

**Course Objectives:**

The objectives of the course are:-

1. To enhance the knowledge in the area of Cancer Biology.
2. To provide core concepts involved in the transformation of normal cell in to cancer cell.
3. To introduce the major signaling circuitry programs contributing towards cancer.

**Course Learning Outcomes:**

Upon successful completion of the course, the student will be able to:

1. **ACQUIRE** the advanced knowledge of Cancer Biology.
2. **UNDERSTAND** the concepts of transformation of normal cell in to tumor cell.
3. **ANALYZE** the signaling pathways contributing towards Cancer.
4. **EVALUATE** the problems related to genetic mutations and tumor suppressor genes, etc.

**Course Contents:**

DNA mutation and cancer, Role of telomerase in carcinogenesis, Role of male and female sex hormone in cancer induction, Molecular basis of conversion of proto-oncogenes into oncogenes, Cancer Epigenetics, DNA methylation and cancer, Histone acetylation/deacetylation and cancer.

**Teaching-Learning Strategies**

Teaching will be a combination of class lectures, class discussions, and group work. Short videos /films will be shown on occasion.

**Assignments**

The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

**Assessments and Examination**

Sessional Work:	25 marks
Midterm Exam:	35 marks
Final term Exam:	40 marks

**Books Recommended:**

1. Bettar, E.E. 1973. Cell Biology And Medicine, John Wiley.
2. Beck, F. 1975. The Cell In Medical Science, Academic Press, New York.
3. Margaret A., 2005. Knowles, Peter J. Selby Introduction to the Cellular and Molecular Biology of cancer Oxford University Press, USA; 4<sup>th</sup> Ed.
4. L.M. Franks, N.M. Teich, 1997. Introduction to the Cellular and Molecular Biology of Cancer, Oxford University Press, USA, 3<sup>rd</sup> Ed.

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## **Course Contents:**

Determination of IC<sub>50</sub> values of various drugs against cancer cells using MTT assay. Assessment of Nuclear morphological changes using PI and H33258 staining from prepared slides. Identification of apoptosis and necrosis

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