

SEMESTER V**OPEN COURSES FOR OTHER STREAMS****ELECTIVE II****ZY5D02U HUMAN GENETICS, NUTRITION, COMMUNITY HEALTH AND SANITATION**

72 hrs
4hrs/Week
Credits 4

Objectives of the Course

- To develop critical thinking skill and research aptitude among students, by introducing the frontier areas of the biological science.
- To emphasize the central role that biological sciences plays in the life of all organisms.

To introduce the student to some of the present and future applications of bio-sciences

PART I HUMAN GENETICS

18 hrs

Module I Human normal chromosome complement. Genetic disorders in man. 9 hrs
Chromosomal anomalies. Eg. Down Syndrome and Cri-du chat syndrome. Sex chromosomal anomalies – Syndromes- Klinefelters Syndrome and Turners Syndrome. Single gene mutation disorders- Eg. Sickle Cell anaemia. Polygenic – Cleft lip and palate. Sex linked inheritance – Haemophilia and Colour blindness. Pre – natal Diagnosis (Amniocentesis, and Chorionic Villus Sampling) Ultra sound scanning and Fetoscopy Genetic Counselling. Eugenics and Euthenics.

Core Readings

Zoological Society of Kerala Study Material Series 2002– Cell biology Genetics & Biotechnology published by Zoological Society of Kerala.

Module II Human blood groups and their inheritance pattern. Rh factor Blood transfusion – Universal Donor, Universal recipient – Importance of Blood donation. 9 hrs

DNA finger printing and applications – Probing for criminals – Method to resolve paternity and maternity disputes.

Causes of human infertility – a brief account. Human genome project – a brief account.

Core Readings

Zoological Society of Kerala Study Material Series 2002– Cell biology Genetics & Biotechnology published by Zoological Society of Kerala.

PART – II NUTRITION AND COMMUNITY HEALTH 18 hrs

Module -III Definition and Meaning of Health 5 hrs

Dimensions and Determination of Health

Physical Activity and Health benefits

Effect of exercise on body systems – Circulatory, Respiratory,

Endocrine, Skeletal and Muscular

Programmes on Community health promotion (Individual, Family and Society) Dangers of alcoholic and drug abuse, medico-legal implications

Core Readings

Fashey , Tomas D, Insel , Paul M and Roth Walt (2005) Fit and Well. New York; Mc Graw Hill Inc

Greenberg, Jerol S and Dintiman George B (1997) Wellness Creating a life of Health and Fitness , London Allyn and Bacon Inc.

Tom Sanders and Peter Emery. (2004) Molecular basis of human nutrition: Taylor & Francis Publishers Ane Book

Rai. B.C. Health Education and Hygiene. Published by Prakashan
Kendra, Lucknow

Module IV Nutrition and Health 5 hrs

Concept of Food and Nutrition, Balanced diet
Vitamins, Malnutrition, Deficiency Disease
Determining Caloric intake and expenditure
Obesity, causes and preventing measures – Role of Diet and Exercise,
BMI

Core Readings

K Park, (2008) Park's Text Book of Preventive and Social Medicine
18th Edition. Banarasidass Bhenot Publication

Tom Sanders and Peter Emery. (2004) Molecular basis of human
nutrition: Taylor & Francis Publishers Ane Book

Module V Safety Education and Health Promotion Principles of Accident 5 hrs

prevention, Health and Safety in daily life. Health and Safety at
work. First aid and emergency care. Common injuries and their
management. Modern life style and hypokinetic diseases. Diabetese,
Cardiovascular disorders - Prevention and Management.

Core Readings

Norman Bezzaant HELP First Aid for everyday emergencies. Jaico
Publishing House, Bombay, Delhi

Tom Sanders and Peter Emery. (2004) Molecular basis of human
nutrition: Taylor & Francis Publishers Ane Book

Module VI Life Skills Education 3 hrs

Physical activity, emotional adjustment and well being,. Yoga,
Meditation and Relaxation, Psychoneuroimmunology

Core Readings

Edlen Gordon Janes and Barttlet. Human Genatics a modern
Synthesis. Published by Boston. P 39, 266-270

PART III COMMUNITY HEALTH AND SANITATION 36 hrs

Module VII Public health and water quality. Prevention of Water borne diseases. 12 hrs
 Potable water quality monitoring and waste water management.
 Faecal bacteriae and pathogenic microorganisms transmitted by
 water. Cholera and Typhoid. Determination of sanitary quality of
 drinking water, water purification techniques.

Vermi composting a method of solid waste management

Core Readings

Pelczar M.J. Jr. E.C.S. Chane & N.R. Krieg, Microbiology
 (Concept & Applications). 5th edition. Tata McGraw
 Publishing Company Ltd.

Monica Cheesbrough, Laboratory Manual for Tropical Counties
 Vol.II LBS.

Module VIII Public Health and Food borne diseases and their prevention 12 hrs
 Food poisoning caused by toxins produced by microbes eg
 Staphylococcal food poisoning, Botulism, Salmonellosis
 Food infection caused by growth of microorganisms in the human
 body after the contaminated food has been eaten. Eg Food Infection
 hepatitis (hepatitis A)

Core Readings

Pelczar M.J. Jr. E.C.S. Chane & N.R. Krieg, Microbiology
 (Concept & Applications). 5th edition. Tata McGraw
 Publishing Company Ltd.

Panicker S, Franis G And Abraham g. (2008) Microbiology &
 Immunology. Zoological Society Study Material Series.
 Published by Zoological Society of Kerala.

Module IX Public health and diseases (a) Emerging pathogens and diseases – 12 hrs
 Swine flue (H1N1), bird flue (H5N1), SARS, Anthrax
 Reemerging pathogens and diseases – TB, Chikungunya

- . (b) Vector borne diseases (mosquito) and their control measures (Chikungunya, Malaria, Filariasis and Dengu fever)
- Mosquito eradication (c) Leptospirosis and preventive measures –
- Rodent control measures (d) Cancer different types, causes of cancer, carcinogens, diet & cancer (e) HIV, AIDS – causes & preventive measures

Core Readings

Zoological Society of Kerala Study Material Series 2002– Cell biology Genetics & Biotechnology published by Zoological Society of Kerala.

K Park, (2008) Park's Text Book of Preventive and Social

Selected Further Readings

Fashey, Tomas D, Insel, Paul M and Roth Walt (2005) Fit and Well. New York; Mc Graw Hill Inc

Greenberg, Jerol S and Dintiman George B (1997) Wellness Creating a life of Health and Fitness, London Allyn and Bacon Inc.

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Monica Cheesbrough, Laboratory Manual for Tropical Counties Vol.II LBS.

Norman Bezzaant HELP First Aid for everyday emergencies. Jaico Publishing House, Bombay, Delhi

Pelczar M.J. Jr. E.C.S. Chane & N.R. Krieg, Microbiology (Concept & Applications)

Rai. B.C. Health Education and Hygiene. Published by Prakashan Kendra, Lucknow