



AOZO501: HUMAN HEALTH AND GENETICS

Instructional Hours: 72

Credits: 3

PART I - HUMAN HEALTH (58 hrs)

Module I – Introduction (2 hrs)

Definition and meaning of health; Dimensions and determinants of health

Module II - Food & Nutrition (4 hrs)

Importance of nutrition; Macro and micro nutrients: Carbohydrates, Proteins, Lipids, Water, Minerals, Vitamins

Meal pattern; Balanced diet; BMR; Malnutrition

Module III - Health & Exercise (3 hrs)

BMI; Diet and Exercise; Physical activity and health benefits; Effect of exercise on body systems

Module IV- Life style diseases (4 hrs)

Obesity: causes and preventing measures

Diabetes: causes and management

Cardiovascular disorders: prevention and management

Cancer: different types, causes of cancer, carcinogens, diet & cancer

Module V - Food borne diseases and their prevention (5 hrs)

Food Safety: General principles of hygiene

Important food borne illness: Staphylococcal food poisoning, Botulism, Salmonellosis, Shigellosis, Amoebiasis

Module VI - Water quality & Water borne diseases (5 hrs)

Water quality parameters; Water purification techniques; Waste water management

Pathogenic microorganisms transmitted by water; Cholera and Typhoid; Prevention of water borne diseases



Module VII - Common infectious diseases (5 hrs)

Tuberculosis; Hepatitis; Swine flu (H1N1); Bird flu (H5N1); Chikungunya; Dengue fever; Leptospirosis; Role of vectors in spread of diseases

Module VIII - Immunity & Vaccination (2 hrs)

Basic concepts of immunology; Immunity to infection; Vaccination

Module IX - Replacement & Restoration therapies (2hrs)

Organ transplantation; Cell replacement therapy; Gene therapy

Module X –Reproductive Health & Infertility (7 hrs)

Pre-natal diagnosis:- Amniocentesis, Chorionic Villus Sampling, Ultra sound scanning, Fetoscopy; Genetic counseling

Umbilical cord banking

Causes of human infertility; ICSI, IVF & test tube babies

STDs, HIV, AIDS – causes & preventive measures

Module XI - Mental Health & Disorders (6 hrs)

Concept of mental health; Emotional adjustment and well being; Yoga; Meditation and Relaxation

Anxiety disorders; Bipolar disorder; Depression; Schizophrenia; Treatments for mental disorders

Module XII - Drug Abuse (4 hrs)

Tobacco use, Tobacco related illnesses and tobacco control; Alcoholism; Drug and substance abuse; Abuse related illnesses and their control

Addiction; De-addiction

Module XIII - Old age and associated problems (5 hrs)

Biology of ageing; Health problems of the elderly: Osteoporosis; Arthritis; Hypertension; Alzheimer's disease; Parkinson's disease

Module XIV - Safety & First Aid (4 hrs)

Accident prevention; Health and Safety in daily life; Health and Safety at work; First aid and emergency care; Common injuries and their management



PART II - HUMAN GENETICS (14 hrs)

Module XV - Genetic Disorders

(7 hrs)

Human normal chromosome complement; Chromosomal anomalies- Down Syndrome and Cri-du-chat syndrome; Sex chromosomal anomalies – Klinefelter's Syndrome and Turner's Syndrome

Single gene mutation disorders- Sickle cell anaemia

Polygenic – Cleft lip and palate

Sex linked inheritance – Haemophilia and Colour blindness

Module XVI – Genetics in Daily life

(7 hrs)

Human blood groups and their inheritance pattern; Rh factor

Blood transfusion – Universal Donor, Universal recipient

DNA finger printing and applications – Probing for criminals, method to resolve paternity and maternity disputes

Human genome project – a brief account

Eugenics and Euthenics; Genetically Modified Organisms

References:

1. Arora, D.R. and Arora, B. 2008. *Text Book of Microbiology*. CBS Publishers and Distributors, New Delhi
2. Fashey, Tomas D, Insel, Paul M and Roth Walt (2005) *Fit and Well*. New York; McGraw Hill Inc
3. Greenberg, Jerol S and Dintiman George B (1997) *Wellness Creating a life of Health and Fitness*, London Allyn and Bacon Inc.
4. Guyton, A.C. 1996. *Text Book of Medical physiology*. Prism Books Pvt. Ltd. Bangalore
5. Das, H.K. 2007. *Text book of Biotechnology*. Wiley India Pvt. Ltd. New Delhi
6. Edlen Gordon Janes and Barttlet. *Human Genatics a Modern Synthesis*. Published by Boston.
7. Hannigan, B. M., Moore, C. B. T. and Quinn, D. G. 2010. *Immunology*. Viva Books, New Delhi
8. Monica Cheesbrough, *Laboratory Manual for Tropical Counties Vol.II LBS*.
9. Norman Bezzaant *HELP First Aid for everyday emergencies*. Jaico Publishing House, Bombay, Delhi
10. Pelczar M.J. Jr. E.C.S. Chane & N.R. Krieg, *Microbiology (Concept & Applications)*
11. Rai. B.C. *Health Education and Hygiene*. Published by Prakashan Kendra, Lucknow