

**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI-333031****INSTRUCTION DIVISION****First Semester 2015-2016****Course Handout (Part II)**

03/08/2015

In addition to part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course

**Course No. : PHA F242****Course Title : Biological Chemistry****Instructor-in-charge : Dr. S. Murugesan****Instructors : Dr. Rajeev Taliyan, Dr. Sushil Kumar Yadav, Ms. Deepali Gupta, Ms. Shruti R****1. Course Description:**

Biochemistry has been undergoing transition, stimulated by new experimental findings and new insights. Therefore, this course is introduced at the cellular and molecular level and focuses upon bio macromolecules, biosynthesis of macromolecules, energy yielding and energy requiring process etc. This would help going for higher level activities, appreciation of biochemical problems, evaluation and problem solving

**2. Text Book (T):**

Robert K. Murray, et.al, Harper's Illustrated Biochemistry, McGraw Hill Medical Publishers, 29th edition, 2012

**3. Reference Books (R):**

- David L. Nelson, Michael M. Cox. Lehninger Principles of Biochemistry, W.H. Freeman Publishers, 6th edition, 2012
- Lubert Stryer, et.al, Biochemistry, W.H. Freeman & Co, Ltd Publishers, 6th revised edition, 2011.
- Pamela C. Champe, et.al, Lippincott's Illustrated Reviews: Biochemistry, Lippincott Williams & Wilkins Publishers.

**4. Course Plan:**

S. No	Learning Objectives	Topics to be covered	Reference
1	Overview of Biochemistry	Introduction to Biochemistry and its relation to medicine	T Ch. 1
2	Introduction to Biomolecules	1. Carbohydrates 2. Lipids 3. Amino acids and Proteins 4. Nucleic acids	T Ch. 14 T Ch. 15 T Ch. 3,4,5 T Ch. 32
3	Vitamins and Coenzymes	1. Classification of Vitamins 2. Structure and functions of some important vitamins 3. Deficiency disorders	T Ch. 32
4.	Enzymes	1. Classification and mechanism of action 2. Enzyme kinetics 3. Enzyme: regulation of activities	T Ch. 7,8,9
5.	Carbohydrate Metabolism	1. Glycolysis and the oxidation of pyruvate 2. The Citric acid cycle: The catabolism of Acetyl CoA 3. The Pentose phosphate pathway	T Ch. 18 T Ch. 17 T Ch. 21

		4. Glyoxylate Pathway 5. Glycogen metabolism 6. Biomedical significance	
6.	Lipid metabolism	1. Transport and storage 2. Oxidation of fatty acids 3. Biosynthesis of fatty acids 4. Biomedical significance	T Ch. 21 T Ch. 22 T Ch. 23
7.	Amino acid and protein metabolism	1. Catabolism of amino acid nitrogen 2. Catabolism of carbon skeleton of amino acids 3. Biomedical significance	T Ch. 28 T Ch. 29
8.	Nucleic acids metabolism	1. Metabolism of purine and pyrimidine nucleotides 2. Biomedical significance	T Ch. 33
9.	Introduction to endocrinology	Classification and functions of important hormones	T Ch. 41

\* Apart from text books refer class notes and reference books

### 5. Evaluation Scheme:

Component	Duration	Weightage (%)	Date & Time	Remarks
Mid-semester Exam	90 Min	30	9/10 2:00 - 3:30 PM	CB
Continuous Assessment*		35		CB
Comprehensive Exam	180 Min	35	11/12 FN	CB / OB

\* Continuous assessment Topics and number will be announced in class. It will be in terms of Laboratory Day to Day work, Viva-Voce, Tutorials, Home assignment, Quizzes and Lab Compre etc.

**6. Attendance:** Regularity in attendance will be one of the criteria in deciding the borderline cases at the time of final grading as well as make-up's.

### 7. Grading Procedure:

1. It is not necessary that all the grades (i.e. A to E) would be awarded.
2. In borderline cases subjective judgment will be exercised for pull-up's (max. 2%). Basic guiding factors will be regularity, consistency in performance (above average) or/and steady improvement through out the semester.

**8. Make-up:** Generally make-up's are not given as a routine. It is solely dependent on the "genuineness" of the circumstance under which a student fails to appear in a scheduled evaluation component. However, the make-up application should be personally given to Instructor-in-Charge and not slipped into the chamber of the Instructor-in-Charge. It is expected that students shall avoid misuse of this feature.

**9. Chamber consultation hours:** To be announced in the class.

**10. Notices:** Notices pertaining to this course will be displayed only on Pharmacy Group Notice board.

**Instructor-in-Charge  
PHA F242**