# Department of Chemistry

# Scheme and Syllabus

**for**

# M. Sc. (Chemistry)

## SLIET

## *(Deemed-to-be-University)*

**(Session 2016-17 onwards)**

**ANNEXURE-I**

**M.Sc (CHEMISTRY)**

**SEMESTER – I**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Code No.** | Subject | **L** | **T** | **P** | **Credits** |
|
| 1. | AC 8101 | Physical Chemistry- I | 4 | 0 | 0 | 4 |
| 2. | AC 8102 | Inorganic Chemistry-I | 4 | 0 | 0 | 4 |
| 3. | AC 8103 | Organic Chemistry-I | 4 | 0 | 0 | 4 |
| 4. | AC 8104 | Computer for Chemists | 2 | 0 | 0 | 2 |
| 5. | AC 8105 A/B | Mathematics for Chemists/Biology for Chemists\* | 2 | 0 | 0 | 2 |
| 6. | AC 8151 | Organic Chemistry Lab | 0 | 0 | 6 | 3 |
| 7. | AC 8152 | Inorganic Chemistry Lab | 0 | 0 | 6 | 3 |
| 8. | AC 8153 | Computer Lab | 0 | 0 | 2 | 1 |
| **Total** | 16 | 0 | 14 | **23** |

\* Mathematics for chemists for students of B.Sc. (medical) and Biology for chemists for students of B.Sc. (Non-medical)

**SEMESTER – II**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.No.** | **Code No.** | **Subject** | **L** | **T** | **P** | **Credits** |
|
| 1. | AC 8201 | Physical Chemistry- II | 4 | 0 | 0 | 4 |
| 2. | AC 8202 | Inorganic Chemistry-II | 4 | 0 | 0 | 4 |
| 3. | AC 8203 | Organic Chemistry-II | 4 | 0 | 0 | 4 |
| 4. | AC 8204 | Group theory and spectroscopy | 3 | 0 | 0 | 3 |
| 5 | AC 8205 | Analytical Chemistry | 3 | 0 | 0 | 3 |
| 6 | AC 8251 | Physical Chemistry Lab. | 0 | 0 | 6 | 3 |
| 7 | AC 8252 | Analytical Chemistry Lab. | 0 | 0 | 6 | 3 |
| Total | 18 | 0 | 12 | **24** |

**SEMESTER – III**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.No.** | **Code No.** | **Subject** | **L** | **T** | **P** | **Credits** |
|
| 1. | AC 9101 | Spectroscopic Techniques | 5 | 0 | 0 | 5 |
| 2. | AC 9102 | Environmental Chemistry-I | 4 | 0 | 0 | 4 |
| 3. | AC 91\* | Elective – I\* | 4 | 0 | 0 | 4 |
| 4. | AC 91\* | Elective – II\* | 4 | 0 | 0 | 4 |
| 5 | AC 91\* | Elective – III\* | 4 | 0 | 0 | 4 |
| 6 | AC 9151 | Advanced Lab. Techniques – I\* | 0 | 0 | 6 | 3 |
| Total | 21 | 0 | 06 | **24** |

\* The student shall be required to select elective subjects from the list of subjects offered (depending upon the availability of the concerned faculty) during this semester under his/her specialization.

**SEMESTER – IV**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.No.** | **Code No.** | **Subject** | **L** | **T** | **P** | **Credits** |
|
| 1. | AC 92\* | Elective – IV | 3 | 0 | 0 | 3 |
| 2. | AC 92\* | Elective –V | 3 | 0 | 0 | 3 |
| 3. | AC 92\* | Elective – VI | 3 | 0 | 0 | 3 |
| 4. | AC 9251 | Dissertation\* | 0 | 0 | 22 | 11 |
| **Total** | 9 | 0 | 22 | **20** |
|  |  |  |  |  |

\* The dissertation work shall be undertaken on daily basis. Each student has to give SEMINAR to defend his/her dissertation in the department.

**In addition, Students are encouraged to undergo:**

1. **Summer training of 4-6 weeks after 2nd Semester in summer vacations [in Industry or IIT’s or IISER’s or National research laboratories or National/State universities of Repute]**
2. **Industrial/Educational tour**

**LIST OF ELECTIVE SUBJECTS AS PER SPECIALIZATION**

Students are required to select any **six** **(I-VI)** of the following elective papers as per the specialization allotted during the start of 2nd year.

**1. ORGANIC CHEMISTRY**

 **Elective -I**

AC- 9103 Bio-organic Chemistry

**Elective -II**

AC-9104 Chemistry of Natural Products

**Elective –III (Common)**

AC-9109A Chemistry of Materials

AC-9109B Supramolecular Chemistry

AC-9109C Instrumental Methods of Analysis

 **Elective – IV-VI**

AC-9201A Organic Synthesis-I

AC-9201B Organic Synthesis-II

AC-9201C Organic synthesis - III

AC-9201D Heterocyclic Chemistry

AC-9201E Green Chemistry

AC-9201F Polymer Chemistry

AC-9201G Organic Photochemistry

AC-9201H Medicinal Chemistry

AC-9201 I Molecular Modeling in Chemistry

**2. INORGANIC CHEMISTRY**

 **Elective -I**

AC-9105 Advanced Coordination Chemistry

 **Elective –II**

AC-9106 Bio-inorganic Chemistry

**Elective –III (Common)**

AC-9109A Chemistry of Materials

AC-9109B Supramolecular Chemistry

AC-9109C Instrumental Methods of Analysis

 **Elective – IV-VI**

AC-9202A Inorganic Photochemistry

AC-9202B Organometallic Chemistry

AC-9202C Physical Methods in Inorganic Chemistry

AC-9202D Special Topics in Inorganic Chemistry

AC-9201 I Molecular Modeling in Chemistry

**3. PHYSICAL CHEMISTRY**

**Elective -I**

AC-9107 Statistical Mechanics

**Elective -II**

AC-9108 Quantum Mechanics

**Elective –III (Common)**

AC-9109A Chemistry of Materials

AC-9109B Supramolecular Chemistry

AC-9109C Instrumental Methods of Analysis

**Elective – IV-VI**

AC-9203A Macromolecules and Surface Chemistry

AC-9203B Advanced Statistical Thermodynamics

AC-9203C Physical Methods in Chemistry

AC-9203D Electrochemistry and Chemical Kinetics

AC-9203E Photo-physical Chemistry

AC-9203F Molecular Reaction Dynamics

AC-9203G Biophysical Chemistry