The MSc programme is constituted by one year of lectures followed by end of semester examinations, and another year of research ended by submission of a dissertation in any one of the five branches: Analytical, Applied, Inorganic, Organic, and Physical Chemistry.

**MSc CURRICULUM**

1. The program requires students to enroll full-time
2. The duration of the program will be two calendar years or four semesters. Each Semester shall consist of 17 weeks of teaching and three weeks of examinations.
3. The program will consist of two parts; part I (Course Work) and part II (Research and Dissertation).
4. Part I of the program will be completed in two semesters and will consists of course work with nine courses.
5. One courses unit shall be equivalent to one contact hour per week per semester. One hour of lecturers shall be equivalent to one contact hour, Two hours of practical shall be equivalent to one contact hour and one tutorial hour shall be equivalent to one contact hour.
6. There will be four compulsory courses which shall be completed in the first semester. The four courses CHM 7101, CHM 7102, CHM 7103 and CHM 7104 have been designed to give candidates a broad background knowledge on relevant topical issues in chemistry.
7. Five courses shall be completed in the second semester. One compulsory course; and four other courses to be selected from any of the given areas in consultation with the supervisor(s), with at least three of the four from the area of specialization.
8. In part II of the program, candidates will undertake individual research projects in their areas of specialization which will form the subject of a concise dissertation.

ix) The areas of specialization are:

Inorganic Chemistry, Analytical/Environmental Chemistry, Organic Chemistry, Physical Chemistry,

Applied Chemistry

COURSE WORK (PART I)

First Semester

# COMPULSORY COURSES

Every candidate will be required to do the following courses in the first semester:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code** | **Course title** | **Lecture hours** | **Practical hours** | **Course Units** |
| CHM 7101 | Research methodology | 30 | 0 | 2 |
| CHM 7102 | Instrumentation | 30 | 30 | 3 |
| CHM 7103 | Analytical Methods | 30 | 30 | 3 |
| CHM 7104 | Laboratory management and quality assurance | 30 | 0 | 2 |

**b) Second Semester**

In the second semester, every candidate will be required to take five courses from the list given under the five (II-VI) specialized areas of research below:

1. There will be one compulsory course selected from among courses in section I below. A student will be required to select a course depending on his/her intended area of specialization. The selected course within this section is anticipated to update the student on recent developments within the area of specialization as he/she intends to develop a research topic. This will mainly be a self reading course with occasional consultation of the lectures concerned and the students will be expected to present in monthly seminars as part of the progressive assessment.
2. At least three courses must be drawn from one area of specialization (sections II, III, IV, V and VI) and where necessary the fourth course will be a related course selected from other areas. The table below gives the areas of specialization and the courses in each area.
3. **RECENT TOPICS AND SEMINAR COURSE** (Choose one)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code** | **Course title** | **Lecture hours** | **Practical hours** | **Course units** |
| CHM 7201 | Special Topics in Organic Chemistry | 30 |  | 2 |
| CHM 7202 | Special Topics in Inorganic Chemistry | 30 |  | 2 |
| CHM 7203 | Special Topics in Analytical/Environmental Chemistry | 30 |  | 2 |
| CHM 7204 | Special Topics in Physical Chemistry | 30 |  | 2 |
| CHM 7205 | Special Topics in Applied Chemistry | 30 |  | 2 |

**II. INORGANIC CHEMISTRY**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code** | **Course title** | **Lecture hours** | **Practical hours** | **Course units** |
| CHM 7206 | Advanced chemistry of p-block elements | 30 |  | 2 |
| CHM 7207 | Chemistry of metal clusters | 30 |  | 2 |
| CHM 7208 | Coordination compounds & Redox reactions | 30 |  | 2 |
| CHM 7209 | Advanced Organometallic & bioinorganic chemistry | 30 |  | 2 |

# III. ANALYTICAL/ENVIRONMENTAL CHEMISTRY

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code** | **Course** **Title** | **Lecture** **hours** | **Practical hours** | **Course** **units** |
| CHM 7210 | Atmospheric Chemistry | 30 |  | 2 |
| CHM 7211 | Chemistry of water environment | 30 |  | 2 |
| CHM 7212 | Land pollution | 30 |  | 2 |
| CHM 7213 | Geochemistry | 30 |  | 2 |

# IV ORGANIC CHEMISTRY

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code** | **Course title** | **Contact hours** | **Practical hours** | **Course** **Units** |
| CHM 7214 | Advanced spectroscopy | 30 |  | 2 |
| CHM 7215 | Organic synthesis | 30 |  | 2 |
| CHM 7216 | Advanced Natural Products chemistry | 30 |  | 2 |
| CHM 7217 | Synthesis of heterocyclic natural compounds | 30 |  | 2 |

# V PHYSICAL CHEMISTRY

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code** | **Course** **title** | **Lecture** **hours** | **Practical hours** | **Course** **units** |
| CHM 7218 | Advanced thermodynamics | 30 |  | 2 |
| CHM 7219 | Advanced reaction kinetics | 30 |  | 2 |
| CHM 7220 | Advanced topics in electro chemistry | 30 |  | 2 |
| CHM 7221 | Advanced Polymer chemistry | 30 |  | 2 |

# VI APPLIED CHEMISTRY

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code** | **Course** **Title** | **Contact** **hours** | **Practical hours** | **Course** **units** |
| CHM 7222 | Ceramic, Glass & Cement chemistry | 30 |  | 2 |
| CHM 7223 | Food & Fermentation chemistry | 30 |  | 2 |
| CHM 7224 | Advanced inorganic chemical technology  | 30 |  | 2 |
| CHM 7225 | Geochemical techniques | 30 |  | 2 |