



FORMAT FOR COURSE CURRICULUM

L	T	P/S	SW/F W	TOTAL CREDIT UNITS
2	-	-	4	4

Course Title: ADVANCES IN CANCER RESEARCH

Course Code: BIOT 953

Credit Units: 4

Course Objectives: To establish basic understanding of different aspects of cancer, and be updated on the recent advances in cancer research

Pre-requisites: Basic knowledge of biological sciences

Student Learning Outcomes: At the end of this course, the students will be able to develop:

- Understanding of cancer basics and epidemiology,
- Molecular basis of cancer initiation and progression;
- Cancer prevention, diagnosis, management, and treatment,
- Recent paradigms in the understanding of cancer, its diagnosis and therapy

Course Contents/Syllabus:

	Weightage (%)
Module I: Introduction	
Definition, Classification and Causes of Cancer; Cancer Epidemiology and risk factors - genetic and environmental.	10
Module II: Cellular and Molecular Basis of Cancer	
Hallmarks of cancer. Roles of proto-oncogenes and tumor suppressors; Deregulation of cell signaling in cancer. Tumor metastasis and Angiogenesis. Cancer Stem Cell hypothesis. Micro RNA and cancer.	25
Module III: Cancer Immunobiology	
Cancer immunosurveillance, Cancer vaccines and cancer immunotherapy.	15
Module IV: Cancer Diagnostics	
Conventional methods of cancer diagnosis and detection. Cancer Biomarkers. Cancer Imaging.	25
Module V: Cancer Prevention and Treatment	
Cancer chemoprevention. Conventional cancer treatment. Molecular targeting and drug delivery systems for cancer. Gene therapy and stem cells in cancer.	25

Pedagogy for Course Delivery: interactive classroom teaching from text books, published reviews and articles

Lectures: 28

Class Test: 1

Seminar/Presentation: 1

Total: 30

Assessment/ Examination Scheme:

Theory L/T (%)	Self Work (%)	End Term Examination
70	30	100

Theory Assessment (L&T):

Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down)	Class test	Presentation	Viva	Attendance	70
Weightage (%)	15	5	5	5	

Self Work Assessment:

Continuous Assessment/Internal Assessment				End Term Examination		
Components	Gap Analysis	Synopsis	Total	Performance	Viva	Total
Weightage (%)	15	15	30	35	35	70

Resources, Texts and References:

Web Sources:

<http://en.wikipedia.org/wiki/Cancer>
<http://globocan.iarc.fr/>
<http://www.who.int/cancer/resources/iarc/en/>
<http://www.cancer.org/>

Texts and References:

- Cancer Incidence in Five Continents Vol. IX IARC Scientific Publication No. 160. Edited by M. P. Curado, B. Edwards, H. R. Shin, H. Storm, J. Ferlay, M. Heanue and P. Boyle 2007; ISBN 92 832 2160 9 (free download from <http://www.iarc.fr/en/publications/pdfs-online/epi/>).
- Tumor Immunology and Cancer Vaccines. Series: Cancer Treatment and Research, Vol. 123. Khleif, Samir (Ed.). 2005. Springer.
- Introduction to the Cellular and Molecular Biology of Cancer. Fourth Edition. Margaret Knowles and Peter Selby. 2005. Oxford University Press.
- The Biology of Cancer Edition: 2nd Edition. Robert A. Weinberg ISBN: 9780815342205. 2013. Garland Science.