BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI
INSTRUCTION DIVISION
FIRST SEMESTER 2015-2016
(Course Handout Part II)

Dated: 03-08-2015

In addition to part I (general handout for all courses appended to the timetable) this portion gives further specific details regarding the course.

Course No. : **BIO G526**
Course Title : **Cancer Biology**

Instructor- in- Charge : Uma S. Dubey

Instructor: Sudeshna Choudhury

Course Description: Basic concepts and molecular basis of cancer, Growth, Regulation and Metastasis, Cancer Immune system Interaction, Cancer therapy, Cancer and Environment, Cancer and society.

1. **Scope and objective of the course:** This course is designed to provide insight in the basic concepts as well recent advances in the area of cancer biology. It will be done at a molecular as well as cellular level. Clinical aspects of the disease as well as its therapy will be emphasized. Preventive aspects of the disease, its epidemiology and its effects on society will be considered. Exposure of practical aspects related to cancer cell lines will be provided.

2. **Text Book :** *The Biology of Cancer***.** Robert A. Weinberg, Garland Science. 2014.

3. **References:**
   (i) Molecular Biology of the cell. 5th Ed. Bruce Albets, Garland science.
   (ii) Principles of Cancer Biology. Lewis J. Kliensmith. Pearsons. 2006.
   (iii) Recent review articles/Papers will be provided time to time.

4. **Course Plan:**

Lect. #	Learning Objectives	Topics to be Covered	Reference
1-3	Introduction to Cancer Biology	Evolution, Types, Nature, Origin and Factors effecting Cancer	Chap 1-2 TB
4-7	Tumor Viruses	DNA/RNA Viruses, Proto-oncogene Activation and Oncogenes in Viruses	Chap 3 TB
8-12	Genetic & Molecular Basis of Cancer	Cellular Oncogenes, Growth factors, Receptors and Cytoplasmic Signaling	Chap 4-6 TB
13-18	Immortalization & Tumorigenesis and Maintenance	Telomere Biology, Multi-Step Tumorigenesis, DNA defenses to mutation, Genomic Stability & Development	Chap 10-12 TB

17-21	TSGs and Cell Cycle Control	TSGs, Rb, p53, Cell Cycle, Apoptosis, Necrosis, Necroptosis and Autophagy	Chap 7-9 TB
22-24	Cancer Cell Metabolism and Multi-Drug Resistance	Glycolysis, Glutaminolysis, Fatty Acid Syntehesis, PPP and MRPs	Material to be provided
25-28	Tumor Growth and Moving Out	Angiogenesis and Metastasis	Chap 13-14 TB
29-32	Immune System Interaction	Crowd Control: Tumor Immunology and Immunotherapy	Chap 15 TB
33-35	Treatment of Cancer	Evolution of Drugs, Personalized Therapy, Potential Targets and Clinical Trials	Chapter 16
36-40	Cancer, Society and Life Style	Environmental Toxicants and Diets	Reviews

4. Evaluation scheme:

Component	Duration	Weightage (%)	Date & Time	Venue	Remarks
Quizzes (Multiple-to be Announced)		20			CB
Mid Term Test	90 minutes	20	9/10 4:00 - 5:30 PM		Partly OB
Seminar		5			
Assigment		5			
Lab and Record		20			
Comprehensive Exam	3 Hrs	30	11/12 AN		Partly OB

5. **Chamber consultancy hour**: To be announced in class room.

6. **Notices:** Notices will be displayed on Biological Sciences Department notice board.

7. **Make up Policy:** Make up may be granted only to genuine cases such as hospitalization.

Instructor-in-Charge