

**DEPARTMENT OF CHEMISTRY
INDIAN INSTITUTE OF TECHNOLOGY DELHI**

MODULE FOR CML100 COURSE, SEMESTER-II, 2017-2018

Instructors' details:

**Coordinator & Organic
Instructor**

: Prof. N. G. Ramesh
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Inorganic Instructor

: Prof. Kuntal Manna
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Physical Instructor

: Prof. Sameer Sapra
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Total Number of Lectures : 42
Physical : 20
Inorganic : 11
Organic : 11

Period of classes.

Physical : 02/01/2018 – 06/03/2018 (20 lectures)
Inorganic : 07/03/2018 – 06/04/2018 (11 lectures)
Organic : 07/04/2018 – 02/05/2018 (11 lectures)

Examination pattern:

Minor – 1 : **Only physical chemistry**
Minor – 2 : **Physical + Inorganic Chemistry** (Distribution of marks and syllabus will be informed by the faculty before the examination)
Major : **All three** (Distribution of marks and syllabus will be informed by the faculty before the examination)

In addition to minor and major exams, tutorial sheets will be uploaded and students are requested to submit the completed tutorial problems by the due date to be informed by concerned faculty member.

There will be FOUR tutorial sheets in Physical and TWO each in Inorganic and Organic Chemistry (Total 8 tutorials). Completion and timely submission of tutorial sheets are ESSENTIAL as they carry marks.

MARK Distribution:

Minor – I	:	21 Marks
Minor - II	:	21 Marks
Major	:	42 Marks
Tutorials	:	16 Marks (Each Tutorial will carry TWO marks)

ATTENDANCE POLICY:

As per Institute rules, 75% attendance is compulsory. **Anyone who falls short of 75% attendance will be awarded ONE GRADE LESS than what they actually deserve as per their obtained marks.**

GRADE POLICY: Those who secure >80% will be awarded 'A' Grade. Minimum 30% mark is required to obtain 'D' GRADE.

SYLLABUS:

Entropy and free energy changes in chemical processes, chemical equilibria, phase transformations, structure and dynamics of microscopic systems, physical basis of atomic and molecular structure, three-dimensional arrangement of atoms in molecules, structure and reactivity of organic, inorganic and organometallic compounds, basic strategies for synthesis of carbon and silicon containing compounds, coordination chemistry, role of inorganic chemistry in living systems.

LIST OF BOOKS GENERALLY FOLLWED. IN ADDITION ONE MAY HAVE TO FOLLOW CLASS NOTES.

PHYSICAL:

- 1) Physical Chemistry, P. W. Atkins and Julio de Paula, 9th Ed. Oxford University Press
- 2) Physical Chemistry - A molecular approach, D. A. McQuarrie and J. D. Simon, Viva books

INORGANIC:

1. J. E. Huheey, E. L. Keiter, and R. L. Keiter, Harper Collins, Inorganic Chemistry
2. B. D. Gupta and A. J. Elias, Basic Organometallic Chemistry

ORGANIC:

1. Organic Chemistry by Morrison & Boyd
2. Organic Chemistry by Solomons, Fryhle & Snyder
3. Organic Chemistry by Ege
4. A Guide Book to Mechanism in Organic Chemistry by Peter Sykes