AMITY UNIVERSITY
UTTAR PRADESH

Annexure 'CD – 01'

FORMAT FOR COURSE CURRICULUM

Course Title: Chemical Biology
Course Code: GCMB211
Credit Units: 02

L	T	P/S	SW/FW	TOTAL CREDIT UNITS
2	0	0	0	2

Course Objectives: The course is designed to help students in understanding of biological systems through the application of chemical reactions, techniques and tools. The course provides students knowledge of chemical approaches to solve biological problems.

Pre-requisites: Knowledge of Chemistry and biology

Student Learning Outcomes:

The student will be able to

- Comprehend the fundamental concepts of chemical reactions through biological systems.
- Assess the contribution of advanced techniques and tools of biological systems and differentiate from traditional chemistry or biology.
- Use chemical approaches to solve biological problems.
- Design chemical synthesis of peptides and other bioactive compounds.
- Understand theoretical aspects of bioorganic chemistry and biochemistry.

Course Contents/Syllabus- Theory:

	Weightage (%)
Module I Principles of chemical biology:	**40**
Descriptors/Topics: Chemistry of glycosylation, phosphorylation, sulphonylation, methylation of proteins and nucleic acids, Chemistry of enzymatic digestion of nucleic acids and proteins. Specificity of DNA polymerase action, chemical modificatons of RNA and biological.	
Module II Applied Chemical Biology:	**30**
Descriptors/Topics: Cellular Receptors for drug action, methods for identifying the cellular targets for natural products with special emphasis given to paclitaxel and vancomycin.	
Module III Chemical Tools in Biology:	**30**
Descriptors/Topics: Chemical method of synthesis peptides, Hydrogen/Deuterium exchange reaction and its application in monitoring biological Processes. Nano particles mediated monitoring of protein conformational studies for folding unfolding pathway.	

Pedagogy for Course Delivery:

Lectures: 28
Class Test: 2
Total: 30

Assessment/ Examination Scheme:

Theory L/T (%)	Lab/Practical/Studio (%)	Total
100	NA	100

Theory Assessment (Theory):

Continuous Assessment/Internal Assessment						Total
Components (Drop down)	**Class Test 1**	**Class Test 2**	**Home Assignment**	**Attendance**	**End term**	
Weightage (%)	10	10	5	5	70	100

Text:

1. Essentials of Chemical Biology: Structure and Dynamics of Biological Macromolecules, Andrew D. Miller, Julian Tanner ,July 2008 ISBN: 978-0-470-84531-8
2. Chemical Biology, World Scientific Series in 20th Century Biology: Volume 5: Edited by: H Gobind Khorana (Massachusetts Institute of Technology, USA)