

Study & Evaluation Scheme

of

Master of Science (Chemistry)

[Applicable for Academic Session 2019-20]



TEERTHANKER MAHAVEER UNIVERSITY

N.H.-24, Delhi Road, Moradabad, Uttar Pradesh-244001

Website: www.tmu.ac.in



Program Structure-M.Sc. Chemistry

A. Introduction:

Chemistry is referred to as the science that systematically studies the composition, properties, and reactivity of matter at atomic and molecular level. The scope of chemistry is very broad. The key areas of study of chemistry comprise Organic chemistry, Inorganic Chemistry, Physical Chemistry and Analytical Chemistry. Organic chemistry deals with study of substances containing carbon mostly; inorganic chemistry deals with study of all other elements/compounds/substances and their chemical properties. Physical chemistry deals with applications of concepts, laws to chemical phenomena. Analytical chemistry, in general, deals with identification and quantification of materials. Development of new interdisciplinary subjects like nano-materials, biomaterials, etc. and their applications from chemistry point of view added new dimension to materials chemistry. Thus, the degree programme in chemistry also intended to cover overlapping areas of chemistry with physics, biology, environmental sciences. Further, a broad range of subjects such as materials chemistry, biomaterials, nanomaterials, environmental chemistry, etc., has also been introduced which can be helpful for students/faculty members to broaden the scope of their studies and hence applications from job prospective point of view. Therefore, as a part of efforts to enhance employability of graduates of chemistry, the curricula also include learning experience with industries and research laboratories as interns. In addition, industrial visits/industrial projects are encouraged and added to the curriculum in order to enhance better exposure to jobs/employment opportunities in industries, scientific projects and allied sectors.

The aim of master degree programme in chemistry is intended to provide: (i) Broad and balance knowledge in chemistry in addition to understanding of key chemical concepts, principles and theories. (ii) To develop students' ability and skill to acquire expertise over solving both theoretical and applied chemistry problems. (iii) To provide knowledge and skill to the students' thus enabling them to undertake further studies in chemistry in related areas or multidisciplinary areas that can be helpful for self employment/entrepreneurship. (iv) To provide an environment that ensures cognitive development of students in a holistic manner. A complete dialogue about chemistry, chemical equations and its significance is fostered in this framework, rather than mere theoretical aspects. (v) To provide the latest subject matter, both theoretical as well as practical, such a way to foster their core competency and discovery learning. A chemistry graduate as envisioned in this framework would be sufficiently competent in the field to undertake further discipline-specific studies, as well as to begin domain-related employment. (vi) To mould a responsible citizen who is aware of most basic domain-independent knowledge, including critical thinking and communication. (vii) To enable the graduate prepare for national as well as international competitive examinations, especially UGC-CSIR NET and UPSC Civil Services Examination.

B. Choice Based Credit System (CBCS)

Choice Based Credit System (CBCS) is a versatile and flexible option for each student to achieve his target number of credits as specified by the UGC and adopted by our University.

The following is the course module designed for the M.Sc. program:

- **Core competency:** Students will acquire core competency in the subject Chemistry, and in allied subject areas. (i) Systematic and coherent understanding of the fundamental concepts in Physical chemistry, Organic Chemistry, Inorganic Chemistry, Analytical Chemistry and all other related allied chemistry subjects. (ii) Students will be able to use the evidence based comparative chemistry approach to explain

