

Course Name: CMLT

Duration of Course: 1 Year

Eligibility: 10+2(PCB)

FIRST YEAR

CODE	SUBJECT	CREDIT
CMLT101	BASICS OF HUMAN ANATOMY	3
CMLT102	BASICS OF MEDICAL PHYSIOLOGY	3
CMLT103	PATHOLOGY	4
CMLT104	COMPUTER SKILLS	4
CMLT105	COMMUNICATION SKILLS	4
CMLT106	BASICS OF BIOCHEMISTRY	4
CMLT107	INTRODUCTION TO MICROBIOLOGY	4
CMLT108	MS-OFFICE	4

Detailed Syllabus

Year: 1st

Subject: BASICS OF HUMAN ANATOMY

Code: CMLT101

SECTION A

Skeleton Structures of Bone, Vertebral Column, Upper Extremity, Lower Extremity

SECTION B

superior extremity, inferior extremity, ossification centers, bone of upper limb,

SECTION C

radius and ulna, surface marker of thorax abdomen,

SECTION D

head and neck.

Detailed Syllabus

Year: 1st

Subject: BASICS OF MEDICAL PHYSIOLOGY

Code: CMLT102

SECTION A

General information:- The cell, membrane potential, some common terms used in physiology.

Blood:- Red blood corpuscles, hemoglobin, the leucocytes, immunity, origin and function of lymphocytes, reticulo endothelial system, the platelets, homeostasis, coagulation of blood, the plasma proteins, blood groups.

SECTION B

Digestive system:- introduction to digestive system. Elementary functional anatomical considerations, the salivary glands, the stomach and its secretion, pancreas, the bile, the small intestine, movement of the alimentary tract, gastrointestinal hormones, apud cells.

SECTION C

Respiratory system:- Functional anatomy, ventilation, control of ventilation, exchange of gases between the alveoli and pulmonary capillary blood, carriage of O₂ and CO₂ by the blood and their exchange at the tissue level.

SECTION D

applied and environment physiology Defense mechanism. Changes with age.

Detailed Syllabus

Year: 1st

Subject: PATHOLOGY

Code: CMLT103

SECTION A

The Cell in Health and Disease:- Introduction to Pathology, Cellular Structure and Metabolism, Etiology and Pathogenesis of Disease, Intracellular Accumulations and Disorders of Metabolism, Amyloidosis, Degenerations and Cell Death.

SECTION B

Inflammation and Healing, Immunity and Hypersensitivity, Infection and infestation:- Inflammation- Acute and Chronic, Granulomatous Inflammation, Healing, immunity and Hypersensitivity, Infection and Infestation.

SECTION C

Fluid and Haemodynamic Derangements:- Derangements of Body Fluids and Electrolytes, Heamodynamic Disorders due to Deranged Blood Volume, Heamodynamic Disorders of Obstructive Nature, Ischaemia and Infarction.

SECTION D

Growth Disorders and Neoplasia:- Adaptive Disorders of Growth, General Aspects of Neoplasia, Etiology and pathogenesis of Neoplasia, Clinical Aspects of Neoplasia, Common Specific Tumors.

Detailed Syllabus

Year: 1st

Subject: COMPUTER SKILLS

Code: CMLT104

SECTION A

Hardware & Software: CPU, RAM, SSD, Operating Systems, System Software's, and Application Software. Inside Computers. Computer Systems.

SECTION B

Input-Output devices: Monitor, Keyboard, Mouse, System Unit, Printer, and Scanner.

Storage devices : Floppy disk, Hard disk, Cartridge tape, CD-ROM

SECTION C

Printers : Dot-Matrix, Inkjet, LaserJet, Colour printer, High speed printer, Label printer, Plotters.

SECTION D

PROGRAMMING LANGUAGE: -Compiler, Assembly Language, Machine Language.

Graphical user interface: Windows 3x, Program manager, Main & accessories program groups, Multitasking.

Detailed Syllabus

Year: 1st

Subject: COMMUNICATION SKILLS

Code: CMLT105

SECTION A

Basic Skills: - Listening, Speaking, Reading and Writing.

Comprehension: - Reading Comprehension, Passages, Poems.

Listening Comprehension: - Talks, Reports, Poems

SECTION B

Writing Skills: - Paragraph Writing, Composition Writing, Report Writing, Application & Letter Writing

SECTION C

Grammar: - Simple, Compound and complex sentences, Co-ordinate clause (with, but or either-or, Neither-Nor otherwise or else), Subordinate clauses-noun clauses-as subjects object and complement: Relative Clauses (restrictive and non-restrictive clauses). Adverb clauses (open and hypothetical, Comparative Clauses

SECTION D

Simple present, progressive and present perfect, simple past, progressive and past perfect, indication of futurity, the passive (Simple present and past, present and past perfect and 'to' infinitive structure), Reported Speech: - (I) Declarative sentences, (ii) Imperatives (iii) Interrogatives –question, Yes/No Questions, Exclamation sentences, Modals (will, shall, should, would, ought to, have to/have got to, can, could, may-might and need), Verb structures (infinitives and gerundial)

Detailed Syllabus

Year: 1st

Subject: BASICS OF BIOCHEMISTRY

Code: CMLT106

SECTION A

Biochemistry of living cell, Sub cellular fractionation using the differential centrifugation method. Function of each organelle Redox Potential, Oxidative Phosphorylation , Transport of substances across biological membrane.

NUCLEIC ACID: Composition and Function, Genes, Outline of DNA Structure, Re-Combinant DNA and its applications.

SECTION B

ENZYMES AND HORMONES 9

Enzymes: Chemical Nature, General Properties, Spectrophotometric measurement of enzymes, Isolation techniques, Diagnostic enzymes. Enzyme biotechnology.

Hormones: Chemical Nature, Properties of hormones, Hormonal Assay and their Significance.

SECTION C

CARBOHYDRATE, LIPID, PROTEIN 9

(i) Carbohydrate – Classification, Metabolism of carbohydrate and its dysfunction. Uses of Carbohydrates.

(ii) Lipids: Classification, Metabolism of lipids, Cholesterol, bile acids, Transport of lipids, Lipid metabolism dysfunction.

(iii) Protein: Classification, Amino acids, Chromatography, electrophoresis and architecture of protein molecules.

SECTION D

(i) BIO CHEMISTRY OF BLOOD AND BODY FLUIDS: Liver Function tests, Renal Function Tests, Blood gas Analysis, Measurement of Electrolytes. Their abnormal and Normal Values and Conditions.

(ii) Biochemistry of Urine and Stools testing.

Principles and Application of Photometry , Spectrophotometry, Flurometry, Flame Photometry, Densitometry, Calorimetry, Automation in Clinical Laboratory. Use of Isotopes in Biochemistry.

TEXT BOOK

1. Dr. Ambiga Shanmugam, 'Fundamentals of Bio Chemistry for Medical Students', Karthic Printers, Madras 1997.

Detailed Syllabus

Year: 1st

Subject: INTRODUCTION TO MICROBIOLOGY

Code: CMLT107

SECTION A

History of Microbiology and Microscopy 30 hrs

Meaning, definition and history of Microbiology.

Contributions of Antony von Leeuwenhoek, Edward Jenner, Louis Pasteur, Robert Koch, Iwanowsky, Beijerinck, Winogradsky and Alexander Fleming.

Importance and applications of Microbiology.

Principles of microscopy – bright field, dark field, phase-contrast, fluorescent and electron microscopy (SEM and TEM). Ocular and stage micrometers.

Size determination of microorganisms.

Principles and types of stains - Simple stain, differential stain, negative stain, structural stains - spore, capsule, flagella. hanging-drop method.

SECTION B

Microbiological Techniques 30 hrs

Sterilization and disinfection techniques

Principles and methods of sterilization.

Physical methods - autoclave, hot-air oven, pressure cooker, laminar air flow, filter sterilization.

Radiation methods – UV rays, gamma rays, ultrasonic methods.

Chemical methods - Use of alcohols, aldehydes, fumigants, phenols, halogens and hypochlorites. Phenol coefficient.

Isolation of pure culture techniques - Enrichment culturing, dilution-plate, streak- plate, spread-plate and micromanipulator.

Preservation of microbial cultures - sub culturing, overlaying cultures with mineral oils, lyophilization, sand cultures, storage at low temperature.

SECTION C

Biology of Prokaryotic and Eukaryotic Microorganisms 30 hrs

Outline classification of living organisms: Hackel, Whittaker And Carl Woese systems.

Place of microorganisms in the living world.

Differentiation of prokaryotes and eukaryotes.

Prokaryotes - General characteristics of bacteria, archaeobacteria, rickettsias, mycoplasmas, cyanobacteria and actinomycetes.

Outline classification for bacteria as per the second edition of Bergey's Manual of Systematic Bacteriology (up to order level).

Ultrastructure of a bacterial cell: Invariant components - cell wall, cell membrane, ribosomes, nucleoid. Variant components - Capsule, flagella, fimbriae, endospore and storage granules.

General characteristics and classification of viruses. Morphology and structure of TMV and HIV.

Structure and multiplication of lambda bacteriophage.

Eukaryotes - General characteristics and classification (up to the order level) of eukaryotic microorganisms - Protozoa, microalgae, molds and yeasts.

SECTION D Biomolecules

Biomolecules of microorganisms.

Outline classification and general characteristics of carbohydrates (monosaccharide, disaccharides and polysaccharides).

General characteristics of amino acids and proteins.

Structure of nitrogenous bases, nucleotides, nucleic acids.

Fatty acids (saturated and unsaturated) and lipids (spingolipids, sterols and phospholipids).

hydrogen ion concentration in biological fluids, pH measurement.

Types of buffers and their use in biological reactions.

Principle and application of colorimeter and chromatography (paper And Thin -layer).

REFERENCE BOOKS:

Ram Reddy, S. and Reddy, S.M. (2007). Essentials of Virology. Scientific Publishers India, Jodhpur.

Reddy, S.M. (2003). University Microbiology –I. Galgotia Publications Pvt Ltd., New Delhi.

Dube, R.C. and Maheswari, D.K. (2000) General Microbiology. S Chand, New Delhi.

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

Madigan, M.T., Martinkl, J.M. and Parker, J. (2000). Brock Biology of Microorganisms, 9th Edition, MacMillan Press, England.

Stanier, R.Y., Adelberg, E.A. and Ingram, J.L. (1991). General Microbiology, 5th Ed., Prentice hall of India Pvt. Ltd., New Delhi.

Pelczar, M.J., Chan, E.C.S. and Kreig, N.R. (1993). Microbiology. 5th Edition, Tata Mc Graw hill Publishing Co., Ltd., New Delhi.

Rao, A.S. (1997). Introduction to Microbiology. Prentice-hall of India Pvt Ltd., New Delhi.

Black, J.G. (2005). Microbiology: Principles and Explorations, John Wiley, USA.

Voet, D. and Voet, J.G. (1995) Biochemistry, Wiley, New York.

Zubay, G. (1998). Biochemistry WCB. Mc Grawhill, Iowa.

Alexopoulos, C.J., Mims, C.W. and Blackwell, M. (1996). Introductory Mycology, Wiley, New York.

Moore – Landecker, E. (1996). Fundamentals of Fungi, Prentice -hall, NJ, USA.

Atlas, R.A. and Bartha, R. (2000). Microbial Ecology – Fundamentals and Application, Benjamin Cummings, New York.

Frobisher, h., Hinsdil, R.D., Crabtree, K.T. and Goodhert, D.R. (2005).

Fundamentals of Microbiology, Saunder and Company, London.

Power, C.B. and Dagainawala, h.F. (1986). General Microbiology Vol I & II (2nd Edition), Himalaya Publishing house, Mumbai.

Sullia, S.B. and Shantaram, S. (1998). General Microbiology, Oxford & IBh Publishing Pvt. Ltd., New Delhi.

Dimmock, N.J., Easton, A.J. and Leppard, K.N. (2001). Introduction to Modern Virology, Blackwell Science Ltd, U.K.

Webster, J. (1980). Introduction to Fungi, Cambridge University Press, Cambridge, England.

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

Talaro, K. and Talaro, A. (1996). Foundations in Microbiology. 2nd Edition. UMC Brown Publications.

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

Niclin, J. et al. (1999). Instant Notes in Microbiology. Viva Books Pvt. Ltd., New Delhi.

Detailed Syllabus

Year: 1st

Subject: MS-OFFICE

Code: CMLT108

SECTION A

MS Word: Creating documents, Formatting, Auto text, Auto correct, Tables, Page setup, Printing, Object linking & embedding, Spell check,

SECTION B

Thesaurus, Mail merge, Word art, Clip art.
Setup.

SECTION C

MS Excel: Creating workbooks & worksheets, Formulas & functions, Linking workbooks & worksheets, Cell references, Formatting, Creating charts, Data lists, Page setup, Printing.

SECTION D

MS Power Point: Creating slides with different layouts and templates, Inserting charts, Tables, Organization charts, Pictures, Running a screen show, Presenta