**M.Phil.**

**Semester-I**

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| **Subject** | **Subject Code** | **Objective**  | **Outcome** |
| **Research Methodology** | **CH-601** | **Objective:**1. To understand the principles of research, literature survey and develop writing and presentation skills
2. To gain some knowledge about the applications of computer in Chemistry.
 | **Outcome:** 1. The students will know the different routes to design a research problem
2. Improved the competency in literature search, analysis and presentation of data, writing skills.
3. Improved the numerical aptitude and computational knowledge
4. Use of differetn computer softwares for collection of data and analysis
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| **GENERAL THEORY-I** | **CH-603** | **Objective:** 1. To introduce basic of quantum chemistry, macromolecular chemistry, molecular spectroscopy.
2. To study the thermodynamic behaviors of polymers in solutions
3. To study the solubility and solubility parameters, nature of crystallinity, effects of radiation on polymers and cross-linking of polymers.
 | **Outcome**: 1. Students will gain the knowledge of different types of spectra obtained experimentally.
2. Understand the structure and properties of polymer molecules and macro molecular compounds.
3. Understand about structure, thermodynamic properties and applications of some commercial polymers
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| **GENERAL THEORY-II** | **CH-605** | **Objective:** To introduce the advance concept of organometallic chemistry, catalysis, role of frontier orbitals in organic reaction andNMR spectral analysis of organic compounds. | **Outcome:** Students will acquire comprehensive knowledge on synthesis and applications of organometallic compounds, participation of FMO in organic reactions and interpretation of NMR spectra. |
| **SEMINAR** | **CH-607** | **Objective:** To learn to develop review articles on a particular topic.  | **Outcome:** Students will learn the way to present a research topic. |

**Semester-II**

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| **Subject** | **Subject Code** | **Objective**  | **Outcome** |
| **Elective-I****Organic Chemistry-I** | C H-602 | **Objective:** To make familiar with advanced topics of organic chemistry. | **Outcome**:Students will be more focused and get advanced concept of heterocyclic chemistry with respect to synthetic methodology and applications. . |
| **Elective-I****Inorganic Chemistry -I** | **CH-602** | **Objectives:** To develop advanced concept on crystal field theory, inorganic reaction mechanism and photo chemistry | **Outcome:**The advance course will familiarize the student with recent development of chemical bondingin inorganic chemistry, different thermodynamic parameter on reaction mechanism and photo physical properties of different inorganic molecules. |
| **Elective-II****Organic Chemistry-II** | CH-604 | **Objective:**To impart knowledge on synthetic methodology and use of organometallic compounds in organic synthesis.  | **Outcome:** 1. Acquired knowledge on different methodology in organic synthesis
2. Understand the potential selectivity and reactivity of different organometallic reagents.
3. Understand the synthetic process of different drugs molecules.
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| **Elective-II****Physical Chemistry-II** | CH-604 | **Objective:**To introduced to the concept of nanomaterials and its magnetic properties  | **Outcome:**The in depth concept will help in pursing advance research in nanoscience. |
| **Elective-II****Inorganic Chemistry-II** | **CH-604** | **Objective:** To introduce theconcept of reaction mechanism and bioinorganic chemistry. | **Outcome**: The course will develop the concept of important biological processes pertaining to different metals.  |
| **Dissertation** | **CH-606** | **Objective:** Students will review articles in a particular topic | **Outcome:** Students will learn how to present a research topic |