**

Unit-4: Type 1 diabetes

- Unit- 5: Rheumatoid arthritis
- Unit- 6 : Psoriasis/ psoriatic arthritis

Unit-7: Multiple sclerosis

#### **BLOCK - 3: AUTO IMMUNE DISORDERS- II**

Unit-8: Systemic lupus erythematosus (SLE)

Unit-9: Inflammatory bowel disease

Unit- 10 : Addison's diseases

Unit-10: Graves diseases

## **REFERENCES:**

Uttam Garg, Laurie Smith (2017), Biomarkers in Inborn Errors of Metabolism, 1st Edition, Elsevier publishers.

Janet A. Thomas; Johan L. K. Van Hove; Austin A. Larson and Peter R. Baker, text book of Inborn Errors of Metabolism, publisher McGraw Hill, Bengaluru, Karnataka.

Barbara K. Burton. Inborn Errors of Metabolism in Infancy (1998),: A Guide to Diagnosis. Pediatrics Dec 102 (6) e69; DOI: 10.1542/peds.102.6. e69

R. Della Casa, C.Ungaro and E.Acampora. (2012), A case of galactosemia misdiagnosed as cow's milk intolerance. Journal of Pediatrics38:47 DOI: 10.1186/1824-7288-38-47

## DSE 3.5: NUTRITIONAL REQUIREMENTS FOR EXTREME ENVIRONMENTS

## **3** Credits

#### **BLOCK 1: EXTREME ENVIRONMENTS AND HEALTH EMERGENCIES**

Unit- 1: Nutrient requirements during emergencies

Unit- 2: Major Nutritional Deficiency Diseases in Emergencies

Unit- 3: Feeding programs during emergencies

Unit- 4: Assessment and monitoring of Nutritional Status and relief measures during emergencies

#### **BLOCK 2: NUTRITIONAL REQUIREMENT IN DIFFERENT ALTITUDE**

Unit -5: Energy requirement for physical activity in temperature, cold and hot environment Conditions and environment extremes

Unit -6: Nutritional requires in high altitude

Unit -7: Nutritional requirements in cold and polar environments

Unit -8: Nutritional requirements in hot environments

#### **BLOCK 3: NUTRITION FOR SPECIAL CHALLENGES**

Unit- 9: General adaptive mechanisms to environmental extremes and role of nutrition in successful, Acclimatization, Cascade effect of environmental extremes

Unit -10: Nutritional requirements in space mission- Changes in body composition, Effects of microgravity on humans, Nutrients requirements, Space food system, Types of foods, Space crops and bio regenerative system

Unit -11: Nutrition for naval personnel: Challenges, requirements, modified diets, use of supplements.

Unit -12: Nutrition for mining personnel: Challenges, requirements, modified diets, use of supplements.

### **REFERENCES:**

Bamji M.S. and Vinodini Reddy (1998) Text Book of Human Nutrition, Ford and IBH Publishing Co. Ltd New Delhi.

Srilakshmi. B, (2005): Dietetics, V Edition, New Age International (P) Ltd, Publishers, Chennai.

Dr. Swaminathan.M, Food and Nutrition, 2nd Edition 1985, Reprint 2006. The Bangalore Printing and Publishing Shubhangini A Joshi (2021), text book of Nutrition and Dietetics, 5th Edition, McGraw Hill Publishers, New York City (USA).

B Srilakshmi (2019), Text book of Dietetics - Multi Colour 8<sup>th</sup> Edition, New Age International (P) Ltd., Publishers, New Delhi-110 002, India.

Procter S B, and Campbell C G (2014), Position of the Academy of Nutrition and Dietetics: nutrition and lifestyle for a healthy pregnancy outcome, J Acad Nutr Diet. 2014; 114(7):1099-1103. doi: 10.1016/j.jand.

Judith E Brown et al., (2010) Nutrition Through the Life Cycle, 4<sup>th</sup> edition Paperback –Publisher: Cengage Learning, Inc;

## DSE 3.6: FOOD AND NUTRITIONAL SECURITY

## **3** Credits

#### **BLOCK 1- INTRODUCTION TO FOOD AND NUTRTION SECURITY**

Unit 1: Food and nutrition security Unit 2: A holistic understanding of Food and Nutrition Security-Unit 3: Aspects of Food and Nutrition Security Unit 4: Rational for investing in Food and Nutrition Security

#### **BLOCK 2- FOOD SECURITY MONITORING AND EVALUATION**

Unit 5: Food Security Analysis using Remote Sensing and GIS Unit 6: Food Security Data Collection and Analysis Unit 7: Assessment of Food Security Unit 8: Food and Nutrition security in India

#### **BLOCK 3- FOOD SECURITY, NUTRITION AND SUSTAINABLE DEVELOPMENT**

Unit 9 Sustainable development Unit 10: External factors Unit 11: Food and Nutrition security indicators Unit 12: Tools of Food Security Analysis

## **REFERENCES:**

Charis Galanakis (2020), Food Security and Nutrition, 1st Edition, published by Elsevier,

Bill Pritchard, Rodomiro Ortiz, Meera Shekar(2018), Handbook of Food and Nutrition Security, 1st Edition, publisher Routledge. Milton Park, Abingdon-on-Thames, Oxfordshire, England, UK

"Dietary Guidelines for Indians" (2020), A Manual, National Institute of Nutrition, Hyderabad,

Georg Bokeloh, et al, (2009), "Achieving Food and Nutrition Security"- Actions to Meet the Global Challenge, A Training Course Reader, on behalf of Federal Ministry of Economic Cooperation and Development, InWEnt-Capacity Building International, Germany,

## SEC 1-T: COMPUTER APPLICATION IN DIETETICS 2 Credits

#### **BLOCK-1: COMPUTER APPLICATION IN NUTRITION AND DETETICS**

Unit-:1: Analysis of nutritional data using computer – use of software packages.

Unit-2: Use of Ms Word – data representation in tabular form, manipulation of tables.

Unit-3: Use of Ms Excel – data tabulation, data representation by charts.

Unit-4: Statistical analysis of data by Ms Excel.

#### BLOCK-2: NUTRITION ASSESSMENT AND PREPARATION OF PROJECT REPORT BY USING COMPUTER

Unit-5: Nutritional assessment and nutrient intake analysis by using computer.

Unit-6: Tools using to teach menu planning and food frequency.

Unit-7: preparation of final project report by using computer.

Unit-8: Use of Ms Power point in presenting the project reports.

## **REFERENCES:**

John Orta (1988), Text book of Computer Applications in Nutrition & Dietetics, Published by Routledge, Milton Park, Abingdon-on-Thames, Oxford shire, England, UK ISBN 9780824066215.

Basandra, S.K.: Computer for Managers, designing an Effective Management Information System, Abhinav Publishing Industries, N. Delhi, 1965.

Subramaniam.S – Introduction to Computers

#### **SEMESTER**

#### **DSC 4.1: NUTRITION SUPPORT SYSTEM**

## 4 Credits

#### **BLOCK-1: ENTERAL NUTRITION.**

Unit-1: Rationale and Criteria for Appropriate Nutritional Support.Unit-2: Enteral Access and Administration.Unit-3: Enteral Formula Composition and Selection.Unit-4: Monitoring and Complications.

#### **BLOCK- 2: PARENTERAL NUTRITION**

Unit-5: Indications and Benefits.

Unit-6: Parenteral Access and Administration.

Unit-7: Parenteral Formulations.

Unit-8: Monitoring and Complications.

#### **BLOCK- 3: NUTRITION AND FEEDING CARE IN CRITICALLY ILL**

Unit-9: Nutrition Support of General Surgical ICU Patient.

Unit-10: Patients with Specific Organ Failure and Sepsis.

Unit-11: Patients with Solid Organ Transplant.

Unit-12: Micronutrients and Anti-Oxidant and Immune Nutrient Therapy in Critically Ill.

#### **BLOCK- 4: FEEDING TECHNIQUES IN SPECIAL CONDITIONS**

UNIT-13: Nutrition support in critically ill pediatric patients.

UNIT-14: Feeding care for spastic, dementia and anorexia patients.

UNIT-15: Complications of Nutritional Support System including refeeding syndrome and rehabilitation diets.

UNIT-16: Domiciliary management and long term nutrition support.

#### **REFERENCES:**

Kelly Kane Kathy Prelack, (2019), text book of Advanced Medical Nutrition Therapy, publishers Jones & Bartlett Learning 5 Wall Street Burlington, MA 01803.

Garrrow J.S James W. P.T. and Ralph A (2000) Human Nutrition and Dietetics, 10th edition, Churchill Livingston, London.

IV

Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd.

Mahan, L.K. and Escott – Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Ed. W.B. Saunders Ltd.

Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (Ed) (1999): Modern Nutrition in Health and Disease. 9th Editon, Williams and Wilkins.

Shikora, S.A. and Blackburn, G.L. (Ed) (1999). Nutritional Support – Theory and Therapeutics, Chapman and Hall, ITP (International Thomson Publishing).

Torosian, M. H. (editor) (1995) Nutrition for the Hospitalised Patient. Basic Science & Principles of Practice.

Williams, S.R. (1993): Nutrition and Diet Therapy, 7th Edition, Times Mirror/Mosby College Publishing.

Kinney, J.M. and Borum, P. R. (editors) (1989) Perspectives in Clinical Nutrition. Urban and Schwarzenberg.

Phillips, G.D. and Lodgers C.L. (1986). Parenteral and Enteral Nutrition. A Practical Guide. Churchill Livingstone.

## **DSC 4.2: NUTRITION COUNSELLING**

## 4 Credits

#### **BLOCK-1: COMMUNICATION IN NUTRITION COUNSELING**

Unit- 1: Definition and significance of communication.

- Unit-2: Communication skills- listening, non-listening, verbal and non-verbal communication (body language) barriers to communication.
- Unit- 3: Organizational communication and training
- Unit- 4: Professional communication and team collaboration.

#### **BLOCK-2: COUNSELING SKILLS**

Unit- 5: Group and individual counselling, diet counselling- different methods.

Unit- 6: Physical set-up, the dietician's tools and records.

Unit- 7: Handling the patient and the patient's family during counselling.

Principle of family counselling.

Unit -8: Practical experience in personal counselling and diet counselling.

#### **BLOCK-3: DESIGNING AND COUNSELING PLANS AND APPLICATION**

Unit- 9: Assessment component, Data analysis.

Unit- 10: Writing goals and objectives, planning learning experience.

Unit-11: Approaches to counselling, counselling therapies.

Unit-12: Introducing models for learning, Evaluation of learning and self-management.

#### **BLOCK-4: IMPLEMENTATION, EVALUATION ASPECTS OF COUNSELING**

Unit-13: Nutrition counselling for diabetes mellitus, cardiac problems.

Unit- 14: Nutrition counselling for hypertension and obesity.

Unit-15: Ending counselling sessions.

Unit- 16: Case studies.

#### **REFERENCES:**

Bamji, M.S. Rao, P.N. and Reddy. Text book of Human Nutrition. (1996). Oxford and IBH publishing, Co. Ltd New Delhi.

Bamji M.S. and Vinodini Reddy (1998), Text Book of Human Nutrition, Oxford and IBH Publishing Co. Ltd New Delhi.

Garrrow J.S James W. P.T. and Ralph A (2000) Human Nutrition and Dietetics, 10th edition, Churchill Livingston, London. Williams, S.R. Nutrition and Diet Therapy, 6th Ed. Jones Mirror College Publishing.

Antia. P, Clinical Nutrition and Diet Therapy, Oxford publication. (Unit II, IV)

Robinson C.H, et.al., (1990) Normal and Therapeutic Nutrition, Seventeenth Edition, Mac Milan Publishers.USA. (Unit III).

Srilakshmi B. (2018) Dietetics, New Age International (P) Ltd, Publishers. (Unit I, V)

Mohan K. L. and Krause M.V (2002) Food, Nutrition and Diet Therapy, 2nd edition W.S. Suders Co, Philadelphia

## **DSE 4.3: MEDICAL ETHICS AND LAWS**

#### **BLOCK-1: MEDICAL ETHICS**

Unit-1: Introduction and Importance medical ethics.

- Unit-2: Principals of medical ethics.
- Unit-3: Ethical codes and public health ethics.
- Unit-4: Research ethics and case study.

#### **BLOCK-2: BASICS OF HEALTH LAW**

Unit-5: Basic of Health and its provider, origin and evaluation, all council acts.

Unit-6 Need for Health Law – Fraudulence, Negligence and Abuse.

Unit-7: Human Rights.

Unit-8: Rights & Duties of Health Care Provider (Public & Private Activities).

#### **BLOCK-3: LEGAL ASPECTS OF HEALTH LAW**

Unit-9: Role of Health Policy & Health Care Delivery.

Unit-10: Functions and Interaction between court legislation and Regulations.

Unit-11: General Laws on Health Law (Medical Allied Agencies).

Unit-12: Specific Laws on Health Law (NDT, PWD/etc.).

#### **BLOCK-4: MEDICAL INSURANCE**

Unit-13: Introduction – Various types, Significance and Kind of Medical Insurance/Policies.

- Unit-14: Insurance & Assurance.
- Unit-15: General Principles of Law and Contract.
- Unit-16: Medical Insurance Regulations.

#### REFERENCES

British Medical Association (2012), Medical Ethics Today the BMA's Handbook of Ethics and Law, Third edition, A John Wiley & Sons, Ltd., Publication, London WC1H 9JP.

McLean S.A.M, Legal and Ethical Aspects of Healthcare, Publisher: Cambridge University Press, ISBN: 9780521734509, 978052173450.

Kay Wheat (2018), Text, Cases and Materials on Medical Law and Ethics, publishers Taylor & Francis Ltd. Bengaluru, Karnataka- 560095.

Erich H. Loewy (2013), Textbook of Medical Ethics 1989th Edition, Kindle Edition, Springer Publisher, Salmon Tower Building New York City.

#### 4 Credits

## DSE 4.4: MEDICAL MICROBIOLOGY

## 4 Credits

#### **BLOCK-1: INTRODUCTION TO MICROBIOLOGY**

- Unit-1: Natural history of microbial diseases.
- Unit-2: Unique differentiating features of eukaryotes and prokaryotes
- Unit-3: Source and spread of microbes
- Unit-4: Rationale for classifying microbes into bacteria, fungi viruses, parasites.

#### **BLOCK-2: INTRODUCTION TO BACTERIOLOGY**

- Unit-5: The nature of bacteria.
- Unit-6: Morphological differences.
- Unit-7: Growth requirement Nomenclature and classification.
- Unit-8: Enumeration of bacteria responsible for certain primary diseases.

#### **BLOCK-3: BACTERIAL STAINING, CULTIVATION AND COMMON TESTS**

- Unit-9: Microscopy: types and principles Staining: principles.
- Unit-10: Media for growth / bacterial colony.
- Unit-11: Familiarization with materials used
- Unit-12: Common Tests for Bacterial identification.

#### **BLOCK-4: IMMUNITY TO INFECTION AND GASTROINTESTINAL INFECTIONS**

- Unit-13: Normal immune system Innate Immunity.
- Unit-14: Antigens presentation and association in immunity -Immunoglobulins and their role in immunity.
- Unit-15: Cell mediated immunity and their role Hypersensitivity, Immunodeficiency Tolerance.
- Unit-16: Gastrointestinal infections caused by parasites.

## REFERENCES

Stefan Riedel, Stephen A. Morse, Timothy, and Mietzner (2019), Jawetz Melnick & Adelbergs Medical Microbiology 28th edition. Publisher McGraw Hill / Medical, 1325 Avenue of the Americas, New York City.

Michael R. Barer, Will Irving (2018) text book of Medical Microbiology, 19th edition, Elsevier US/UK, ISBN: 9780702071997.

Medical Microbiology, Greenwood Slack, Peutherer.

## **5. EVALUATION SYSTEM**

Students of MSc. Clinical Nutrition and Dietetics are assessed by both internal assessment and term end examination. The weightage given are 20 and 80 percent respectively. The internal assessment covers:

- Class test
- Student seminars
- Project works, dissertation, and viva-voce component
- MCQ's Google forms

The assignment questions will be uploaded in the university website. The term end examination will be conducted to assess the knowledge, skill and attitude of the student on the curriculum.

## **Annexure I**

## **INTER- DISCIPLINARY COURSE**

(Open Elective) for First Semester

ವಿಭಾಗ– ಕನ್ನಡ

ಪತ್ರಿಕೆ–೬: ಆಧುನಿಕ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಇತಿಹಾಸ EL 1.1 (ಕ್ರೆಡಿಟ್–೩)

ಬ್ಲಾಕ್-೧೯: ಆಧುನಿಕ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಮುಖ್ಯ ಘಟ್ಟಗಳು

ಘಟಕ-೭೩: ಆಧುನಿಕ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಹಿನ್ನೆಲೆ ಮತ್ತು ಪ್ರೇರಣೆಗಳು.

**ಘಟಕ-೭೪:** ನವೋದಯ ಪೂರ್ವ, ನವೋದಯ- ಬಿ.ಎಂ.ಶ್ರೀ., ಕುವೆಂಪು, ದ.ರಾ.ಬೇಂದ್ರೆ, ಶಿವರಾಮಕಾರಂತ, ಮಾಸ್ತಿವೆಂಕಟೇಶ್ ಅಯ್ಯಂಗಾರ್, ಕೆ.ಎಸ್. ನರಸಿಂಹಸ್ವಾಮಿ.

ಘಟಕ-2೫: ಪ್ರಗತಿಶೀಲ ಮತ್ತು ನವ್ಯ: ಅನಕೃ, ಕಟ್ಟೀಮನಿ, ನಿರಂಜನ, ಚದುರಂಗ, ವಿ.ಕೃ. ಗೋಕಾಕ, ಅಡಿಗ, ಜಿ.ಎಸ್. ಶಿವರುದ್ರಪ್ಪ, ಶಾಂತಿನಾಥ ದೇಸಾಯಿ, ಅನಂತಮೂರ್ತಿ, ಯಶವಂತ ಚಿತ್ತಾಲ, ಲಂಕೇಶ್, ತೇಜಸ್ವಿ, ವೈದೇಹಿ, ವೀಣಾ ಶಾಂತೇಶ್ವರ, ವಿಜಯಾದಭೈ.

ಘಟಕ-೭೬: ಬಂಡಾಯ ಮತ್ತು ದಲಿತ:

ಬರಗೂರು ರಾಮಚಂದ್ರಪ್ಪ, ಬಿ.ಟಿ. ಲಲಿತಾನಾಯಕ, ಸಾರಾ ಅಬೂಬಕ್ಕರ್, ದೇವನೂರು ಮಹಾದೇವ, ಸಿದ್ಧಲಿಂಗಯ್ಯ, ಅರವಿಂದ ಮಾಲಗತ್ತಿ, ಮೊಗಳ್ಳಿ ಗಣೇಶ.

ಬ್ಲಾಕ್-೨೦: ಆಧುನಿಕ ಕನ್ನಡ ಕಾವ್ಯ ಮತ್ತು ಸಾಹಿತ್ಯ ಪ್ರಕಾರಗಳು

ಘಟಕ-೭೭: ಕಾವ್ಯ ಪ್ರಕಾರಗಳು: ಭಾವಗೀತೆ, ಸುನೀತ, ಶೋಕಗೀತೆ, ಪ್ರಗಾಥ.

ಘಟಕ-೭೮: ಕಥನ ಕಾವ್ಯ, ಖಂಡ ಕಾವ್ಯ, ಮಹಾಕಾವ್ಯ.

ಘಟಕ-೭೯: ಸಾಹಿತ್ಯ ಪ್ರಕಾರಗಳು: ಕಥೆ, ಕಾದಂಬರಿ, ನಾಟಕ ಜೀವನ ಚರಿತ್ರೆ.

ಘಟಕ-೮೦: ಲಲಿತ ಪ್ರಬಂಧ, ಆತ್ಮಕತೆ, ಪ್ರವಾಸ ಸಾಹಿತ್ಯ, ಸಂಪಾದನೆ, ವಿಚಾರ ಸಾಹಿತ್ಯ, ವಿಜ್ಞಾನ ಸಾಹಿತ್ಯ

#### ಪರಾಮರ್ಶನ ಗಂಥಗಳು

೧. ಹೊಸಗನ್ನಡ ಸಾಹಿತ್ಯ: ಎಲ್.ಎಸ್. ಶೇಷಗಿರಿರಾವ್, ಕನ್ನಡ ಸಾಹಿತ್ಯ ಪರಿಷತ್, ಬೆಂಗಳೂರು, ೧೯೯೨

೨. ಯುಗಧರ್ಮ ಮತ್ತು ಸಾಹಿತ್ಯ ದರ್ಶನ: ಕೀರ್ತಿನಾಥ ಕುರ್ತಕೋಟಿ, ಮನೋಹರ ಗ್ರಂಥ ಮಾಲೆ, ಧಾರವಾಡ, ೧೯೯೧

೩. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಇತಿಹಾಸ: ರಂ.ಶ್ರೀ. ಮಗುಳಿ, ಗೀತಾ ಬುಕ್ ಹೌಸ್, ಮೈಸೂರು, ೨೦೧೮

. ೪. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಸಂಗಾತಿ: ಕೀರ್ತಿನಾಥ ಕುರ್ತಕೋಟಿ, ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಹಂಪಿ, ಹೊಸಪೇಟೆ, ೧೯೯೫

೫. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಸಂಗಾತಿ: (ಪ್ರ.ಸಂ) ಬರಗೂರು ರಾಮಚಂದ್ರಪ್ಪ, ಕರ್ನಾಟಕ ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿ, ೨೦೧೮

೬. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ: ತ.ಸು. ಶಾಮರಾಯ, ತಳುಕಿನ ವೆಂಕಣ್ಣಯ್ಯ ಸ್ಮಾರಕ ಗ್ರಂಥಮಾಲೆ, ಮೈಸೂರು, ೨೦೧೪

- ೭. ಹೊಸಗನ್ನಡ ಕಾವ್ಯ ಪ್ರಕಾರಗಳು: ಪ್ರಧಾನ ಸಂಪಾದಕರು, ಎ.ರಂಗಸ್ವಾಮಿ, ಲೇ. ಮ. ರಾಮಕೃಷ್ಣ, ಪ್ರಸಾರಂಗ, ಕರಾಮುವಿ, ಮೈಸೂರು, ೨೦೧೦
- ೮. ಆಧುನಿಕ ಸಾಹಿತ್ಯ ಪ್ರಕಾರಗಳು: ಪ್ರಧಾನ ಸಂಪಾದಕರು, ಎ. ರಂಗಸ್ವಾಮಿ, ಲೇ. ಡಾ. ಜಿ.ಆರ್. ತಿಪ್ಪೇಸ್ವಾಮಿ, ಪ್ರಸಾರಂಗ, ಕರಾಮುವಿ, ಮೈಸೂರು, ೨೦೧೦

# **DEPARTMENT - ENGLISH**

## EL-1.1: INTER- DISCIPLINARY COURSE-I (OPEN ELECTIVE)

## **INDIAN LITERATURE-I**

## **OBJECTIVES**

- To help to understand the contribution of Kalidasa to Sanskrit drama as a playwright
- To create an awareness of the importance of Shakuntala and Mrichhakatika as classical Indian texts
- To evaluate Lord Macaulay and Raja Ram Mohan Roy writers of English Prose.
- To introduce the role of Autobiographies in Indian writing in English

## BLOCK –I

Kalidasa: Shakuntala Shudraka: Mrichhakatika

## **BLOCK -II**

Jawaharlal Nehru: An Autobiography Ram Mohan Roy: Letter to Lord Amherst Macaulay: Minutes on Indian Education Vivekananda: Address to the Parliament of Religions

## **Suggested Reading:**

- M.K.Naik: Critical Essays on Indian Writing in English. Sahitya Akademi, 1969.
- Narasimhaiah. C.D: The Swan and the Eagle. Indian Institute of Advanced Study, 1987.
- Meenakshi Mukherjee: The Twice Born Fiction. Heinemann Educational Publishers, 1972.
- Chirantan Kulshrestha. Contemporary Indian English Verse: An Evaluation. Arnold-Heinemann, 1981.

# **DEPARTMENT - HINDI**

## व्यावहारिक हिंदी एवं व्याकरण

## वर्ण विचार

वर्ण

- स्वर और उसका वर्गीकरण
- व्यंजन और उसका वर्गीकरण
- वर्णों का उच्चारण स्थान
- संधि
- समास

### शब्द विचार

- शब्द के भेद
- अर्थ के आधार पर शब्द भेद
- व्युत्पत्ति के आधार पर शब्द भेद
- रचना के आधार पर शब्द भेद
- प्रयोग के आधार पर शब्द भेद
- विकारी और अविकारी शब्द भेद
- अव्यय
- संज्ञा और उसके भेद
- वचन- उसके भेद, वचन परिवर्तन के नियम
- लिंग- उसके भेद, लिंग परिवर्तन के नियम
- काल और उसके भेद
- कारक और विभक्ति- उसके प्रकार,
- सर्वनाम और उसके भेद
- विशेषण और उसके भेद
- क्रिया और उसके भेद
- क्रिया विशेषण और उसके भेद
- समुच्च्य बोधक और उसके भेद
- संबंधबोधक और उसके भेद
- विस्मयादिबोधक और उसके भेद
- परसर्ग और उपसर्ग
- वाच्य और उसके प्रकार

## वाक्य विचार

- वाक्य का अर्थ और परिभाषा
- वाक्य के प्रकार .... **आदि**

#### 

- \_\_\_\_\_\_ \_\_\_\_

- \_\_\_\_\_\_
- \_\_\_\_\_

# **DEPARTMENT - TELUGU**

## E. L. 1.1 Thilak Prathyeka Adhyayanam

## Block - 1:Thilak Kavithvam - 1

Unit - 1: Amrutham Kurisina Raathri

Unit - 2:Thilak Padhya Kavithaa Vaibhavam

Unit - 3:Thilak Abhiruchulu - Alavaatlu

Unit - 4: Thapala bantrothu

## Block - 2: Thilak Kavithvam

Unit - 1: Thilak Sahithya Parichayam - 1

Unit - 2: Thilak Sahithya Parichayam - 2

Unit - 3:Thilak vachana kavithaa Vaibhavam - 1

Unit - 4: Thilak Vachana Kavithaa Vaibhavam - 2

# **DEPARTMENT - HISTORY**

## ANCIENT WORLD CIVILIZATIONS

(Egypt, Mesopotamia, Greek, Roman, Inca, Chinese)

**Objective:** The course is aims to understand major world civilizations. It is to provide a global historical perspective of ancient world which special reference to Egypt, china, Greek, Roman, Inca civilizations.

**Pedagogy:** personal contact programmes, audio video programmes, online lectures Assignments, etc

Credits: 2.

Examination Duration: 11/2 hours and Maximum Marks:40

**Course outcomes:** 

After completing this course the students should be able to

- > Discuss the Egyptian and Mesopotamian civilizations.
- ➤ Analyse the political socio economic conditions of Greek Roman civilizations.
- > Evaluate the Chinese contributions to ancient world.

## Block – I

## Unit-1

Egyptian Civilization: Importance of the Nile, Geographical importance, Gift of Nile, Political conditions. **Unit-2** 

Social, Economic and religious conditions, Literature and learning, arts and architecture.

#### Unit-3

Mesopotamian Civilization, Sumer and Babylonian, Hammurabi's code, Society and Culture, Economic conditions, art and literature, Assyrian Empire.

#### Unit - 4

Greek Civilization, Political Organizations, the city, State, Alexander the Great, Greek political theory, Religion, Philosophy, art and architecture, Characteristic of Hellenistic Civilization.

## Block – II

#### Unit - 5

Roman Civilization, The Land and the people, the Government, Roman Republic, Roman Empire, Roman Republic, The Empire, The Patricians and Plebeians, Punic wars.

## Unit – 6

Julius Caesar, his wars, fall Augustus Caesar, Social Economic Conditions, Roman art and architecture.

## Unit - 7

Painting, Sculpture, Roman Law, Roman Religion, Philosophy, Roman literature, Decline of the Roman Empire.

### Unit - 8

Inca Civilisation, Socio – economic Political conditions, Chinese Civilisation, Socio – economic Political conditions.

## Suggested readings:

- 1. Breasted, J.H. : Ancient Times, A History of the early world.
- 2. Rostovzeff, M.S. : History of Ancient World
- 3. Schvider.H : The History of Civilization
- 4. Swain.J.E. : A History of World Civilization
- 5. Breasted.J.H. : History of Egypt
- 6. Jastorow.M : The Civilization of Babylonia and Austria
- 7. Bury.J.E. & OTHERS: The Hellenistic Age
- 8. Bailey.C : The Legacy of Rome and others
- 9. Abot.F.F.: Society and Politics of Ancient Rome

# **DEPARTMENT – ECONOMICS**

## EL1.1: Economic Policies of India Since 1991.

- **Objective:** To enable the Students to understand the economic policies of India in the era of new economic policy.
- **Pedagogy:** A Combination of Lectures, Group Discussion, Assignments.
- **Credits:** 2 ; Examination Duration: 1<sup>1</sup>/<sub>2</sub>and Maximum Marks: 50 (Internal Assessment Marks = 10 and Semester-end Examination =40)

### **Course Inputs**

BLOCK – I: India's Economic Policies

UNIT : 1 Economic Policies in India Since 1991

Economic reforms in India – Economic Scenario in India during 1990-91 – Domestic Financial Crisis – Balance of Payment Crisis – Extent of External debt and debt Trap Problem. **UNIT** : 2 **Need for Reforms** Measures Taken – Devaluation – Privatization – Liberalization – Globalization. **UNIT:3 Monetary Policy and Fiscal Policy** Narasimhan Committee on Banking and Financial Sector Reforms Since 1998 – Fiscal Reforms: Raja Chellaiah Committee and Tax Reform Policies – Fiscal Prudence and Policies. **UNIT:4 Structural Adjustments and External Sector in India** Foreign Trade: Trends in Exports and Imports - Balance of Payment and its Crisis - Export Import Policy – In Defence of Import Substitution – Foreign Exchange Policy. **BLOCK : II** FDI and the Role of State **UNIT : 5 Foreign Direct Investment (FDI)** Trends in FDI – FDI Policy – Its Impact on the Domestic Economy – Labour Migration: causes and Consequences on Indian Economy – Information and Communication Revolution and India. **Challenges to Development in India UNIT : 6** Poverty - Unemployment - Poverty alleviation Programmes - urban Poverty and Problems -Income Inequality - Employment Generating Schemes. **UNIT: 7** The Role of State Parallel Economy in India – Black Money – Corruption – Slams – Redefining the Role of the State and the Markets - Balance between Economic and Socio Political Goals. **UNIT:8 Administrative Reforms** Rights to Information - Measures Towards Good Governance - NITI Ayoga and aftermath -Digitalized India – Demonetization – GST – Make in India.

## **References:**

- 1. Acharya Shankar, (2003) India's Economy: Some Issues and Answers, Academic Foundation, New Delhi.
- 2. Byres J Terence (Ed.,) (1999) The Indian Economy, Major Debates since Independence, OUP,New Delhi.
- 3. Datt Ruddar, (2002) Economic Reforms in India A Critique, S.Chand and Co, New Delhi.
- 4. Kapila Uma (Ed) (2015) Indian Economy since Independence, Academic Foundations, New Delhi.
- 5. Kapila Uma, (2005) Understanding the Problem of Indian Economy, Academic Foundation, New Delhi.
- 6. Misra S.K. & V.K. Puri, (2011) Indian Economy-Its Development Experience, Himalaya Pub., House, Mumbai.
- 7. NCAER, Economic and Policy Reforms in India, NCAER, New Delhi.
- 8. Rangarajan C, (1998) Indian Economy- Essays on Money and Finance, UBSPD, New Delhi.
- Sachs D.Jeffrey, A.Varshney & N Bajpai (Ed)(1999) India in the Era of Economic Reforms, OUP, New Delhi.
- 10. Vaidyanathan A, India's Economic Reforms and Development, OUP, New Delhi

# **DEPARTMENT - POLITICAL SCIENCE**

## (OEL-I) Local Government in India

## **Block-I**

Unit:1	Meaning, Nature and Scope of Local Governments.
Unit:2	Evolution of Panchavat Rai Institution in India.

it:2 Evolution of Panchayat Raj Institution in India.

- a) Constitute Assembly and Village Panchayat.
- b) Balavanth Roy Mehta Committee Report
- c) Ashok Mehta Committee Report.
- d) G.V.K. Rao Committee Report.
- Unit:3 Constitutional Amendments and Panchayat Raj Institutions:
  - a) Basis of Constitutional Amendment.
  - b) 73<sup>rd</sup> and 74<sup>th</sup> Constitutional Amendment.
  - c) Karnataka Panchayat Raj At of 1983.
  - d) Karnataka Panchayat Raj Act of 1993.
- Unit:4 Zilla Panchayat: Structure, Functions and Sources of Revenue.

## **Block-II**

- Unit:5 Taluk Panchayat : Structure, Functions, Executive Officer, Powers and Functions.
- Unit:6 Gram Panchayat: Gram Sabha, Ward Sabha: Structure, Functions and Sources of Revenue.
- Unit:7 Panchayat Development Officer and Secretary: Powers and Functions.
- Unit:8 Role of Panchayat Raj Institutions in Development (with Reference to Karnataka)
  - a) Panchayat Raj in Rural Development.
    - b) Social Change: Empowerment of the Weaker Sections.

## **References:**

- 1. Verma B. M, Social justice and Panchayath Raj
- 2. Mutarib-M.A. and Others, Theory of Local Government,
- 3. Dr. Arjun darshankar, Panchayath Raj aani Nagari.
- 4. V. B. Patil, Pancayath Raj.
- 5. A.N. Kulkarni, Bharatiya Sthanik Swashasan,
- 6. Shantaram Bhosale, Bharatiya Sthanik Shasan,
- 7. Kikherji. S, Essays on Rural Development.
- 8. Balaramu. C. H. Administration of Anty Poverty Programmes.
- 9. 73<sup>rd</sup> Constitutional Amendment Act, Government of India, 1993.
- 10. Karnataka Panchayatraj Acts, 1985, 1995.

## DEPARTMENT – PUBLIC ADMINISTRATION INDIAN POLITY – I

## BLOCK – 1

- UNIT 1 Indian Constitution.
- UNIT 2 Preamble Meaning and Importance.
- UNIT 3 Fundamental Rights and Duties.
- UNIT 4 Directive Principles of State Policy and Relation with Fundamental Rights.

## BLOCK – 2

UNIT – 5 Indian Federalism and Parliamentary system of Government.

- UNIT 6 Centre State Relations. Legislative Administrative and Financial
- UNIT 7 Union Executive President Elections, Powers and Positions.
- UNIT 8 Council of Ministers and Prime Ministers Powers and Functions

# **DEPARTMENT - SOCIOLOGY**

## **Invitation to Sociology**

(02 Credits)

## **Course Description**

This course introduces learners to the basic concepts of sociology. It is particularly designed to orient the learners from interdisciplinary background about the essence of sociology and intends to inculcate sociological imagination.

## **Course Objectives**

- To introduce the learner to the basic concepts and processes of sociology
- to comprehend the structural and organizational aspects of society
- to examine the process of social change

## Learning Outcomes and Competencies

After successfully completing the course, following outcomes and competencies are possible among the learners. Learner will have/can

- Conceptual precision and clarity about the basic sociological concepts
- Develop sociological imagination and apply to analyze the contemporary events
- explain major social processes of society
- analytical view about Indian social structure
- explicate major process of social change and can conceptualize the changing aspects of Indian society

## **Course Contents**

### Block-1 Basic Concepts and Processes

- Unit-1 Emergence of Sociology-Factors and Early Thinkers-Sociological Imagination
- Unit-2 Society, Community- Associations and Institutions- Culture and Socialization
- Unit-3 Social System, Structure and Function
- Unit-4 Social Processes-Cooperation, Competition, Conflict, Accommodation and Assimilation

## Block-2 Social Organization and Social Change

- Unit-5 Caste and Class System-Changes in Caste
- Unit-6 Social Mobility and Types
- Unit-7 Factors of Social Change
- Unit-8 Process of Social Change in India (Sanskritization, Westernization,
  - Modernization and Globalization)

### **References**

- 1. Berger, Peter L. 1978. An Invitation to Sociology, Allen and Unwin, London. Davis, Kingsley. Human Society, Macmilan, New Delhi.
- 2. Dumont, Louis, 1988, Homo Hierarchicus. Oxford University Press. Giddens, Anthony. 2009. Sociology. Politi Press, Malden.
- 3. Inkles, Alex. 2002. What is Sociology, Prentice Hall India, New Delhi. Jayaram, N, 1990, Introductory Sociology, Macmilan, New Delhi.
- 4. Johnson Harry M., 2011: Sociology: A Systematic Introduction: Allied Publishers, New Delhi.
- 5. MacIver, R.M and C.H. Page. Society Introduction to Sociology, Macmilan, New Delhi
- 6. Samuel, Koenig. 1957. Sociology: An Introduction to Science of Society, Barnes & Nobel Books, London.
- 7. Singh, Yogendra. 1993: Social Change in India: Crisis and Resilience, Har-Anand, New Delhi.

## DEPARTMENT – ANCIENT HISTORY AND ARCHEOLOGY

AHA OE 1.1	World Heritage Sites of India
Block - 1	Introduction
Unit - 1	Nature - Scope - Criteria for incorporation of World Heritage sites
Unit - 2	Types of World Heritage sites in India
Block - 2	Archaeological and Cave Heritage sites
Unit - 3	Bimbetka - Sanchi- Nalanda – Champaner - Dholavira
Unit – 4	Ajanta – Ellora - Elephant
Block - 3	North Indian World Heritage Sites
Unit – 5	Bodh Gaya — Kajuraho–Konarak–Rani kivav– Jaipur,
Unit – 6	Agra Fort – Red Fort - FathepurSikri–Taj Mahal – Humayun's Tomb –
	Ahamadabad, Qutub Minar
Block - 4	South Indian World Heritages Sites
Unit – 7	Mahabalipuram – Pattadakallu – Chola temples
Unit - 8	Monuments of Hampi – Churches and Convents of Old Goa – Ramappa Temple

References:

- 1. Marco Canneo, Jasmina: The world heritage sites of UNESCO TheTreasure of Art
- 2. ASI: World Heritage Sites Series
- 3. Individual guide: Books on respective city Individual

# **DEPARTMENT - EDUCATION**

## **IDC – 1 FOUNDATIONS OF EDUCATION**

## **BLOCK-1 FOUNDATIONS OF EDUCATION – I**

Unit-1 Philosophical Foundations Unit-2 Basic Concepts of Philosophy Unit-3 Psychology as a Science Unit-4 Basic Concept in Psychology related to Education

## **BLOCK-2 FOUNDATIONS OF LEARNING – II**

Unit-5 Sociological bases of Education Unit-6 Educational Issues in Indian Society

Unit-7 Cultural and Historical Foundations

Unit-8 Political and Economic bases of Education

## **References**:

- 1. Harison and Myers (1970), Education, Manpower and Economic Growth, McGrothill, Oxfords, IBH Publishing Co., New Delhi.
- 2. Kamala Bhatia & Baldev Bhatia, (1974) The Philosophical and Sociological Foundations of Education, Doaba House, New Delhi.
- 3. Bhatia B.D, (1974), 'Theory and Principles of Education, Doaba House, Delhi'.
- 4. Sorokim .P, (1947) 'Society, Culture and Personality', Harper and Brothers Publishers, New York.

# **DEPARTMENT – COMMERCE**

## **EL1.1: Personal Financial Planning**

**Objective**: To enable the Students to understand about the different Investment Avenues, Saving Schemes designed by various agencies particularly for the individuals.

**Pedagogy:** A Combination of Lectures, Group Discussion, Assignments. **Credits:** 2

**Examination Duration**:  $1^{1}/_{2}$  and Maximum Marks: 50

(Internal Assessment Marks = 10 and Semester-end Examination = 40)

## **Course Inputs**

## **Block I**

- Unit -1: Introduction to Financial Planning: Introduction The Process Financial Planning Client Interactions Time Value of Money Applications Personal Financial Statements Cash Flow ad Debt Management Planning to Finance Education.
- Unit -2: Financial Planning Process: Introduction Setting Goals Informal Budget Preparation Investment Opportunities Financial Vs Physical Investments Role of a Financial Planner.
- Unit -3: Savings Plans: Introduction Setting Goals Savings Instruments Savings Plan Tax Savings Schemes.
- Unit -4: Investment Planning: Introduction Risk Return Analysis Mutual Fund Derivatives Asset Allocation Investment Strategies and Portfolio Construction and Management.

**Block II** 

- Unit -5: Risk Analysis and Insurance Planning: Introduction Risk Management and Insurance Decision in Personal Financial Planning Various Insurance Policies and Strategies for General Insurance Life Insurance Motor Insurance Medical Insurance.
- Unit -6: Retirement Planning and Benefits: Introduction Retirement Need Analysis Techniques – Savings and Investment Plans for Retirement –Employee Provident Fund – Public Provident Fund – Superannuation Fund – Gratuity – Annuity Plans.
- Unit -7: Tax Planning: Introduction Income-tax Computation for Individuals Companies -Trust and other bodies – Statutory Provisions Pertaining to Capital Gains and Indexation – House Property – Deduction and Allowances.
- Unit -8:Health Financing: Introduction Health Financing Models Financing of Health in India National Rural Health Mission Challenges of Access to Health Care and Service Quality Health Insurance Mechanism & Financial Protection.

## **Books Recommended for Reference**

- 01. Khan M.Y, Financial Services, Tata MacGraw Hill.
- 02. Singhanar V.K, Students' Guide to Income Tax, Taxmann.
- 03. Ranganathan and Madhuamathi, Investment Analysis and Portfolio Management, Pearson Publications.
- 04. Gordon and Natarajan, Emerging Scenario of Financial Services, Himalaya Publishing House.
- 05. George Rejda, Principles of Risk Management and Insurance, Pearson.

# **DEPARTMENT - MANAGEMENT**

## COURSE: OE-1 : Disaster Management - Credit: 2 MBAS 459: DISASTER MANAGEMENT

Objectives	: The course aims at familiarizing the students with the concepts of disaster
	management, need for disaster management and its relevance.

Pedagogy	:	Lectures,	assignments,	Industrial	visits	and	practical	exercises,
		discussions.						

- 1. Understanding Disasters · Meaning, nature, characteristics and types of Disasters, Causes and effects, Disaster: A Global View, Disaster Profile of India, The Disaster Management cycle.
- Geological and Mountain Area Disasters · Earthquakes · Volcanic Eruption · Landslides Snow Avalanches, Wind and Water Related Natural Disaster · Floods and Flash Floods · Droughts · Cyclones · Tsunamis, Man Made Disasters · Understanding Man-Made Disasters · Fires and Forest Fires · Nuclear, Biological and Chemical disaster · Road Accidents
- 3. Introduction to disaster Preparedness · Disaster Management: Prevention, Preparedness and Mitigation · Disaster Preparedness: Concept & Nature · Disaster Preparedness Plan · Disaster Preparedness for People and Infrastructure · Community based Disaster Preparedness Plan
- Roles & Responsibilities of Different Agencies and Govt. · Roll of Information, Education, Communication & Training · Role and Responsibilities of Central, State, District and local administration. · Role and Responsibilities of Armed Forces, Police, Para Military Forces. Role and Responsibilities of International Agencies, NGO's, Community Based Org. (CBO's)
- 5. Technologies for Disaster Management · Role of IT in Disaster Preparedness · Remote Sensing, GIS and GPS · Use and Application of Emerging Technologies · Application of Modern Technologies for the Emergency communication. · Application and use of ICST for different disasters.
- 6. Disaster Mitigation · Disaster Mitigation: meaning and concept · Disaster Mitigation Strategies · Emerging Trends in Disaster Mitigation · Mitigation management · Role of Team and Coordination
- 7. Disaster Management in India Disaster Profile of India Mega Disasters of India and Lessons Learnt Disaster Management Act 2005 – Institutional and Financial Mechanism National Policy on Disaster Management, National Guidelines and Plans on Disaster Management; Role of Government (local, state and national),Non-Government and Inter-Governmental Agencies. National Disaster management Authority.

#### References

- 1. Bryant Edwards (2005): Natural Hazards, Cambridge University Press, U.K.
- 2. Carter, W. Nick, 1991: Disaster Management, Asian Development Bank, Manila.
- 3. Central Water Commission, 1987, Flood Atlas of India, CWC, New Delhi.
- 4. Central Water Commission, 1989, Manual of Flood Forecasting, New Delhi.
- 5. Government of India, 1997, Vulnerability Atlas of India, New Delhi.
- 6. Sahni, Pardeep et.al. (eds.) 2002, Disaster Mitigation Experiences and Reflections, Prentice Hall of India, New Delhi.

## **DEPARTMENT - BIO CHEMISTRY**

## Basics of Bioinorganic and Biophysical chemistry for Biology graduates.

#### **Bioinorganic chemistry**

Coordination Compounds: Transition metals, properties (Colour, Oxidation states, Magnetic properties) Coordinate bond, double and complex salts– differences with examples.

Postulates of Warner's theory. Types of ligands: For examples: uni, bi, polydentate ligands. Coordination number, examples.

Porphyrin nucleus and their classification. Important metallo-porphyrins occurring in nature. Structure and biological importance of Heme, cytochrome, chlorophyll,Vitamin B<sub>12</sub>.

Nitrogen, Fixation of atmospheric nitrogen – Symbiotic and non-symbiotic. Nitrogen cycle. Environmental pollution by nitrogen compounds. Phosphorous: Importance of Phosphorous compounds in biological system,

#### phosphorous cycle

Oxygen, Formation of ozone in atmosphere. Role of ozone in maintenance of life on earth. Effect of environmental pollutants on ozone layer.

Sulphur and Selenium, Importance of compounds of Sulphur and Selenium in biological systems. Effect of sulphur compounds on environmental pollution.

#### **Biophysical chemistry**.

Units in chemistry, Avogadro's number, Mole, Mole fraction, Molarity, Equivalent weight, Normality, Molality. Colligative Properties, Osmotic pressure and its measurements. Hypo-, Hyper- and isotonic solutions. Effect of osmotic pressure on living cells.

Donnan membrane equilibrium. Relative lowering of vapour pressure, Raoult's law. Elevation of boiling point, depression in freezing point.

Adsorption: Freundlich and Langmuir's adsorption isotherm. Applications of adsorption.

Viscosity: Definition, determination of viscosity of liquids & solutions by Ostwald's viscometer (solutions of gum and protein to be taken as examples).

Distribution law, Distribution law, partition coefficient, application of distribution law.

Acids, bases and buffers- Lewis concept of acids and bases. Ionic product of water. pH scale, buffers, Henderson- Hasselbach equation, buffer capacity Choice of buffers. Theory of acid base indicators. pH titration curve and iso-electric pH of amino acids.

#### **Selected References:**

1. Basic Principles of Organic Chemistry, Roberts and Caserio, W. A. Benjamin, Inc. (1964).

- 2. Organic Chemistry, Morrison and Boyd, Allyn and Bacon Inc (1992).
- 3. Principles of Inorganic chemistry by Cotton & Wilkinson, Wiley (1999).
- 4. Textbook of Organic chemistry by Ahluwalia V K & Madhuri G Narosa publications (2001).
- 5. Physical chemistry by Castellan G W, Narosa Publications (2004).
- 6. Physical chemistry by Chakraborthy D K, Narosa Publications (2004).

# **DEPARTMENT - BIOTECHNOLOGY**

## MBT EL –I- Biotechnology and its Applications

Introduction to biotechnology. Principles of biotechnology, classification.

#### **Recombinant DNA Technology**

Introduction, outline of genetic engineering procedure, restriction endonucleases, cloning & expression vectors- plasmids, cloning in plasmid, transformation and detection of transformants- lacZ, genomic and cDNA libraries, gene analysis techniques-hybridization: Southern, Northern, Western, in situ, Polymerase chain reaction.

#### Microbial and food and environmental Biotechnology

Basics of fermentation technology: Types of microbial culture- batch, continuous and fed-batch. Microbial production: Use of microbes in production of vitamins, enzymes, organic acids, amino acids, polysaccharides, flavors, sweeteners, proteins and antibiotics.

Fermented food products- yogurt, cheese, tempeh, sauerkraut; beverages- wine and beer. Pre- and Probiotics, single cell proteins, Genetically modified foods, designer foods.

Current status of biotechnology in environment. Bioconservation, biofuels, gasohol, biogas.Bioremediation: Concepts and principles, bioremediation using microbes, in situ and ex situ

bioremediation, biosorption and bioaccumulation of heavy metals.

#### **Plant Biotechnology**

Landmarks in Plant tissue culture. Types of cultures- embryo, organ, callus and cell cultures, Somatic embryogenesis, Haploid Production, Androgenesis, Protoplast culture and somatic hybridization. Micropropagation- Methods and stages, applications. Synthetic seeds, somaclonal variation. Production of secondary metabolites by plant cells, Biotransformation.

Plant transformation techniques: Direct and indirect methods of gene transfer in plants. Transgenic plants and crop improvement- herbicide tolerance, disease resistance, abiotic stress tolerance, delayed ripening, improvement of nutritional quality, molecular pharming.

#### **Animal Biotechnology**

Basics of animal cell culture techniques, cell lines, physical conditions for culturing animal cells, equipments required, scale-up of culture methods.

Application of animal cell culture- Hybridomas, production of therapeutic antibodies, stem cell technology, cell and tissue engineering.

Genetic engineering of animals: Methods for gene transfer in animals, microinjection, nuclear transplantation, retrovirus-mediated gene transfer, gene knockdown techniques. Transgenic- animals-sheep, pigs, cattle, chickens; applications of transgenic animals.

D	ck-1	Title: Periodic Table and chemical Periodicity
ıi	t-1	Elements, atomic structure, atomic number, atomic mass, quantum numbers, electronic configuration,
ıi	t-2	riodic properties of elements, State of Matter, their resources. Important periodic properties of the elements, covalent radii, ionic radii, ionization potential, electron affinity and electronegativity
ıi	t-3	ncepts of Acids and Bases: Review of acid base concepts. Lux-Flood and solvent system concepts. Hard-soft acids and bases. Applications.
ni	t-4	lutions: Concentration units, solutions of liquids in liquids, Raoult's law, ideal and non-ideal solutions.

# **DEPARTMENT - CHEMISTRY**

ock-2	Title: Bonding and molecular structure
iit-5	Calcification of matter: (elements, compounds, substance and mixture), The
	three states of matter, physical and chemical properties of matter, fundamental
	particles of atoms, atomic number, atomic mass, atomic structure of atom
	molecular formula, empirical formula, molecular mass.
uit-6	is and ionic compounds, properties of ionic compounds, formation of ionic
	compounds, covalent compounds, properties of covalent compounds, properties
-	70

	of covalent compounds
nit-7	etals, properties of metals, theory of metallic bond formation, types of metals conductor, semiconductor and insulators, n-type semiconductors and p-type semiconductors, alloys and superconducting materials.
uit-8	ids and bases, general properties of acid and bases, Acid base reactions, oxidation reduction reactions, oxidation number, types of redox reactions, balancing oxidation-reduction equation, exothermic and endothermic reactions energy change in chemical reactions.

# DEPARTMENT : CLINICAL NUTRITION AND DIETETICS

## OEL-1: HEALTHY LIFESTYLES AND NUTRITION 3 Credits

### **BLOCK 1: INTRODUCTION TO FOOD AND NUTRITION**

Unit 1.- Factors affecting food habits, choices and dietary patterns – Definition of Food, Nutrition, Health, Fitness. Interrelationship between nutrition and health, concept of a desirable dietfor optimum nutrition, health and fitness.

Unit 2-. A brief review of nutrients in general –

- Energy and macronutrients Carbohydrates, Protein, Fat functions, sources deficiency disorders and recommended intakes.
- Micronutrients: Minerals calcium, Iron, Iodine, and other elements, Vitamins Fat Soluble & Water Soluble.

Unit 3: Nutritional assessment- Anthropometric, biochemical, clinical, dietary and Biochemical

assessments

**Unit 4:** Basic principles of planning diet –, RDA for Indians, Food groups, Dietary guidesand balanced diets.

### **BLOCK 2: PLANNING OF DIET**

Unit 5: Principles of planning a normal diet: characteristics of a normal diet, meeting nutrient

requirements of individuals and family. Use of Dietary guidelines for Indians.

Unit 6: Objectives of diet therapy- Regular diet and rationale for modifications in energy and other

nutrients, texture, fluid, soft diets etc.

Unit 7: Role of dietician in hospital- specific functions, team approach in patient care, psychological consideration, interpersonal relationship with patients. Nutrition and medicalethics. Hospital dietary- scope and importance, types of food service, quality management.Unit 8: Nutrition counseling: definition, concept, role of clinical dietician, the recipient and counseling environment and goals of counseling. An overview of systems approach to nutritionalcare and its components (planning, implementation and evaluation).

## REFERENCES

- Srilakshmi B (2004) Nutrition Science. New Age International (P) Ltd, Publishers.
- Kango M (2005) Normal Nutrition, Curing diseases through diet. First Edition CBS Publications. Paul S (2003) Text Book of Bio-Nutrition, Fundamental and Management. RBSA Publishers.
- Williams SR (2000) Nutrition and Diet Therapy. Sixth Edition C.V. Melskey Co.
- Mudambi SR and Rajagopal MV (1997) Fundamentals of Foods and Nutrition. New Age International (P) Ltd, Publishers.
- Swaminathan M (1999) Essential of Food and Nutrition. Vol I and II, Bappco publications, Madras.
- Corinne, H. Robinson 2010– "Normal and Therapeutic nutrition", Oxford and IBH publishing company, Bombay.
- B. Srilakshmi 2012"Dietetics", 4th edition, New age international publisher, Chennai

## **DEPARTMENT - COMPUTER SCIENCE** ELMCS-01 Mobile App Development: Credit 2

## Block – I

- **Unit-1:** Introduction to Mobile Computing: applications, a simplified reference model, Wireless Transmission:
- **Unit-2:** Frequencies of radio transmission, signals, antennas, signal propagation, multiplexing, modulation, spread spectrum, cellular system.
- **Unit-3** Media Access Control: motivation for a specialized MAC, SDMA, FDMA, TDMA, CDMA ,and Comparisons.
- Unit-4: GSM, DECT, Wireless LAN: Infrared vs. radio transmission, Infrastructure and ad-hoc networks, IEEE 802.11, HPERLAN, Bluetooth.

## Block – II

Unit-5: Mobile Network Layer: mobile IP, dynamic host configuration protocol,

- Unit-6: ad-hoc networks. Mobile Transport Layer: Traditional TCP, classical TCP improvements,
- Unit-7: TCP over 2.5/3G wireless networks. File Systems, World Wide Web,

Unit-8: Wireless Application Protocol (WAP) and WAP 2.0.

### Text book:

1. Jochen H. Schiller, Mobile Communications(2e)

## Reference

- 1. Raj Kamal, Mobile Computing
- 2. Asoke K. Talukder, Roopa R. Yavagal, Mobile Computing
- 3. Mazliza Othman, Principles of Mobile Computing and Communications
- 4. Prasant Kumar Pattnaik, Rajib Mall, Fundamentals of Mobile Computing
- 5. Ivan Stojmenovic, Handbook of Wireless Networks and Mobile Computer

6. David Taniar, Mobile Computing Concepts, Methodologies, Tools, and Applications

# **DEPARTMENT - ENVIRONMENTAL SCIENCE**
### **ESOEL-1: Basics of Environmental Science**

#### **Block I: Ecology and Environment**

- Unit 1: Definition, Principles and Scope. Biotic and abiotic factors of environment. Ecosystems: pond, forest, river, grassland and estuary ecosystems
- Unit 2: Ecosystem trophic structure, energy flow, food chain, food web, Ecological pyramids.
- **Unit 3:** Population dynamics: Definition, population density, Natality, Mortality, Age structure, Growth pattern, population dispersion.
- Unit 4: Biogeochemical cycle types, sedimentary and gaseous cycles, N, C, S, P, O cycles. Rock and hydrological cycles.

#### **Block II: Biodiversity and Conservation**

Unit 5: Biodiversity, Definition, Types of Biodiversity, importance and roles.

- Unit 6: Needs and benefits of biodiversity, Loss of biodiversity- causes and consequences, Need for conservation of biodiversity
- **Unit 7:** Conservation strategies, endemic and exotic species, Red Data book, National parks, wildlife sanctuaries, biosphere reserves, biodiversity hotspots, wildlife protection act, biodiversity act, wetland conservation and management, Hotspots of biodiversity.
- **Unit 8:** Project Tiger, Project elephant, Ramsar site and other conservation projects. Experts Committee Reports on Environmental conservation

# **DEPARTMENT - GEOGRAPHY**

### ELMG -01, Introduction to Physical Geography (Credit-2)

#### Block-1

Origin, Shape and Size of the Earth, Movement of the Earth- Rotation and Revolution, Effects of the movement of Earth, Coordinates -Latitude, Longitude and Time; Structure of the Earth, Rocks - types, significance, Weathering –types; Agents of Denudation - River, Glacier, Wind and Under Ground water; Structure and Composition of Atmosphere, Weather and Climate

#### Block-2

Atmospheric Pressure, Winds and Precipitation; Distribution of Land and Sea, Submarine Relief of the Ocean, Temperature and Salinity of Sea Water; Ocean Tides and Oceanic Currents- Atlantic, Pacific and Indian Oceans, Biosphere- Elements, Ecology, Ecosystem, World's Biomes, Biodiversity – Importance, Types and Conservation

#### References

- 1. B.S. Negi (1993) Physical Geography. S.J. Publication, Meerut
- 2. D.S.Lal (1998) Climatology.Chaitnya publishing house, Allahabad
- 3. K. Siddhartha (2001) Atmosphere, Weather and Climate.Kisalaya publication, New Delhi
- 4. R.N.Tikka (2002) Physical Geography. KedarnathRamnath&co, Meerut
- 5. Willian D. Thornbury (1997) Principle of Geomorphology. New Age Internatinal (Pvt Ltd.)New Delhi.

## **DEPARTMENT - MATHEMATICS**

### **ELMM –01 - FUNDAMENTALS OF MATHEMATICS**

#### (2 Credits)

**Block-I:** Number Theory: Natural numbers, integers, Real numbers, GCD, LCM, Prime numbers. Surds, Indices, Logarithms, Progressions, Arithmetic Progression, Geometric Progression, Harmonic Progression,

**Block-II:** Set Theory: Operations of Union, Intersection, Complementation. Relations & Functions: Types of relations Oneone, onto, Many-one functions, graphs of functions. Mathematical Logic: Propositions, logical connectives, Methods of proofs.

#### **Books for Reference:**

- 1. Kolman and Busby: Discrete Mathematics, PHI.
- 2. S. L. Loney: The Elements of Coordinate Geometry, London Macmillan & Co.
- 3. B. S. Grewal: Higher Engineering Mathematics, 36th Ed., Khanna Pub.
- 4. S. Lipschutz and M. Lipson: Theory and Problems of Discrete Mathematics. Schaum Series. 2nd Ed. Tata McGraw Hill.

# **DEPARTMENT - MICRO BIOLOGY**

### **Microbial World and Microbial Diversity**

- i. Introduction to microbial world, Physiochemical and biological characteristics; Characteristics of Acellular microorganisms (Viruses); Baltimore classification, general structure with special reference to viroids and prions.
- ii. Binomial Nomenclature, Whittaker's five kingdom and Carl Woese's three kingdom classification systems and their utility.
- iii. Difference between prokaryotic and eukaryotic microorganisms
- General characteristics of Cellular microorganisms, types archaebacteria, eubacteria, wall-less forms
   MLO (mycoplasma and spheroplasts) with emphasis on distribution and occurrence, morphology, mode of reproduction and economic importance.
- ii. Structure, reproduction and economic importance of Mycoplasma.
- i. General concept of Phytoplanktons and Zooplanktons. Characteristics, occurrence, thallus organization and classification of Algae.
- ii. Cyanobacteria occurrence, thallus organization, cell ultra structure, reproduction and economic importance. Applications of algae in agriculture, industry, environment and food.
- i. Historical developments in the field of Mycology including significant contributions of eminent mycologists.
- ii. General characteristics of fungi including habitat, distribution, nutritional requirements, fungal cell ultra- structure, thallus organization and aggregation, mode of reproduction and
- iii. Economic importance of fungi with examples in agriculture, environment, Industry, medicine and food.
- i. General characteristics, structure, mode of reproduction and economic importance of Actinomycetes with special reference to its application in medicine and industry.
- ii. General characteristics, occurrence, classification structure, reproduction and economic importance of Protozoa.

#### **References:**

1. Singh, R.P. General Microbiology. Kalyani Publishers, New Delhi (2007).

2. Aneja, K.R. Experiments in Microbiology, Plant pathology and Biotechnology, Fourth edition, NewAge International publishers.

3. Dubey, R.C. and Maheshwary, D.K. Text book of Microbiology. S.chand and company (1999).

4. Powar, C.B. and Daginawal, H.F. General Microbiology. Vol-I and Vol-II, Himalaya Publishing House.

5. Chakraborty P. A Textbook Of Microbiology. New central book Agency (2005).

6. Prescott, M.J., Harley, J.P. and Klein, D.A. Microbiology. 5th Edition WCB Mc Graw Hill, New York, (2002).

7. Tortora, G.J., Funke, B.R. and Case, C.L. Microbiology: An Introduction. Pearson Education, Singapore, (2004).

8. Alcomo, I.E. Fundamentals of Microbiology. VI Edition, Jonesand Bartlett Publishers. Sudbury. Massachusetts, (2001).

9. Black J.G. Microbiology-Principles and Explorations. JohnWiley &Sons Inc. New York, (2002).

10. Pelczar, MJ Chan ECS and Krieg NR, Microbiology McGraw-Hill.

11. Willey, Sherwood, Woolverton. Prescott, Harley, and Klein's Microbiology McGraw-Hill publication

12. Tortora, Funke, Case. Microbiology. Pearson Benjamin Cummings.

13. JACQUELYN G. BLACK. Microbiology Principles and explorations. JOHN WILEY & SONS, INC.

14. Madigan, Martinko, Bender, Buckley, Stahl. Brock Biology of Microorganisms. Pearson

15. Tom Besty, D.C Jim Koegh. Microbiology Demystified Mc GRAW-HILL.

# **DEPARTMENT - PHYSICS**

### **MP-EL1: Mechanics**

BLOCK-A

- **Unit-1: Laws of Motion:** Frames of reference, Newton's Laws of motion, Dynamics of a system of particles, Centre of Mass.
- Unit-2: Momentum and Energy: Conservation of momentum, Work and energy, Conservation of energy, Motion of rockets.
- Unit-3: Rotational Motion: Angular velocity and angular momentum, Torque, Conservation of angular momentum.
- **Unit-4: Gravitation:** Kepler's Laws (statement only), Newton's Law of gravitation, motion of a particle in a central force field, satellite in circular orbit and applications, geosynchronous orbits, weightlessness, basic idea of global positioning system (GPS).

BLOCK-B:

- Unit-5: Oscillations: Simple harmonic motion, differential equation of SHM and its solutions, kinetic and potential energy, total energy and their time averages, damped oscillations.
- **Unit-6: Elasticity-1:** Hooke's law, stress-strain diagram, elastic moduli-relation between elastic constants, Poisson's ratio, expression for Poisson's ratio in terms of elastic constants, work done in stretching and work done in twisting a wire.
- **Unit-7: Elasticity-2:** Twisting couple on a cylinder determination of rigidity modulus by static torsion, torsional pendulum-determination of rigidity modulus and moment of inertia  $q, \eta$  and  $\Box$  by Searles method.
- **Unit-8: Special Theory of Relativity:** constancy of speed of light, postulates of special theory of relativity, length contraction, time dilation.

# **DEPARTMENT -PSYCHOLOGY**

### EL-1 Introduction to Psychology 2 Credits

#### **Block 1: Introduction to Psychology-I**

Unit 1: Introducing Psychology -Definition, Scope, and goalsUnit 2: Branches of PsychologyUnit 3: MotivationUnit 4: Emotions

#### **Block 2: Introduction to Psychology-II**

Unit 5: Sensation, Attention and Perception

Unit 6: Learning, Memory and Forgetting

Unit 7: Intelligence

Unit 8: Personality

#### **References:**

- 1. Charles G.Morris. Albert A. Maisto Psychology an Introduction , Prentice Hall. New Jersy.
- 2. Feldman, A. R., Understanding Psychology IV th Ed, 1996, McGraw Hill, New Delhi.
- 3. Morgan, King, Weisz &Schopler, Introduction to Psychology-V11 Ed,1993, Tata McGraw Hill, New Delhi.
- 4. Ernest R Hilgard, Richard C Atkinson ,Rita L Atkinson Introduction to Psychology Oxford Publication, New Delhi.

### DEPARTMENT : INFORMATION TECHNOLOGY ELMIT -01: <u>Green Computing</u> (2 Credits)

**Course Objective:** Study the concepts related to Green IT, Green devices and hardware along with software methods, green enterprise activities, managing the green IT and various laws, standards, protocols along with outlook of green IT.

#### **BLOCK 1: Overview of Green Computing**

- **Unit 1**:Green IT Introduction, Overview and issues, Initiatives and standards, Pathways of Green computing, Benefits of Green IT, Environmental Impacts of IT
- Unit 2: Green devices and hardware Environmental issues arising from electronic devices, life cycle of electronic devices, Hazards and E-waste Ecycling, Going paperless, Hardware considerations, Greening information systems, Managing Green IT, 3Rs of Green IT, Thinking About Money-Saving Efforts
- **Unit 3**: Green Data Centres and Associated Energy Challenges, Data Centre IT Infrastructure, Data Centre Facility Infrastructure: Implications for Energy Efficiency, IT Infrastructure Management, Green Data Storage, Storage Media Power Characteristics,
- **Unit 4:** Green network and communications, objectives and challenges of green networking, Enterprise Green IT strategy, Approaching Green IT strategies, Business drivers and dimensions for Green IT strategies, Steps in Developing a Green IT Strategy, Metrics and Measurements in Green Strategies

#### **BLOCK 2: Management of Green Computing**

**Unit 5:** Sustainable Information Systems and Green Metrics, Sustainable IT Services, Sustainable IT Roadmap, Enterprise, Green IT Readiness, Readiness and Capability

Green Enterprises and the Role of IT, Organizational and Enterprise Greening, Information Systems in Greening Enterprises, Greening the Enterprise: IT Usage and Hardware,

Unit 6: Managing Green IT, Strategizing Green Initiatives, Implementation of Green IT,

Regulating Green IT: Laws, Standards and Protocols,

**Unit 7:** Green Cloud Computing and Environmental Sustainability, Cloud Computing and Energy Usage Model: A Typical Example, Features of Clouds Enabling Green Computing, Green Cloud Architecture

**Unit 8:** Green IT: An Outlook, Awareness to Implementation, Green IT Trends, Greening by IT, A Seven-Step Approach to Creating Green IT Strategy

#### **Text Books:**

- 1. Gangadharan, G. R., & Murugesan, S. (2012). Harnessing Green IT: Principles and practices. Wiley Publication, ISBN: 9788126539680.
- 2. Smith, B. E. (2013). Green Computing: Tools and Techniques for Saving Energy, Money, and Resources. CRC Press.

# **DEPARTMENT -BOTANY**

### **Plant-Microbe Interactions**

Overview of plant microbes interactions,

Introduction, beneficial microbes, Rhizobium bacterium and nitrogen fixation, mycorrhizal fungi.

Plant pathogens, Agrobacterium tumefaciens and crown gall disease,

Mechanisms of plant disease mechanism, some bacterial plant diseases,

Plant viruses and mechanism of plant against viruses attacks.

Fungal pathogen- mechanism of plant disease,

Omycete pathogens, Fungal mediated plant.

General concept of plant immunity,

PAMP-triggered immunity (PTI) and effectors-triggered immunity (ETI).

Transcription activator like effector and their role in virulence and disease resistance.

#### References

1. Lautenberg, B. (2015). Principles of Plant-Microbes Interactions: Microbes for sustainable Agriculture, Springer.

2. Stacey, G. and Keen, N. T. (1997). Plant-Microbes Interactions, Vol 4, . Springer.

3. Ramasamy, K, (2015). Plant Microbes Interactions, New India Publishing Agency.

4. Martin, F. and Kamoun, S. (2014). Effectors in Plant-Microbes Interactions 1st Edition, Wiley Blackwell.

# **DEPARTMENT -ZOOLOGY**

### MZO-IE-1: Parasites, Vectors & Communicable Diseases

#### Introduction to parasites.

Distribution, types, origin and evolution of parasites. Parasitism. Types: Ecto-parasites, Endo-parasites and their adaptations.

Pathogenic micro-organisms, brief outline and classification of parasitic protozoan's: Entamoeba, Balantidium, Giardia, Trichomonus, Plasmodium, Leishmania and Trypanosoma and their diseases.

Control measures, diagnosis and therapy.

#### Pathogenic helminthes and vectors.

Etiology, epidemiology, pathogenesis, diagnosis, prevention and control of disease due to *Trichinella spiralis, Ancylostoma duodenale, Fasciola hepatica*, Schistosoma species.

Pathogenic Cestodes: Life cycle, treatment of diseases caused by Echinococcus, Hymenolepis and Diphyllobothrium. Scope and importance of vectors. Origin and evolution of vectors. Habitat, life cycle, pathogenicity of fleas, mites, ticks, lice's and mosquitoes.

Historical perspectives and scientists involved in the discovery of vectors and communicable Diseases. Epidemiology, bio-ecology, life cycle of biological and mechanical Vectors. Vector-host-parasites interactions, Host-pathogen interaction, insects transmitting Bacteria and viruses.

#### Control and management of vectors and vector borne diseases

Control measures: cultural, chemical, biological, genetic and environmental Methods of vectors. Management of biological and mechanical vectors during Different seasons. Integrated Vector Control and Management.

Insecticide resistance in vectors, Drug resistance in pathogens.

Importance of education, awareness among public on communicable diseases and community participation. Covid-19 pandemics. Epidemiology of corona virus and its mutants. Vaccination against corona virus in India and other parts of the world.

# DEPARTMENT –FOOD AND NUTRITION SCIENCE

#### ELMFNS-01 FOOD PSYCHOLOGY

#### **BLOCK 1: FOOD: PREFERENCES AND CHOICES**

**Unit 1: Food:** Physiological definition and significance, meaning of food, food classification, Food statement of self-identity, Social interaction, Cultural identity

**Unit 2: The Role of Food and Eating on Personality and Social Development**: Psychology of eating, Food and emotion regulation, Food in daily living, Food Socialization, Food and control of others

Unit 3: Food Preferences and Fluctuations: Developmental Models, Cognitive Models & Psychophysiological Models, Physiology of food choice, Likes and Dislikes, acquired food

preferences, Attitudes towards change, Food and sensory stimulus, Factors influencing eating behavior – (biological, environmental, individual, food characteristics, culture etc., Effect of eating on food selection and preferences, Understanding of the body and self – selection of the diet.

**Unit 4: Food choices across lifespan and influence of society**: The changing role of the senses in food choice and food intake across lifespan, Food in security and health across lifespan, Influence of media and advertisements, Digital platform and influence on food choices

#### **BLOCK 2: EATING DISORDERS AND TREATMENTS**

Unit 5: Mood, Emotions, food cravings and addictions: relation with food preferences, Connection between

Credits: 2

as

mood and eating, Biological and physiological aspects of food addiction - description, neurobiology of food addiction

Unit 6: Eating disorders and treatment: Anorexia nervosa, Bulimia nervosa and binge eating Disorder-Definition, Symptoms, believed causes, Classification, Risk factors, Common myths of eating disorders, Treatment & dietary management

Unit 7: Overeating, Obesity and Weight management: Definition, Prevalence, Classification of Body Mass Index, Types & patterns, Etiology, Physiological component, Fad diets, Risk factors, Treatment - Weight management (Behavior & Cognitive), Lifestyle modifications, Dietary modification - (calorie restricted diet)

**Unit 8: You are what you eat- Approaches to change the dietary behavior**: Multidisciplinary approach, Strategies to support healthy dietary behavior: Encouraging healthy eating, Selection of food, Meal & portion size, developing education materials, Motivation & economics, Benefits of exercise, Stage classification for change, Barriers affecting the clinical outcome

#### **REFERENCES:**

1. <u>Smith John L.</u> (2002), The Psychology of Food and Eating (English, Hardcover, Smith John, Publisher: Palgrave MacmillanL.), ISBN: 9780333800201, 0333800206.

Alexandra W. LogueOct 2017, The Psychology of Eating and Drinking Fourth Edition.

### Annexure II

### **INTER- DISCIPLINARY COURSE**

(Open Elective) for Second Semester

ವಿಭಾಗ– ಕನ್ನಡ

ಪತ್ರಿಕೆ-೬: ಪ್ರಾಚೀನ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಇತಿಹಾಸ EL-2.1 (ಕ್ರೆಡಿಟ್-೨)

ಬ್ಲಾಕ್-೩೮: ಸಾಹಿತ್ಯ ಚರಿತ್ರೆಯ ಉಗಮ ಮತ್ತು ವಿಕಾಸ

ಘಟಕ-೧೪೯: ಸಾಹಿತ್ಯದ ಉಗಮ, ಬೆಳವಣಿಗೆ, ಉದ್ದೇಶ.

**ಘಟಕ-೧೫೦:** ಪ್ರಾಚೀನ ಪೂರ್ವ ಶಾಸನಸಾಹಿತ್ಯ.

ಘಟಕ-೧೫೧: ಪಂಪ ಪೂರ್ವ ಯುಗದ ಸಾಹಿತ್ಯ.

ಘಟಕ-೧೫೨: ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆಯ ವಿಭಾಗಕ್ರಮ.

ಬ್ಲಾಕ್-೩೯: ಪ್ರಾಚೀನ ಕನ್ನಡ ಸಾಹಿತ್ಯ

ಘಟಕ-೧೫೩: ಪ್ರಾಚೀನ ಕನ್ನಡ ಸಾಹಿತ್ಯ ರೂಪಗಳು; ಚಂಪೂ, ವಚನ, ರಗಳೆ, ಷಟ್ಟದಿ, ಸಾಂಗತ್ಯ ಇತ್ಯಾದಿ.

ಘಟಕ-೧೫೪: ಪ್ರಾಚೀನ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪರಿಕಲ್ಪನೆಗಳು; ಚರಿತ್ರೆ-ಪುರಾಣ, ಧರ್ಮ-ಕಾವ್ಯಧರ್ಮ, ಹಿಂಸೆ-ಅಹಿಂಸೆ, ಮಾರ್ಗ-ದೇಶಿ, ಲೌಕಿಕ-ಆಗಮಿಕ, ವಸ್ತುಕ-ವರ್ಣಕ, ಪ್ರಭುತ್ವ-

ಪ್ರತಿರೋಧ.

ಘಟಕ-೧೫೫: ಪ್ರಾಚೀನ ಕನ್ನಡ ಕವಿ-ಕೃತಿ-ಕಾಲ-ದೇಶ-ಭಾಗ ೧.

ಪಂಪ, ರನ್ನ, ಪೊನ್ನ, ೧ನೆ ಚಾವುಂಡರಾಯ, ನಾಗವರ್ಮ ೨ನೆಯ ಚಾವುಂಟರಾಯ, ನಾಗಚಂದ್ರ, ನಯಸೇನ, ದುರ್ಗಸಿಂಹ, ಬ್ರಹ್ಮಶಿವ, ಕರ್ಣಪಾರ್ಯ, ಜನ್ನ.

ಘಟಕ-೧೫೬: ಪ್ರಾಚೀನ ಕನ್ನಡ ಕವಿ-ಕೃತಿ-ಕಾಲ-ದೇಶ-ಭಾಗ ೨.

ಆಂಡಯ್ಯ, ನೇಮಿಚಂದ್ರ, ರುದ್ರಭಟ್ಟ ಪ್ರಮುಖ ವಚನಕಾರರು – ಜೇಡರ ದಾಸಿಮಯ್ಯ, ಬಸವಣ್ಣ, ಅಕ್ಕ ಮಹಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಚನ್ನಬಸವಣ್ಣ, ಹರಿಹರ, ರಾಘವಾಂಕ, ಕುಮಾರವ್ಯಾಸ, ಲಕ್ಷ್ಮೀಶ, ಪ್ರಮುಖ ಕೀರ್ತನಕಾರರು, ಚಾಮರಸ, ಕುಮಾರವಾಲ್ಮೀಕಿ, ಸರ್ವಜ್ಞ, ಷಡಕ್ಷರಿ, ಸಂಚೆ ಹೊನ್ನಮ್ಮ, ನಂಜುಂಡ, ರತ್ನಾಕರವರ್ಣಿ, ಮುದ್ದಣ, ಕೆಂಪುನಾರಾಯಣ.

#### ಪರಾಮರ್ಶನ ಗಂಥಗಳು

೧. ಗತಿಬಿಂಬ : ಜಿ.ಎಸ್. ಶಿವರುದ್ರಪ್ಪ, ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಬೆಂಗಳೂರು

೨. ಕಾವ್ಯ ವಿಹಾರ : ಕುವೆಂಮ, ಉದಯರವಿ ಪ್ರಕಾಶನ, ಮೈಸೂರು, ೧೯೬೯

೩. ಸಮಗ್ರ ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ : ಬೆಂಗಳೂರು, ವಿಶ್ವವಿದ್ಯಾನಿಲಯ ಬೆಂಗಳೂರು, ೨೦೦೨
೪. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ : ಕೆ. ವೆಂಕಟರಾಮಪ್ಪ ಪ್ರಸಾರಾಂಗ, ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಮೈಸೂರು
೫. ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ: ದೇವುಡು, ಶಾರದಾ ಪ್ರಕಾಶನ, ಮೈಸೂರು, ೧೯೩೫
೬. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಸಂಗಾತಿ : ಕೀರ್ತಿನಾಥ ಕುರ್ತಕೋಟಿ, ಮನೋಹರ ಗ್ರಂಥಮಾಲೆ, ಧಾರವಾಡ
೭. ಶೈಲಿ : ಎಸ್.ವಿ.ರಂಗಣ್ಣ, ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಮೈಸೂರು, ೧೯೭೬
೮. ಶತಮಾನದ ಕನ್ನಡ ಸಾಹಿತ್ಯ : ಸಂಪಾದಕರು, ಜಿ.ಎಸ್. ನಾಯಕ, ಕನ್ನಡ ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿ, ಬೆಂಗಳೂರು
೯. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ : ರಂ.ಶ್ರೀ. ಮುಗಳಿ, ಕೇಂದ್ರ ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿ, ನವದೆಹಲಿ, ೧೯೬೩
೧೦. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ : ರಂ.ಶ್ರೀ. ಮುಗಳಿ, ಕೇಂದ್ರ ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿ, ನವದೆಹಲಿ, ೧೯೬೩
೧೧. ಬಿಂಬ: ಚದುರಂಗ, ಸಂವಹನ ಪ್ರಕಾಶನ, ಮೈಸೂರು
೧೨. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ : ರಂ.ಶ್ರೀ. ಮುಗಳಿ, ಉಷಾ ಸಾಹಿತ್ಯ ಮಾಲೆ, ಮೈಸೂರು, ೧೯೭೧
೧೩. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ ಸಂಪುಟಗಳು : ಕುವೆಂಪು ಕನ್ನಡ ಅಧ್ಯಯನ ಸಂಸ್ಥೆ, ಮೈಸೂರು. ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಮೈಸೂರು, ೧೯೮೨
೧೩. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ ಸಂಪುಟಗಳು : ಕುವೆಂಪು ಕನ್ನಡ ಅಧ್ಯಯನ ಸಂಸ್ಥೆ, ಮೈಸೂರು. ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಮೈಸೂರು, ೧೯೮೨
೧೩. ಕನ್ನಡ ಸಾಹಿತ್ಯ ದ್ರಾಭೀನತೆ: ಪ್ರಧಾನ ಸಂಪಾದಕರು, ಎ. ರಂಗಸ್ವಾಮಿ, ಲೇ. ಎಚ್.ಖ. ಗೀತಾ, ಜನಪ್ರಿಯ ಕನ್ನಡ ಮಾಲೆ, ಕನ್ನಡ ಅಧ್ಯಯನ ಮತ್ತು ಸಂಶೋಧನಾ ವಿಭಾಗ, ಕರಾಮುವಿ, ಮೈಸೂರು, ೨೦೧೧
೧೪. ಪ್ರಾಚೇನ ಕನ್ನಡ ಕಾವೃ ಸ್ಥಿರತೆ ಮತ್ತು ಚಲನ ಶೀಲತೆ : ಪ್ರಧಾನ ಸಂಪಾದಕರು, ಎ. ರಂಗಸ್ವಾಮಿ, ಲೇ. ಶಿವರಾಮಯ್ಯ, ಜನಪ್ರಿಯ ಕನ್ನಡ ಮಾಲೆ, ಕನ್ನಡ ಮಾಲೆ, ಕನ್ನಡ ಕನ್ನಡ ಕನ್ನಡ ಕನ್ನಡ ಕನ್ನಡ ಕನ್ನಡ ಕನ್ನಡ ಕನ್ನಡ ಪುತ್ರ ಸಂಶೋಧನಾ ವಿಭಾಗ, ಕರಾಮುವಿ, ಮೈಸೂರು, ೨೦೧೨
೧೫. ಕನ್ನಡ ಕೈಪಿಡಿ: ಸಂಪುಟ ೨, ಪ್ರಸಾರಂಗ, ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಮೈಸೂರು, ೨೦೦೭

# **DEPARTMENT - ENGLISH**

### **EL-2.1: INDIAN LITERATURE-II**

#### **OBJECTIVES**

- To appreciate artistic values in Hayavadana and the use of myth
- To know the importance of Indian English historical plays
- To appreciate Sri Aurobindo as a poet and critic
- To comprehend the different theories of aesthetic experience of art

#### **BLOCK -I**

Girish Karnad: Hayavadana Gurucharan Das: Larin Sahib

#### **BLOCK –II**

**M. Hiriyanna:** Art Experience **Sri Aurobindo**: Selections: The Poets of the Dawn and The Poets of the Dawn 3 (The Future Poetry)

#### **Suggested Reading:**

- K.R.Srinivas Iyengar: Indian Writing in English .Macmillan, 1979.
- M.K.Naik: Critical Essays on Indian Writing in English.Sahitya Akademi, 1969.
- Narasimhaiah C.D: The Swan and the Eagle. Indian Institute of Advanced Study, 1987.
- Meenakshi Mukherjee: The Twice Born Fiction. Heinemann Educational Publishers, 1972.

# **DEPARTMENT - HINDI**

#### <u>हिंदी सिनेमा</u>

- सिनेमा का उद्भव और विकास
- मूक चलचित्र और दादा साहब फाल्के युग
- दूसरा पढाव, सवाक चलचित्र अथवा आलमआरा
- रंगीन सिनेमा का युग
- सामाजिक सिनेमा एक विवेचन
- धर्म एवं सांस्कृतिक सिनेमा एक विवेचन
- राजनैतिक सिनेमा एक विवेचन
- आर्थिक सिनिमा एक विवेचन
- हास्य एवं व्यंग्य सिनेमा एक विवेचन
- बाल सिनेमा
- सिनेमा एवं संवेदना
- सिनेमा एव भाषा-शिल्प सिनेमा एवं गायन
- सिनेमा एवं पात्र संयोजना
- सिनेमा एवं नैतिक मूल्य
- अनूदित सिनेमा
- सिनेमा का तुलनात्मक अध्ययन
- फिल्म समीक्षा.....**आदि**

#### 

- सिनेमा साहित्य और समाज- प्रहलाद अग्रवाल, अनामिका प्रकाशन, नई दिल्ली
- कथाकार कमलेश्वर और हिंदी सिनेमा- उज्ज्वल अग्रवाल, राजकमल प्रकाशन, नई दिल्ली
- बॉलिव्ड पाठ विमर्श के संदर्भ- ललित जोशी, वाणी प्रकाशन, नई दिल्ली
- फ्लैशबैक, प्रभुनाथ आज़मी, शिल्पायन, नई दिल्ली
- नाटक के सौ बरस, हरिश्चंद्र अग्रवाल और अजित पुष्कल, शिल्पायन, नई दिल्ली

# **DEPARTMENT - TELUGU**

### E. L. 2.1 TELUGU SAMSKRUTHI - SAMAJAM Block - 1: ANDHRULA CHARITHRA - SAMSKRUTHI

Unit - 1:Samskruthi Vaisistyam

Unit - 2: Andhrula Charithra - Samskruthi Paraspara Prabhavam

Unit - 3:Andhrula kalalu

Unit - 4: Andhrula basha - samajam

### Block - 2: ANDHRULA AACHARALU -SAMPRADHAYALU

Unit - 1:Andhrula Pandugalu

Unit - 2: Sthrela Nomulu - Vrathalu

Unit - 3: Andhrula Sangikaacharalu

Unit - 4: Andhrula Sampradhayalu

## **DEPARTMENT - HISTORY**

#### **OEL2.1 Social Reform Movements in Modern India**

**Objective:** The course is aims to trace the causes for the division of society in various sections and need for reformation. Further it explains age old social evils which crippled Indian society.

**Pedagogy:** personal contact programmes, audio video programmes, online lectures Assignments, etc

#### Credits: 2. Examination Duration: 1 1/2 hours and Maximum Marks: 40

#### **Course outcomes**

After completing this course the students should be able to

- Understanding the contributions of the Raja ram Mohan Roy Dayananda Sarawathi towards the Indian modernity
- Analyse the Jyothibai pule Savithribai Pule Ambedkar's contributions to Indian social reform movements
- Evalute the works of Sahu Maharaj and Krishna raja wadiyar IV patronage to social Justice.

#### Block-I

#### Unit:1

Colonial Discovery of India : Orientalism, Anglicism, Evangelism-Understanding Indian Society, Meaning of Social Reform. The Concept of Modernity : Western Impact – Indian Response.

#### Unit:2

Rajaram Mohan Roy and Brahmo Samaj, Dayananda Sarawathi and Arya Samaj-Nationalism and Society – Prarthana Samaj.

#### Unit:3

Jyothi Ba- Phle and Savithri Ba Pule, Social and education reforms.

#### Unit:4

Communalism, Eradication of Communalism, Muslim League, Wahhabi and Pan Islamism-Syed Ahmed and Aligarh Movement.

### Block-II

Unit:5

The debate over the interpretation of Shastras – Ishwar Chandra Vidya Sagar - B.M.Malabari – Vivekananda – M.G. Ranade — Bal Gangadhar Tilak.

#### Unit :6

Dr. B.R.Ambedkar-, His views on Society, A caste and its annihilation, Religion and Economy, M.K.Gandhi- E.V.Ramswamy Periyar and Sri.Narayanguru, Ayyan kali.

#### Unit :7

The reformers – Kandukuri Veereshalingam – Pandit Shivanatha Shastry – Gopal Ganesh Agarkar-K.T.Telang-Maharma.

#### Unit :8

D.K.Karve, Maharaj Saiyyaji Rao Gaekwad of Baroda – Chatrapathi Shahu Maharaj of Kolhapur and Maharaja Krishnaraja Wodeyar IV of Mysore.

#### Suggested readings:

- 1. Nararajan : A Century of Social Reform in Indian.
- 2. Seetharam Singh : Nationalism and Social Reform in India
- 3. Dhananjaya Keer : Ambedkar, Life and Mission
- 4. Dhananjaya Keer : Mahatma Jyoti Rao Phule : Father of Social Revolution in India
- 5. Charless Heimsath R : Indian Nationalism and Hindu social Reform
- 6. A.S.Altekar : Position of Women In Hindu Civilization.
- 7. Gail Omvedt : Cultural Revolt in a Colonial Society The Non Brahmin Movements in Western India.
- 8. Gail Omvedt : Dalits and Democratic Revolution.
- 9. Ravindrakumar : Selected Documents of B.G.Tilak.
- 10. S. Ramkrishna : Social Reform Movements in Andhra
- 11. M.K.Gandhi : Women and Social Injustice.

ವಿಜಯ ಪೊಣಚ್ಚು ತಂಬಂಡ (ಸಂ), ಭಾರತ ಉಪಖಂಡದ ಆಧುನಿಕ ಪೂರ್ವ ಚರಿತ್ರೆ ವಿವಿಧ ಆಯಾಮಗಳು – ಸಂಪುಟ–03, ಪ್ರಸಾರಾಂಗ, ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಹಂಪಿ.

# **DEPARTMENT - ECONOMICS**

#### **EL2.1: Institutions for International Development**

- **Objective:** To enable the Students to understand the need and importance of various International Institutions.
- **Pedagogy:** A Combination of Lectures, Group Discussion, Assignments.
- **Credits:** 2 ; Examination Duration: 1<sup>1</sup>/<sub>2</sub>and Maximum Marks: 50 (Internal Assessment Marks = 10 and Semester-end Examination =40)

#### **Course Inputs**

#### Block – I Economic Issues at Global and National Level

#### Unit – 1 Globalisation

Globalisation – Forces Driving Globalisation – Income Inequality – National Integrity – Impact on Labour – Multinational corporations – Global Business Environment – National Business Environment.

#### Unit – 2 Legal Issues of Business at Global and National Level Political Risks – Legal System – Business Ethics – Centrally Planned Economy – Mixed Economy – Market Economy – Human Development

# Unit – 3 International Trade Importance – Volume – Direction – Composition – Trends – Theories of Trade - Mercantilism – Absolute Advantage – Comparative Advantage – International Product Life Cycle – Political, Economic and Cultural Motives behind Government Intervention.

- Unit 4 GATT and WTO Importance – objectives – Functions - GATT and W.T.O – India and WTO.
- Block II Economic Integration and International Business Issues

Unit – 5	Regional Economic Integration
	Meaning – Effects – Integration in Europe: European Union – Integration in Americans : North
	American Free Trade Agreement (NAFTA) - Latin American Integration Association (LAIA) -
	Free Trade Area of Americans (FTAA) and Transatlantic Economic Partnership.
Unit – 6	Integration in Asia Association of Southern East Asian Nations (ASEAN) - Asia Pacific Economic Cooperation
	(APEC) – Integration in middle East : Gulf Cooperation Council (GCC) – BRICS – SAARC.
Unit – 7	International Financial Markets International capital markets – Foreign Exchange markets – Currency Convertibility –
	International Monetary System.
Unit – 8	Issues in International Business Trade War – Balance of Payment – Terrorism – Oil Crisis – Smuggling – Dumping –
	Environmental Degradation – Exhibit of Nuclear power – Covid 19 and other pandemics.

#### **References:**

- 01. Apte A.N. (2011) International Financial Management, Tata McGraw Hill Pub., Co. Ltd., New Delhi.
- 02. Bhambari C.P, (1980) The World Bank and India, Vikas Publishing House, New Delhi.
- 03. International Development Association, Annual Reports.
- 04. International Finance Corporation, Annual Reports.
- 05. International Monetary Fund, Annual Reports.
- 06. World Bank, (1995) The Evolving Role of the World Bank in the First Half Century, Washington D.C.
- 07. World Bank, World Bank in India, Washington, D.C. USA
- 08. World Bank, World Development Reports, and Annual Reports.

Palle Krishna Rao, (2005) WTO, Text and Cases, PSG Excel Series, New Delhi.

# **DEPARTMENT - POLITICAL SCIENCE**

### (OEL-I) Indian Constitution

#### **Block-I**

Unit:1 Framing of the Indian Constitution.

- Unit:2 Preamble and Salient Features of the Indian Constitution.
- Unit:3 Fundamental Rights and Duties.
- Unit:4 Directive Principles of the State Policy.

#### **Block-II**

Unit:5 Union Legislature : Composition, Powers and Functions.

- Unit:6 Union Executive : President and Vice-President Election, Powers and Functions, Prime ministers and Council of Minister Powers and Functions.
- Unit:7 State Legislature : Composition, Powers and Functions, State Executive -Governor and Chief Minister.
- Unit:8 The Judiciary : Supreme Court and High Court Composition, Jurisdiction and Functions.

#### **References:**

1. Andre Beteille, 1965. Caste, class, and Power. Berkley: University of California Press.

- 2. Appadorai, A 1968. india: Studies In Social And Political Development 1947-1967. New Delhi: Aisa Publishing House.
- 3. Desai, A R. 2016. Social Background of Indian Nationalism. Los Angeles: Papular Prakashan.
- 4. Granville Austin, 2000. The Indian Constitution: Cornerstone of a Nation. Melbourne: Oxford University Press.
- 5. Hanson and Douglas, 1972. India's Democracy. New York city: W W Norton & Co Inc.
- 6. Johari J C 1974. Indian Government and Politics. New Delhi: Vishal Publications.
- 7. Karunakaran, K.P 1964. Continuity and Change in Indian Politics. New Delhi: People's Pub. House.
- 8. Kochanek. A. 1968. The Congress Party of India: the Dynamics of a One-Party Democracy. New Jersey: Princeton University Press.
- 9. Morris Jones, 1967. The Government and Politics of India. London: Hutchinson University Library.
- 10. Myron Weiner, 1957. Party Politics in India. New Jersey: Princeton University Press.
- 11. Myron Weiner, 1967. Party Building in New Nation. Chicago: University of Chicago Press.
- 12. Palmer, N D 1971. The Indian Political System. Boston: Houghton Mifflin.
- 13. Partha Chatterjee, 1998. State and Politics in India. University of Michigan: Oxford University Press.
- 14. Pylee, M V 1960. Constitutional government in India. Bombay: Asia Pub. House.
- 15. Rajni Kothari, 1970. Politics in india. The University Of Michigan: Little Brown
- 16. Rajni Kothari, 1995. Caste in Indian Politics. Telangana: Orient Blackswan.
- 17. Venkatarangaiya: M Shiviah, 1975. Indian Federalism. New Delhi: Arnold-heinemann Publishers.
- 18. Zoya Hasan, 2000. The State in Indian Politics. Landon: Sage publication.

# **DEPARTMENT - SOCIOLOGY**

#### Study of Indian Society -02 Credits

#### **Course Description**

Every science has its own classical theories, which stand as eternal in their explanatory power and prowess to transcend the time and region. This course intends to introduce the learners to the classical period of sociology which is not just a bundle of theories but a consistent tradition and formative period, even contemporary theories cannot eschew from being inspired. After studying this course, following learning outcomes can be expected.

#### **Course Objectives**

- 1. To appreciate the organizational framework of Indian society
- 2. To appreciate the aspects unity and diversity of Indian society
- 3. Examine the social issues in contemporary India

#### Learning Outcomes

Following outcomes are expected from the learners after successfully completing the course. Learner can/has LOC-1: sociological insights about the social structural and organizational aspects of Indian society

LOC-2: present the changes in institutional framework of Indian society

LOC-3: recognize the causes for major social issues and present realistic remedies

#### **Course Content**

#### **Block-1 Social Organizations**

Unit-1 Unity and Diversity-Problem of Integration

Unit-2 Caste-Characteristics and Recent Changes

Unit-3 Marginalization-SC, ST, OBC and Minorities

Unit-4 Changes in Family and Concerns of the Aged

#### **Block-2 Social Issues in Contemporary India**

Unit-5 Environmental Sanitation and Ecological Degradation

Unit-6 Educated Unemployment and Employability

Unit-7 Social Unrest-Terrorism, Naxalism, Communalism and Corruption Unit-8 Child Rights and Right to Education (RTE)

#### References

- Ahuja, Ram. 2002. Study of Social Problems. Jaipur & New Delhi: Rawat Publications •
- Atal, Yogesh. 1979. The Changing Frontiers of Caste. National Publishing House: Delhi
- Beteille, Andre. 1971. Caste, Class and power. Berkeley: University of California.
- Betteille, Andre. 1974. Social Inequality, New Delhi: Oxford University Press.
- Betteille, Andre. 1992. Backward Classes in Contemporary India. New Delhi: Oxford University Press.
- Berreman, G.D. 1979. Caste and Other Inequalities: Essays in Inequality. Meerut: Folklore Institute.
- Dube, Leela. 1997. Women and Kinship, Comparative Perspectives on Gender
- Southern South Asia.
- Das, Veena. 2006. Oxford Handbook of Indian Sociology. New Delhi: Sage
- Dube, S C. 1990. Study of Indian Society. New Delhi: National Book Trust
- Jha, Hetukar. 2015. Sanitation in India. Delhi: Gyan Books.
- Karve, Iravathi. 1990. Kinship Organization in India.
- Pais, Richard. 2015. Sociology of Sanitation. Delhi: Kalpaz Publications.
- Pathak, Bindeshwar. 2015. Sociology of Sanitation. Delhi: Kalpaz Publications.
- Singer, Milton & Cohen, Bernards. 1996. Structure and change in Indian Society. Jaipur: Rawat
- Singh, Yogendra, Modernization of Indian Tradition. Jaipur & New Delhi: Rawat
- Srinivas, M N. 1995. Social Change in Modern India: Orient Blackswan
- Srinivas, M. N. 1962. Caste in Modern India and Other Essays. Asia Publishing House: Delhi

# **DEPARTMENT – ANCIENT HISTORY AND** ARCHEOLOGY

### **Cultural History of Hoysalas (OE)**

AHA OE 2.1

Block - 1	Early Kings
Unit - 1	Archeological and Literary Sources
Unit - 2	Theories of Origin of Hoysalas – Sala – Nripakama – Ereyanga
Block - 2	Important Rulers
Unit - 3	Vishnuvardhana - VeeraNarasimha – I
Unit - 4	Ballala – II - Narasimha – II - Narasimha III and Ballala – III
Block - 3	Cultural Contributions
Unit - 5	Hoysala polity - Economy
Unit –6	Hoysala Society – Religion – Education - literature

Block - 4 **Art and Architecture**  Unit - 7 Hoysala Architecture

Unit – 8 Hoysala Art

References:

- 1. Epigraphia Carnatica: Relevant Volumes
- 2. Derrett Duncan, M.J: The Hoysalas, 1957
- 3. Dhakey M.A: Encyclopedia of Indian Temple Architecture
- 4. Desai P.B: History of Karnataka
- 5. Foekema Gerard: A Complete Guide to Hoysala Temples
- 6. Gopinatha Rao T.A: Elements of Hindu Iconography, Vols
- 7. Kelleson Collyer: The Hoysala Artists Their Identity Style
- 8. Krishna Murthy M.S: The Hoysala Art, Kuppam, 2007
- 9. Padmnabha K: Hoysala Sculptures : A cultural Study

10.Sheik Ali B (Ed): The Hoysala Dynasty, 1972 11.William Cohelo: The HoysalaVamsha, 1950 12.Annual Reports of the Department of Archaeology, Mysore 1939 – 4613.Settar S: Hoysala Temples

- 14. Marg: In Praise of Hoysala Art
- 15. Narasimhachar R; Lakshmidevi Temple at Doddagaddhavalli
- 16. Shastri KAN: The Cholas, 17. Shastri KAN: History of South India

# **DEPARTMENT - EDUCATION**

### **IDC - 2 HIGHER EDUCATION**

### **BLOCK - 1 HIGHER EDUCATION – ORGANIZATION AND TEACHING – LEARNING**

Unit-1 Higher Education

Unit-2 Teaching Learning in Higher Education – I

Unit-3 Teaching-Learning in Higher Education – II

Unit-4 Problems and Innovations in Higher Education

### BLOCK - 2 HIGHER EDUCATION - SOCIO-PSYCHOLOGICAL AND MANAGEMENT DIMENSIONS

Unit-5 Socio-Psychological Background of College Students Unit-6 Problems of College Students Unit-7 Higher Education – Management Dimensions Unit-8 Higher Education Teacher

### **References**:

- 1. Shills Edward (1989) 'The modern university Liberal Democracy'.
- 2. Abraham, Abu (1988) The Penguin, Book of Indian cartoons, New Delhi.
- 3. Chandra, Bipan (1984) Communalism Modern India, New Delhi.
- 4. Chauhan S.S (1989) Innovations in Teaching Learning Process, New Delhi, Vikas.
- 5. Srivastva A.B and Sharma K.K (1985) Elementary Statistics in Psychology and Education, New Delhi, Sterling Publishers Pvt. Ltd.,

# **DEPARTMENT - COMMERCE**

#### **Elective Course – EL2.1: Entrepreneurship Development**

- **Objective:** To enable the Students to understand about the different aspects of Entrepreneurship Development.
- **Pedagogy:** A Combination of Lectures, Group Discussion, Assignments.
- **Credits:** 2 ; Examination Duration: 1<sup>1</sup>/<sub>2</sub>and Maximum Marks: 50 (Internal Assessment Marks = 10 and Semester-end Examination =40)

#### **Course Inputs**

#### Block I

- Unit -1: Entrepreneur and Entrepreneurship: Introduction Evolution Characteristics Distinction between Entrepreneur and Manager Functions Types Entrepreneur Concept of Entrepreneurship Growth of Entrepreneurship in India Role of Entrepreneurship in Economic Development
- Unit 2: Women Entrepreneurship: Introduction Concept Statistical Evidence New Age Women Functions Growth Problems Recent trends in Development of Women Entrepreneurship.
- Unit -3: Rural Entrepreneurship: Introduction Meaning Need Rural Industrialisation in Retrospect Problems Development of Rural Entrepreneurship NGOs and Rural Entrepreneurship.
- Unit -4: Conceptual Models of Entrepreneurship: Introduction Models of John Kao Udai Pareek and Nadakarni– NISIET.

#### Block II

- Unit 5: Factors Affecting Entrepreneurial Growth And Competencies: Introduction Economic Factors Non-Economic Factor Government Actions Entrepreneurial Competencies: Meaning Major Entrepreneurial Competencies Developing Competencies.
- Unit -6: Entrepreneurial Motivation and Mobility: Introduction Motivation Motivation Theories Motivating Factors Achievement Motivation Factors Influencing Mobility Occupational Mobility Locational Mobility.
- Unit 7: Entrepreneurship Development Programes: Introduction Need for EDPs Objectives of EDPs Course Contents and Curriculum of EDPs Phases of EDPs Evaluation of EDPs.
- Unit -8: Institutional Support System for Entrepreneurship: Introduction DICs SISIs SIDCOs NISIET EDIT NIESBU TCOs- A Broad Overview of Central and State Level Financing Institutions.

#### **Books Recommended for Reference**

- **a.** Vasanth Desai, The Dynamics of Entrepreneurial Development and Management, Himalaya Publishing House.
- **b.** A. N Desai, Entrepreneurship Management, Ashish Publishing House.
- c. Chandra Prasanna, Project Preparation, Appraisal and Implementation, Tata McGraw Hill.
- d. Khanka, S.S, Entrepreneurial Development, S. Chand Publications.
- e. Prasanna Chandra, Projects: Planning, Analysis, Selection, Implementation and Review, Tata McGraw Hill.

# **DEPARTMENT - MANAGEMENT**

### **E-COMMERCE**

#### Credits: 2

#### Module 1: E-commerce and its Technological Aspects:

Overview of developments in Information Technology and Defining E-Commerce: The scope of E commerce, Electronic Market, Electronic Data Interchange, Internet Commerce, Benefits and limitations of E-Commerce, Produce a generic framework for E-Commerce, Architectural framework of Electronic Commerce, Web based E Commerce Architecture.

**Module 2: Electronic Data Interchange:** Benefits of EDI, EDI technology, EDI standards, EDI communications, EDI Implementation, EDI Agreements, EDI Security. Electronic Payment Systems, Need of Electronic Payment System: Study and examine the use of Electronic Payment system and the protocols used, Study Electronic Fund Transfer and secure electronic transaction protocol for credit card payment. Digital economy: Identify the methods of payments on the net – Electronic Cash, cheques and credit cards on the Internet.

#### **References:**

1. Elias. M. Awad, "Electronic Commerce", Prentice-Hall of India Pvt Ltd.

2. Ravi Kalakota, Andrew B. Whinston, "Electronic Commerce-A Manager's guide", Addison-Wesley.

3. Efraim Turban, Jae Lee, David King, H.Michael Chung, "Electronic Commerce-A Managerial Perspective", Addison-Wesley.

4. Elias M Award, "Electronic Commerce from Vision to Fulfilment", 3rd Edition, PHI, Judy Strauss, Adel El-Ansary, Raymond Frost, "E-Marketing", 3RDEdition, Pearson Education

### **DEPARTMENT - BIO CHEMISTRY**

### **Basics of Bioorganic chemistry for Biology graduates.**

- Introduction to Organic chemistry: Classification of organic compounds, unique characteristics, IUPAC nomenclature of organic compounds (including bifunctional).
- Reaction mechanisms: Classification of organic reactions: substitution, addition, elimination and rearrangement with one example for each. Concepts of the following carbon anions, carbon cations, free radicals, carbenes, nucleophiles and electrophiles.
- Cycloalkanes: Reactivities and relative stability, Bayer's strain theory. Sachse-Mohr theory. Boat and chair form of cycloalkanes. Axial and equatorial bonds.
- Arenes: Structue of Benzene–resonance and molecular orbital theories. Aromaticity. Mechanism of Nitration and Friedel-Craft's reaction. Electronic interpretation of the orienting influence of substituents in the electrophilic substitution of Toluene, Chlorobenzene, Nitrobenzene and Phenol. Polynuclear hydrocarbons–Resonance structures of Naphthalene, Anthracene and phenanthrene.
- $S_N1$  and  $S_N2$  reactions, mechanism with an example for each. Concept of elimination reactions. Example –n-butyl chloride.

Alcohols: Classification, monohydric, alcohols-distinguishing reactions for primary, secondary and tertiary alcohols.

Trihydric alcohols: Glycerol, Properties, (KHSO<sub>4</sub>, HNO<sub>3</sub>, Oxalic acid and HI)

Phenols: Acidity of phenols, Effect of substitution on acidity

Stereochemistry: Stereoisomerism, types, Fischer-projection formulae, asymmetric carbon atom, molecular dissymmetry, chirality, optical isomerism: ex. Glyceraldehyde, Lactic acid, Tartaric acid. Nomenclature of enantiomers. D- and L- system, Recemisation and resolution.

Heterogeneous and Homogenous hydrogenation of oils.

#### Selected References:

1. Basic Principles of Organic Chemistry, Roberts and Caserio, W. A. Benjamin, Inc. (1964).

- 2. Organic Chemistry, Morrison and Boyd, Allyn and Bacon Inc (1992).
- 3. Principles of Inorganic chemistry by Cotton & Wilkinson, Wiley (1999).
- 4. Textbook of Organic chemistry by Ahluwalia V K & Madhuri G Narosa publications (2001).
- 5. Physical chemistry by Castellan G W, Narosa Publications (2004).
- 6. Physical chemistry by Chakraborthy D K, Narosa Publications (2004).

# **DEPARTMENT - BIOTECHNOLOGY**

#### **MBT EL-2 FUNDAMENTAL OF BIOTECHNOLOGY**

Scope and Introduction to Biotechnology History & Introduction to Biotechnology What is Biotechnology? Definition of Biotechnology, Traditional and Modern Biotechnology, Branches of Biotechnology

Plant, Animal Biotechnology, Marine Biotechnology, Agriculture, Healthcare, Industrial Biotechnology, Pharmaceutical Biotechnology, Environmental Biotechnology.

Applications Biotechnology Applications of Biotechnology in Agriculture : GM Food, GM Papaya, GM Tomato, Fungal and Insect Resistant Plants BT Crops, BT Cotton and BT Brinjal Pros and Cons Biotechnological applications in Crop and Livestock Improvements Modifications in Plant Quality Golden Rice, Molecular Pharming, Plant Based Vaccines Ethics in Biotechnology and IPR 15 lectures

Food and Fermentation Biotechnology Food Biotechnology Biotechnological applications in enhancement of Food Quality Unit Operation in Food Processing Quality Factors in Pre processed Food Deterioration and its Control Rheology of Food Products Microbial role in food products Yeast, Bacterial and other Microorganisms based process and products Fermentation Technology Definition, Applications of Fermentation Technology Microbial Fermentations Overview of Industrial Production of Chemicals (Acetic Acid, Citric Acid and Ethanol), Antibiotics, Enzymes and Beverages

Molecular Biology - Replication DNA Replication in Prokaryotes and Eukaryotes Semi-conservative DNA replication, DNA Polymerases and its role, E.coli Chromosome Replication, Bidirectional Replication of Circular DNA molecules. Rolling Circle Replication, DNA Replication in Eukaryotes DNA Recombination - Holliday Model for Recombination Transformation

Mutation and DNA Repair Definition and Types of Mutations. Mutagenesis and Mutagens. (Examples of Physical, Chemical and Biological Mutagens) Types of Point Mutations, DNA REPAIR Photo reversal, Base Excision Repair, Nucleotide Excision Repair, Mismatch Repair, SOS Repair and Recombination Repair.

Genetic Engineering Experimental evidences for DNA and RNA as Genetic Material. Genetic Engineering in Ecoli and other Prokaryotes, Yeast, Fungi and Mammalian Cells Cloning Vectors-Plasmids (pBR 322, pUC) Vectors for Plant and Animal Cells, Shuttle Vectors, YAC Vectors, Expression Vectors Enzymes- DNA Polymerases, Restriction Endonucleases, Ligases, Reverse Transcriptase's, Nucleases, Terminal Transferees, Phosphatases Isolation and Purification of DNA (Genomic, Plasmid) and RNA,, Identification of Recombinant Clones

)(	ck-1	Title: Physical parameters of molecules
i	t-1	Thermodynamics: First and second laws of thermodynamics. Concept of entropy and free energy, entropy as a measure of unavailable energy. Entropy and free energy changes and spontaneity of process.
i	t-2	emical kinetics: Rate and order of reaction. Factor affecting the rate of reaction. And determination Order of reaction. Energy of activation and its
		91

### DEDADTMENT CHEMICTDV

	determination. Brief account of collision and activated complex theories.
nit-3	ic equilibria: pH scale, buffer solutions, calculation of pH of buffer solutions,
_	buffer capacity and buffer index, buffer mixtures.
uit-4	ectrochemistry: Electrolytic conductance, specific, equivalent and molar
	hductance, ionic mobility and transference number, factors affecting the
	electrolytic conductance, Arrhenius theory of strong and weak electrolytes,
	assumptions of DebyeHuckel theory of strong electrolytes.
	Titles Organia malagulas
оск-2	The: Organic molecules
nit-5	Introduction to organic chemistry, atomic orbitals, sigma and pi bond
	formation-molecular orbital (MO) method, sp, sp2 and sp3
	hybridization, bond length, bond dissociation energies and bond angles
nit-6	ectronegativity and polarity of the bonds. Classifications and
	ctions of organic compounds (with examples).
nit-7	blogical importance of natural products: Amino acids, proteins, carbohydrates
	(cellulose, starch, glycogen), lipids (fats and oils, phospholipids), nucleic acids,
	steroids alkaloids vitamins flavonoids
	sterords, urkulords, vraininis, navonords.
nit-8	plications of synthetic products: Dyes, drugs, polymers (plastics), soaps and
	tergents, pesticides and pheromones.

# **DEPARTMENT – CLINICAL NUTRITION AND DIETETICS**

**OEL - 2: NUTRACEUTICALS AND HEALTH FOODS** 

2 Credits

#### **BLOCK 1. NUTRACEUTICALS:**

Unit - 1: Introduction to Nutraceutical

Unit - 2: Use of Nutraceuticals in Traditional Health Sciences

Unit – 3: Functional Foods

Unit - 4: Development of Nutraceutical and Functional Foods

# BLOCK 2: FUNCTIONAL FOODS AND NUTRACEUTICALS OF PLANT, ANIMAL AND MIRCIBIAL ORIGIN

Unit - 5: Prebiotics and Probiotics

Unit - 6: Bio Active Peptides and Phyto- Chemicals

Unit - 7: Fats and Oils- Omega 3 Fatty Acids:

Unit - 8: Sugar Substitutes / Sweeteners

#### **REFERENCES:**

• Tai Hu Guan, (2018), text book of Nutraceuticals and Health, Scitus Academics Publisher, Wilmington DE 19804, United States of America.

- Wildman REC, (2016), Handbook of Nutraceuticals and Functional Foods, 2nd edition, CRC Press publishers, Boca Raton, Florida (USA).
- Athapol Noomhorm, Imran Ahmad, Anil Kumar Anal (2014), Functional Foods and Dietary Supplements Processing, Effects and Health Benefits, first edition, published by John Wiley & Sons, Ltd. UK 111 River Street, Hoboken, NJ 07030-5774, USA
- Wildman REC, (2001) Handbook of Nutraceutical and Functional Foods, CRC Press, USA.Ghosh D et al, (2012) Innovations in Healthy and Functional Foods, CRC Press, USA. Pathak YV (2011) Handbook of nutraceuticals Volume 2, CRC Press, USA.

### **DEPARTMENT - COMPUTER SCIENCE** ELMCS- 02: E -Commerce

#### **BLOCK-1**

**UNIT-1:** Overview of developments in Information Technology and Defining E-Commerce: The scope of E commerce, Electronic Market, Electronic Data Interchange, Internet Commerce, Benefits and limitations of E-Commerce, Produce a generic framework for E-Commerce,

**UNIT-2:** Architectural framework of Electronic Commerce, Web based E Commerce Architecture. Consumer Oriented E Commerce E-Retailing: Traditional retailing and e retailing, Benefits of e retailing,

**UNIT-3:** Key success factors, Models of e retailing, Features of e retailing. E services: Categories of e-services, Webenabled services, matchmaking services,

**UNIT-4:** Information-selling on the web, e entertainment, Auctions and other specialized services. Business to Business Electronic Commerce

#### BLOCK-2

**UNIT-5: Electronic Data Interchange**: Benefits of EDI, EDI technology, EDI standards, EDI communications, EDI Implementation, EDI Agreements, EDI Security. Electronic Payment Systems, Need of Electronic Payment System:

**UNIT-6:** Study and examine the use of Electronic Payment system and the protocols used, Study Electronic Fund Transfer and secure electronic transaction protocol for credit card payment. Digital economy: Identify the methods of payments on the net – Electronic Cash, cheques and credit cards on the Internet.

**UNIT-7: Security in E Commerce** Threats in Computer Systems: Virus, Cyber Crime Network Security: Encryption, Protecting Web server with a Firewall, Firewall and the Security Policy, Network Firewalls and Application Firewalls, Proxy Server. Issues in E Commerce Understanding Ethical,

**UNIT-8:** Social and Political **issues in E-Commerce**: A model for Organizing the issues, Basic Ethical Concepts, Analyzing Ethical Dilemmas, Candidate Ethical Principles Privacy and Information Rights: Information collected at E-Commerce Websites, The Concept of Privacy, Legal protections Intellectual Property Rights: Types of Intellectual Property protection, Governance.

#### **References:**

1. Elias. M. Awad, " Electronic Commerce", Prentice-Hall of India Pvt Ltd.

- 2. RaviKalakota, Andrew B. Whinston, "Electronic Commerce-A Manager's guide", Addison-Wesley.
- 3. Efraim Turban, Jae Lee, David King, H.Michael Chung, "Electronic Commerce–A ManagerialPerspective", Addison-Wesley.
- 4. Elias M Award, "Electronic Commerce from Vision to Fulfilment", 3rd Edition, PHI, Judy Strauss, Adel
- 5. El-Ansary, Raymond Frost, "E-Marketing", 3RDEdition, Pearson Education.

## **DEPARTMENT - GEOGRAPHY**

ELMG -02 Regional Geography of Karnataka (Credits - 2)

Block-1

Physical setting - Location, Administrative divisions, Geology, Physiographic divisions of the Karnataka; Climate and Rivers; Soils and Vegetation; Irrigation in Karnataka, MajorMultipurpose River Valley Projects, Major water problems and Issues - Yetthinahole, Linganamakki, Mekedatu, Krishna-Cauvery valley-linking Rivers.

#### **Block-2**

Agriculture - Major of Crops: Rice, Jowar, Ragi, Wheat, Oil seeds, Sugarcane, Cotton, Tobacco and Coffee; Minerals Resources - Iron ore, Manganese, Bauxite, Copper, Gold; Major Power Projects - Hydel, Thermal and Atomic Energy power plants; Industries - Cotton Textile, Silk Textile, Sugar, Iron and Steel, Cement and Paper industries, Industrial Regions of Karnataka; Transportation - Roads, Railway, Water way, Ports/Harbors and Airways; Population - growth, distribution and density

#### **References:**

- 1. Directorate of Information and Tourism, Government of Karnataka Karnataka State Gazetteer
- 2. Mallappa, P., (2014) Geography of Karnataka, Chethana book publishers, Mysuru
- 3. N.B.K Reddy & G.S. Murthy, (1967) Regional Geography of Mysore State
- 4. R.P. Misra, (1973) Geography of Mysore
- 5. Ranganath, (2018) Geography of Karnataka, Mysore Book House, Mysuru

# **DEPARTMENT - MATHEMATICES**

### Combinatorics and Graph Theory (ELMM –02) 2 Credits

Block-I: Permutations and Combinations, Pigeon-hole principle, Principle of inclusion and exclusion.

**Block-II:** Graphs, Vertices of graphs, Walks and connectedness, Degrees, Operations on graphs, Blocks – Cutpoints, bridges, Block graphs and Cutpoint graphs. Trees - Elementary properties of trees,

#### **Books for Reference:**

- 1. C. L. Liu Elements of Discrete Mathematics, McGraw-Hill, 1986.
- 2. Kenneth H. Rosen Discrete Mathematics and its Applications, McGraw-Hill, 2002.
- 3. F. Harary Graph Theory, Addition Wesley Reading Mass, 1969.
- 4. N. Deo Graph Theory With Applications to Engineering and Computer Science, Prentice Hall of India, 1987.
- 5. K. R. Parthasarathy Basic Graph Theory, Tata McGraw-Hill, New Delhi, 1994.
- 6. G. Chartand and L. Lesniak Graphs and Diagraphs, wadsworth and Brooks, 2nd Ed.,
- 7. Clark and D. A. Holton A First Look at Graph Theory, Allied publishers.
- 8. D. B. West Introduction to Graph Theory, Pearson Education Inc., 2001, 2nd Ed.,
- 9. J. A. Bondy and U. S. R. Murthy Graph Theory with applications, Elsevier, 1976.

# **DEPARTMENT - MICROBIOLOGY**

#### Microbes in Sustainable Agriculture and Development

- i. Soil Microbiology: Soil as Microbial Habitat, Soil profile and properties,
- ii. Soil formation, Diversity and distribution of microorganisms in soil.
- iii. Microbial Activity in Soil and Green House Gases- Carbon dioxide, methane, nitrous oxide, nitric oxide production and control
- i. Mineralization of Organic & Inorganic Matter in Soil: Mineralization of cellulose, hemicelluloses, lignocelluloses, lignin and humus, phosphate, nitrate, silica, potassium.
- ii. Microbial Control of Soil Borne Plant Pathogens: Biocontrol mechanisms and ways, Microorganisms used as biocontrol agents against Microbial plant pathogens, Insects, Weeds.
- iii. Biofertilization, Phytostimulation,
- iv. Bioinsecticides: Plant growth promoting bateria, biofertilizers symbiotic (Bradyrhizobium, Rhizobium, Frankia),
- v. Non Symbiotic (Azospirillum, Azotobacter, Mycorrhizae, MHBs, Phosphatesolubilizers, algae),
- vi. Novel combination of microbes as biofertilizers, PGPRs
- i. Secondary Agriculture Biotechnology: Biotech feed, Silage, Biomanure, biogas, biofuels advantages and processing parameters.
- ii. GM crops: Advantages, social and environmental aspects, Bt crops, golden rice, transgenic animals. **References:**

1. EldorA.Paul. SoilMicrobiology. EcologyandBiochemistry.VIEdition:Academic Press, (2007).

2. EugeneL. Madsen. Environmental Microbiology:FromGenomestoBiogeochemistry. IEdition,Wiley-BlackwellPublishing. (2008).

3. Agrios, G.N. Plant pathology. Harcourt Asia Pvt. Ltd. (2000).

4. Buchanan. B.B., Gruissem, W. and Jones, R.L Biochemistry and Molecular Biology of Plants. I.K. International Pvt. Ltd. (2000).

5. Mehrotra R S and Ashok Agrawal. Plant Pathology. Tata Mc Graw Hill ,6th reprint (2006).

6. K. S. Bilgrami, H. C. Dube. A textbook of modern pathology. 6th Edition, Vani Educational Books, a division of Vikas, (1984).

7. K.R. Aneja .Experiments in Microbiology, Plant Pathology and Biotechnology . New Age Publications.2017

# **DEPARTMENT - PHYSICS**

### **MP-EL2: Waves and Optics**

#### BLOCK-A:

- **Unit-1: Superposition of Two Collinear Harmonic oscillations**: linearity & superposition principle. (i) Oscillations having equal frequencies and (ii) oscillations having different frequencies (Beats).
- **Unit-2: Waves Motion- General**: Transverse waves on a string, travelling and standing waves on a string, normal modes of a string, group velocity, phase velocity, plane waves, Spherical waves, wave intensity.
- **Unit-3: Fluids:** Surface tension: synclastic and anticlastic surface excess of pressure application to spherical and cylindrical drops and bubbles. viscosity rate flow of liquid in a capillary tube Poiseuille's formula determination of coefficient of viscosity of a liquid.
- **Unit-4: Sound:** Simple harmonic motion forced vibrations and resonance intensity and loudness of sound, intensity levels, musical notes, musical scale, acoustics of buildings: reverberation and time of reverberation, absorption coefficient, Sabine's formula measurement of reverberation time.

#### BLOCK-B:

- Unit-5: Wave Optics: electromagnetic nature of light, definition and properties of wave front, Huygen's Principle.
- **Unit-6: Interference:** Interference: division of amplitude and division of wavefront. Young's double slit experiment, interference in thin films: parallel and wedge-shaped films, Newton's Rings: measurement of wavelength and refractive index.
- **Unit-7: Diffraction:** Fraunhofer diffraction- single slit and double Slit, multiple slits and diffraction grating, Fresnel diffraction: half-period zones, zone plate, Fresnel diffraction pattern of a straight edge, a slit and a wire using half-period zone analysis.
- **Unit-8: Polarization:** Transverse nature of light waves, plane polarized light production and analysis, circular and elliptical polarization.

# **DEPARTMENT - PSYCHOLOGY**

### EL-2 Psychology in Everyday Life 2 Credits

#### **Block 1: Applications of Psychology-I**

Unit 1: Psychology as a Profession

**Unit 2:** Memory Improving Techinques

Unit 3: Stress and Emotional Management

**Unit 4**: Personality Development

#### **Block 2: Applications of Psychology-II**

**Unit 5:** Psychology in Educational Settings Unit 6: Psychology in Health Setting Unit 7: Psychology in Organizational Setting Unit 8: Adjustment to Family and Work Place

#### **References:**

- 1. Charles G.Morris. Albert A. Maisto Psychology an Introduction , Prentice Hall. New Jersy.
- 2. Feldman, A. R., Understanding Psychology IV th Ed, 1996, McGraw Hill, New Delhi.
- 3. Morgan, King, Weisz & Schopler, Introduction to Psychology-V11 Ed,1993, Tata McGraw Hill, New Delhi.
- 4. Ernest R Hilgard, Richard C Atkinson ,Rita L Atkinson Introduction to Psychology Oxford Publication, New Delhi.

# **DEPARTMENT -INFORMATION TECHNOLOGY**

### ELMIT -02 E-Commerce (2 Credits)

#### **Block 1:Fundamentals of E-commerce**

#### **Unit 1 : Introduction to E-commerce**

What Is E-commerce? The Difference Between E-commerce and E-business, Technological Building Blocks Underlying E-commerce: the Internet, Web, and Mobile Platform, Major Trends in E-commerce, Unique Features of E-commerce Technology

#### **Unit 2 : Types of E-commerce:**

Business-to-Consumer (B2C) E-commerce, Business-to-Business (B2B) E-commerce. Consumer-to-Consumer (C2C) E-commerce, Mobile E-commerce (M-commerce), Social E-commerce, Local E-commerce E-commerce: A Brief History, Understanding E-commerce: Organizing Themes, Academic Disciplines Concerned with E-commerce

#### **Unit 3 : E-Commerce Infrastructure**

The Internet, Technology Background, Internet – Key Technology concepts, TCP/IP, IP addresses, Domain names, DNS and URLs, Client Server Computing, Cloud computing model, Mobile platform

#### Unit 4 : Internet and Web

Hypertext, HTML, XML, Web servers and clients, Web browsers, Communication tools – E mail, messaging apps, online message boards, Internet Telephony

#### **Block 2: Construction of E-commerce presence**

**Unit 5: E-commerce presence** – Building an e-commerce idea, Systematic approach, Choosing software and hardware, E-commerce site tools

Unit 6: E-commerce security E-commerce System environment, Security threats, Technology solutions

**Unit 7**: **E-commerce payment systems** : Management policies, E-commerce payment systems, Electronic billing presentment and payment

Unit 8: E-commerce Business Strategies : E-commerce business models, Major B2C Business models, B2B Business models,

#### **References:**

- 1. Laudon, Kenneth C., and Carol Guercio Traver. *E-Commerce 2020-2021*. Pearson, 2020.
- 2. Laudon, Kenneth C., and Carol Guercio Traver. E-commerce Essentials. Pearson, 2014

# **DEPARTMENT - BOTANY**

#### Plant Diversity and Human Welfare

Plant Diversity and its Scope Levels of biodiversity: Genetic, Species and Ecosystem; Agrobiodiversity and cultivated plant taxa and related wild taxa.

Values and uses of Biodiversity, Methodologies for valuation, Ethical and aesthetic values, Uses of plants; Ecosystem services.

Loss of Biodiversity Loss of biodiversity- causes and implications, Hot spots of biodiversity, extinction of species, projected scenario for biodiversity loss.

Management of Plant Biodiversity Organizations associated with biodiversity management, IUCN, UNEP, WWF, UNESCO, NBPGR; Methodology for execution;

Biodiversity legislation; Information management and communication.

Conservation of Biodiversity, Role of Plants in Relation to Human Welfare Conservation of genetic, species and ecosystem diversity,

In situ and ex situ conservation strategies, India's biodiversity and its conservation Social approaches to conservation,

Biodiversity awareness programmes, Sustainable development.

Importance of forestry their utilization and commercial aspects; Avenue trees; Ornamental plants of India; Alcoholic beverages; Fruits and nuts; Wood and its uses; their commercial importance.

#### References

1. Krishnamurthy, K.V. (2004). An Advanced Text Book of Biodiversity - Principles and Practices.Oxford and IBH Publications Co. Pvt. Ltd. New Delhi

2. Singh, J.S., Singh, S.P. and Gupta, S. (2006). Ecology Environment and Resource Conservation. Anamaya Publications, New Delhi, India.

3. Reddy, K.V. and Veeraiah, S. (2010). Biodiversity and Plant Resources. Aavishkar publication, New Delhi.

4. Heywood, V. H. and Watson, R. T. (1995). Global biodiversity and Assessment. Cambridge University Press.

### DEPARTMENT –FOOD AND NUTRITION SCIENCE

#### **OEL-2: NUTRITIONAL MANAGEMENT IN DISASTER CONDITIONS** BLOCK- I: NATURAL / MANMADE DISASTERS

- Unit-1: Emergency Situations-Famine, Drought, Flood, Earthquake, Cyclone, War, Civil and Political Emergencies.
- Unit-2: Nutrition in Emergencies, Nutritional Problems and Communicable Diseases.
- Unit-3: Feeding Programs during Emergencies.

Unit-4: Assessment and monitoring of Nutritional Status and relief measures during emergencies.

#### **BLOCK- I: NUTRITIONAL RELIEF AND REHABILITATION**

- Unit-5: Assessment of Food needs in emergency situations, Food Distribution Strategy, Local food rehabilitation.
- Unit-6: Special Foods/ Rations for Nutritional Relief, Organizations for Mass Feeding/ Food Distribution, and Supplementary Feeding.
- Unit-7: Transportation, Storage, Feeding Centres, Sanitation, Hygiene and Identifying Reaching the Vulnerable Group.

Unit-8: Public Nutrition Approach to Tackle Nutritional and Health Problems in Emergencies, food security. **REFERENCES:** 

- Jaspars, S. & Young, H. (1996), General Food Distribution in Emergencies: from Nutritional Needs to Political Priorities. Good Practice Review 3. 1996. Relief and Rehabilitation Network, Overseas Development Institute. London.
- Young H., Jaspars S., Brown R., Frize J. & Khogali H (2001), Food Security and Assessments in Emergencies: A Livelihoods Approach. Humanitarian Practice Network, Overseas Development Institute. London