



Course Outline Form

ODD SEMESTER 2019

Dear Student: Course outlines are intended to provide students with an overall plan for a course to enable them to function efficiently and effectively in the course.

*Academic Programs
BSc Biochemistry
EMEA College
Kondotty*

Course Outline : Clinical and nutritional aspects of Biochemistry (2019-2020)

Name of the Stream	Science
Name of the Programme	BSc Biochemistry
Name of the Course	Clinical and nutritional aspects of Biochemistry
Nature of the Course	Core Course
Semester	Fifth
Lecturer(s)	RAJESH.T.K
Name of the Coordinator	
Year	2019-2020
No of Credits	4
No of Contact Hours	4
Course Description	Clinical Biochemistry is the division of laboratory medicine that deals with the measurement of chemicals (both natural and unnatural) in blood, urine and other body fluids. These test results are useful for detecting health problems, determining prognosis and guiding the therapy of a patient. Food nutrition talks that everybody needs energy to do work. You get this energy from the food that you eat. Eating a well-balanced diet, with adequate nutrients and appropriate calories, is a fundamental requirement for continued health. An appropriate diet contributes to healthy development, healthy ageing and greater resilience against disease.
Course Objectives	<ol style="list-style-type: none"> 1. To have detail study about body fluids and their clinical significance 2. To have detail knowledge about diseases which effect in organs and their dysfunction identifying tests 3. To have detail description about inherited diseases 4. To have detail study about food nutrition
Course Outcome	After completion of this course students are able to understand the diseases which effect in organs. Also know about the various organ function tests and clinical significance. They know about nutrition values of various food items and food adulterents.
Assessment Method	
Teaching Methods Used	
Textbook	
References	
Internet Resources	

Internal Exam Pattern

Items	Marks/20	Marks/15
Assignment	4	3
Test Paper(s)/Viva voce	8	6
Seminar/Presentation	4	3
Class Room Participation based on Attendance	4	3
Total	20	15

External Exam Pattern

Question Type	No of Question	Marks/Question	Total Marks
Short Questions(2-3 Sentences)	15	2	Ceiling 25
Paragraph / Problem Type	8	5	Ceiling 35
Essay Type	2 out of 4	10	20
Total			80
Time			2.5 hrs

Graduate Attributes

Name of the Course: Clinical and nutritional aspects of Biochemistry

Course Schedule

<p>Good clinical practices: Basics and principles, Requirements for setting up of a clinical laboratory</p> <p>SI units in clinical laboratory, collection, preparation, preservation and handling of clinical sample</p> <p>quality control, Safety measures in clinical laboratory, Familiarization of biochemical charts from clinical labs. Automation in clinical laboratory- sample identification by bar coding-automation in analysis.</p>	<p>Week 1</p> <p>Week 2</p> <p>Week 3</p>
<p>Analysis of Blood: Total and differential blood count, Erythrocyte sedimentation rate (ESR), blood groups and Rh factor incompatibility, packed cell volume. Laboratory tests to measure coagulation and thrombolysis, prothrombin time. Lipid profile determination: significance of HDL (high density lipoprotein)-LDL (low density lipoprotein) ratio. Diagnostic Enzymology, Clinical significance of isoenzymes. Use of lactate dehydrogenase, Serum glutamate pyruvate transaminase, Serum glutamate oxaloacetate transaminase, acid and alkaline phosphatases, amylase, blood glucose, cholesterol, albumin, creatinine, Na⁺, K⁺, Cl⁻ and phosphate etc. in diagnosis and monitoring of disorders. Total protein, albumin, globulin, albumin-globulin ratio.</p>	<p>Week 4</p> <p>Week 5</p> <p>Week 6</p> <p>Week 7</p>
<p>Organ function tests: Normal functions of liver, liver function tests, diseases of the liver, disorders of bilirubin metabolism, hepatitis types, cirrhosis, alcoholic liver disease, hepatic tumor and biliary tract diseases. Normal functions of kidney, Renal function tests, Glomerular filtration rate, Renal threshold and clearance values for urea and creatinine, disorders of kidney, renal failure and proteinuria, renal tubular disorders and renal stones. Thyroid function tests- analysis of T₃, T₄ and TSH.</p>	<p>Week 8</p> <p>Week 9</p>
<p>Analysis of urine, cerebrospinal fluid: Urine and CSF- Normal and abnormal constituents, procedures of qualitative analysis, interpretation and their clinical significance. Chemistry, composition and functions of lymph, ascitic fluid, pleural fluid & synovial fluid</p>	<p>Week 10</p> <p>Week 11</p>

<p>Inborn errors of metabolism: Brief introduction of inborn errors of metabolism-Diabetes mellitus: Analysis of fasting, post prandial and random sugar , glycated hemoglobin , significance of glucose tolerance test, hyperinsulinism and hypoglycemia, galactosemia, lactose intolerance, glycogen storage diseases, pentosuria, phenyl ketonuria, alkaptonurea, maple syrup urine, hyperlipidemia, atherosclerosis, sphingolipidosis. Disorders of purine and pyrimidine metabolism</p>	<p>Week 12 Week 13 Week 14</p>
<p>Nutrition: Role of diet in health, Concepts of nutrition, nutrients, balanced diet, Caloric values of foods, basal metabolic rate (BMR), factors affecting BMR, determination of BMR, respiratory quotient, nutritional significance of proteins, fats, carbohydrates, fiber, vitamins, minerals and trace elements. Nutritional profile of principal foods- Cereals, pulses, vegetables, fruits, nuts, oil seeds, animal foods, milk and milk products, egg, fish, meat, drinks and spices. Nutritional requirementsconcepts, Energy requirements, recommended Dietary Allowances for men, women, pregnant and lactating women, and children of various ages. nitrogen balance, protein energy malnutrition, glycemic index.</p>	<p>Week 15 Week 16</p>
<p>Food safety and hygiene- Milk, fish, meat, fruits and vegetables, Food additives- colors, preservatives. Food adulteration, Food spoilage, Food borne diseases, Community nutrition programme, Social aspects of nutrition – problems, ecology, social action.</p>	<p>Week 17 Week 18</p>

Contact Details

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