Yashwantrao Chavan Maharashtra Open University
Dnyangangotri near Gangapur Dam, Nashik, Pin Code-422222, Maharashtra(India)

Programme Structure Scheme

For

Post Graduate,
2 Year(s) Master Degree Program in

School of Sciences

Master of Science in Chemistry(V154 - M.Sc. in Chemistry)
(Credits System)

(2023 Pattern - NEP-Open and Distance Learning)
Programme Code: V154

Publisher's Note

This Yashwantrao Chavan Maharashtra Open University has great Pleasure in publishing this programme structure for Post Graduate programme for 2 Year(s) Master Degree Program as "Master of Science in Chemistry" (2023 Pattern - NEP - Open and Distance Learning) under the School of "School of Sciences".

On behalf of the University, I thank experts and authorities of the University for the interest taken and the whole hearted co-operation extended by them in bringing out this publication.

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Yashwantrao Chavan Maharashtra Open
University,Dnyangangotri near Gangapur Dam,
Nashik, Pin Code-422222, Maharashtra(India) Registrar

Programme Objective(s)

1. Programme Objective

This programme has the following broad objectives:
• To study critical thinking and analytical skills to enable students to pursue higher studies and research in Chemistry. To expose students to current trends in research about Chemistry.
• To explore scientific reasoning and quantitative analysis. Our majors will be able to apply chemical concepts to solve qualitative and quantitative problems.
• To provide a strong foundation for a better understanding of current advances in Chemistry and its practical significance.
•To perform statistical analysis of chemical data by developing analytical mind.
• To discuss Laboratory practice and safety. In order to learn the ways in which new scientific knowledge is created, our majors will experience how chemists interpret chemical and physical phenomena through experimental investigation.
• To study the Principles of mass spectroscopy, gas chromatography and HPLC. Apply the techniques for structure determination of organic molecules. To demonstrate the mechanism of various reactions.

Programme Outcome

After successful completion of this programme, students will be able to
• Inculcate critical thinking and analytical skills to enable students to pursue higher studies and research in Chemistry. Expose students to current trends in research about Chemistry.
• Use key concepts of inorganic and organ metallic chemistry including those related to synthesis, reaction chemistry, and structure and bonding.
• Apply the knowledge to develop the sustainable and eco-friendly technology in Industrial Chemistry..
• Formulate the macroscopic and quantum laws of the absorption of light by molecules and solids. Describe the various deactivation processes of molecular excited states. Characterize the kinetics of deactivation processes and their role in the photochemical reactivity.
• Understand the Principles of mass spectroscopy, gas chromatography and HPLC. Apply the techniques for structure determination of organic molecules. Understand the mechanism of various reactions.

The Master of Science in Chemistry Consists of following 2 programme part(s):

Sr.No.	Programme Part Name	Programme Part Abbrevation	Examination Pattern
1	Year-1	Year-1	Semester
2	Year-2	Year-2	Semester

The Master of Science in Chemistry is available in following medium of instruction/s:

1. English

Programme Part: Year-1 Separate Passing Head: No, Min: 0, Max: 1100, Total Credits: 44.00

Term: Semester I Separate Passing Head: No, Min Courses: 6, Max Courses: 6, Min:0,Max:550, Total Credits: 22.00

The courses for Year-1 - Semester I are classified into following groups:

1.Major Elective (Min Courses: 1, Max Courses: 1,
Separate Passing Head: No, Max. Marks: 100)
Select minimum 1 course(s)
Select maximum 1 course(s)

Courses:

CHE506	Physical Methods in Chemistry
CHE507	Polymer Chemistry

2.Major Mandatory (Min Courses: 4, Max Courses: 4,
Separate Passing Head: No, Max. Marks: 350)
Select minimum 4 course(s)
Select maximum 4 course(s)

Courses:

CHE501	Inorganic Chemistry-I
CHE502	Physical Chemistry-I
CHE503	Organic Chemistry-I
CHE504	Lab Activities on CHE501, CHE502 & CHE503

3.Research Methodology (Min Courses: 1, Max Courses: 1,
Separate Passing Head: No, Max. Marks: 100)
Select minimum 1 course(s)
Select maximum 1 course(s)

Courses:

RES505	Research Methodology

Term: Semester II Separate Passing Head: No, Min Courses: 6, Max Courses: 6, Min:0,Max:550, Total Credits: 22.00

The courses for Year-1 - Semester II are classified into following groups:

1.Major Elective (Min Courses: 1, Max Courses: 1,
Separate Passing Head: No, Max. Marks: 100)
Select minimum 1 course(s)
Select maximum 1 course(s)

Courses:

CHE515	Analytical Chemistry
CHE516	Chemical Mathematics & Biostatistics

2.Major Mandatory (Min Courses: 4, Max Courses: 4,
Separate Passing Head: No, Max. Marks: 350)
Select minimum 4 course(s)
Select maximum 4 course(s)

Courses:

CHE509	Inorganic Chemistry-II
CHE510	Physical Chemistry-II
CHE511	Organic Chemistry-II
CHE512	Lab Activities on CHE509, CHE510 & CHE511

3.OJT & FP Elective (Min Courses: 1, Max Courses: 1,
Separate Passing Head: No, Max. Marks: 100)
Select minimum 1 course(s)
Select maximum 1 course(s)

Courses:

CHE513	On Job Training
CHE514	Field Project

Programme Part: Year-2 Separate Passing Head: No, Min: 0, Max: 1100, Total Credits: 44.00

Term: Semester III Separate Passing Head: No, Min Courses: 6, Max Courses: 6, Min:0,Max:550, Total Credits: 22.00

The courses for Year-2 - Semester III are classified into following groups:

1.Major Elective (Min Courses: 1, Max Courses: 1,
Separate Passing Head: No, Max. Marks: 100)
Select minimum 1 course(s)
Select maximum 1 course(s)

Courses:

CHE606	Green Chemistry
CHE607	Drugs & Heterocyclic
CHE608	Biotechnology

2.Major Mandatory (Min Courses: 4, Max Courses: 4,
Separate Passing Head: No, Max. Marks: 350)
Select minimum 4 course(s)
Select maximum 4 course(s)

Courses:

CHE601	Organic Reaction Mechanism
CHE602	Stereochemistry
CHE603	Advanced Synthetic Methods
CHE604	Lab Activities on CHE601, CHE602 & CHE603

3.Research Project (Min Courses: 1, Max Courses: 1,
Separate Passing Head: No, Max. Marks: 100)
Select minimum 1 course(s)
Select maximum 1 course(s)

Courses:

CHE605	Research Project

Term: Semester IV Separate Passing Head: No, Min Courses: 5, Max Courses: 5, Min:0,Max:550, Total Credits: 22.00

The courses for Year-2 - Semester IV are classified into following groups:

1.Major Elective (Min Courses: 1, Max Courses: 1,
Separate Passing Head: No, Max. Marks: 100)
Select minimum 1 course(s)
Select maximum 1 course(s)

Courses:

CHE613	Natural Products
CHE614	Industrial Organic Chemistry
CHE615	Pharmaceutical Chemistry

2.Major Mandatory (Min Courses: 3, Max Courses: 3,
Separate Passing Head: No, Max. Marks: 300)
Select minimum 3 course(s)
Select maximum 3 course(s)

Courses:

CHE609	Advanced Organic Chemistry
CHE610	Advanced Organic Spectroscopy
CHE611	Lab Activities on CHE609 & CHE610

3.Reserch Project (Min Courses: 1, Max Courses: 1,
Separate Passing Head: No, Max. Marks: 150)
Select minimum 1 course(s)
Select maximum 1 course(s)

Courses:

CHE612	Research Project