# M. Sc. Chemistry





## Welcome to Learnwise!

Hi!

We are thrilled that you have decided to join us.

At Learnwise, we believe that everyone has a right to live a life of dignity and quality. We strive to provide quality learning solutions to anyone who wishes to pursue higher education regardless of their previous academic track record. If you're looking for an environment that not only supports education but also helps you gear towards your career goals, you are at the right place!

With our emphasis on job-readiness training and up-skilling, we not only help you get a degree but also provide you with unparalleled exposure into the field and help you acquire field-relevant skill-sets. Through-out your journey with us, our qualified Academic Mentors and dedicated Career Coaches ensure that all your individual learning and career needs are taken care of. When we promise you personalized interventions, we mean nothing short of expert companionship and scaffolding that anyone could ask for.

We look forward to serving you!

Warm regards, Muhammed A. Founder, Learnwise

## **About us**

We are a team of passionate individuals educated from premier institutes across India, who feel grateful for the educational and career opportunities we've got and earnestly wish to create a platform that opens up such possibilities to anyone, regardless of their socio-cultural backgrounds and previous academic track records!

Learnwise is an Online Platform for Higher Education, that provides personalized learning support for pursuing UG and PG degrees from reputed universities through a consistent Mentorship program, all through a mobile application. Alongside learning, the program also takes care of the individuals' career needs through individually tailored Career Coaching, Job-Readiness Training and industry relevant add-on Up-Skilling programs.



## Learnwise Academic Council

#### Dr. Jabir Chathanathil

Postdoctoral Fellow, Army Research Laboratory, Adelphi, Maryland, USA PhD from Stevens Institute of Technology, Hoboken, New Jersey, USA





Vijai R Pai
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Institute of Chartered Accountants of India, Delhi University Alumnus.

### Dr. Muhammed Afzal P

Asst. Prof. of English, School of Arts & Sciences, Azim Premji University, Bengaluru Former Assistant Professor, Department of Humanities and Social Sciences, BITS Pilani

PhD from University of Hyderabad





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Assistant Professor & Research Guide, Department of History
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### Radha Lekshmi M

Research Fellow | Development Studies (Political Science) Centre for Economic and Social Studies (CESS), Hyderabad



## Learnwise Academic Council

**Dr. Jabir P**IoE Post Doctoral Fellow, Department of History, School of Social Sciences, University of Hyderabad
PhD from JNU



Shreyas Joseph K Masters in Business Administration IIT Kanpur

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Senior Research Fellow, IIT Hyderabad
Masters in Counselling Psychology (Tata Institute of Social Sciences)



Aseed Karim Hussain

Junior Research Fellow

Department of Sociology

Delhi University

Sanjay Chullikkattu

Master of Social Work

Queensland University of Technology, Australia



## **About IGNOU**

For the present program, we have chosen IGNOU (Indira Gandhi National Open University) as the Institute we enroll our students with for obtaining their degrees. Along with registration with our learning program, the student enrolls with IGNOU as anyone would normally do. The difference here being that Learnwise will be supporting the student's learning whilst pursuing their degree from IGNOU.

The Indira Gandhi National Open University is the world's largest University imparting education through open and distance mode. Established in 1985, IGNOU is an internationally awarded Central University which aims to provide quality higher education opportunities to all segments of the society. It is a University that constantly strives to raise the standards of distance education and actively researches best practices in open education. Currently, it has 21 schools of studies, 67 regional centers, 3500 study centres, 12 overseas study centers, and offers 200+ programs, ranging from certificate courses, diplomas, bachelors, masters to doctoral programs.



# The Learnwise Edge



Recorded Live Lectures



Value Added Notes



Objective Tests



Topic-wise Assignments



Exampedia



Live Doubt-Clearing Sessions



Regular Mentorship & Assistance



Performance Tracking & Personalized Interventions



Provisions to Connect with Batchmates



Career Assessment & Guidance Service



Upskilling Programs



Job-Readiness Training

## M. Sc. Chemistry

Affiliated to: IGNOU Program Code: MSCCHEM

Minimum age: No bar Maximum age: No bar

Eligibility: Graduates with B.Sc. (Major/Honours) Degree in Chemistry from a recognised university OR Graduates with a B.Sc. Degree (or equivalent) from a recognised university with Chemistry as one of the three science subjects with equal weightage OR Graduates with a B.Sc. Degree from an Open University with a minimum of 20 Credits of Chemistry courses

Course Duration: Minimum 2 years, Maximum 4 years

Session starts: January & July of every year

The programme is designed and developed by experts spread across the country and is pitched at a level at par with any central University. It provides a strong foundation of fundamental and advanced aspects of chemistry and their applications in industry and research. It addresses the desire and demand of many students of the BSc/BSc (Hons. / Major) in Chemistry looking for job prospects in teaching / research / industry and R&D labs. In addition, the programme would also help many inservice people to upgrade their qualifications for mobility in their career. This includes thousands of the TGTs in the Schools spread across the country, who can improve their qualifications by earning a credible master's degree in chemistry and become eligible for the post of a PGT.

### The objectives of the programme are as to:

- Provide an exposure to fundamental principles and advanced concepts of various domains of chemistry including organic, inorganic, physical, analytical, and interdisciplinary areas;
- To cultivate critical thinking skills to analyse and propose innovative solutions complex chemical

#### **Problems**

- To provide hands-on experience in designing and conducting chemical experiments and interpreting experimental results;
- To encourage the learners for lifelong learning and equipping them with the knowledge & skill sets needed to adapt to fast changing trends in the field of chemistry throughout their careers; and provide the opportunities to the learner in building / upgrading their careers in teaching / research and industry.

### M. Sc. Chemistry Program Structure

This is a two-year master's degree programme in Chemistry, which is offered in both January and July cycles of admission. The programme has been divided into two semesters per year and comprises 14 core and compulsory theory courses worth total 50 credits, 9 compulsory lab courses worth 18 credits, and three elective courses worth 12 credits. To successfully complete this programme, you will have to earn 80 credits over a period of 2 to 4 years depending on your convenience. The detailed structure of the MSCCHEM programme is as follows:

Course Code	Title of the Course	Type of Course	Course Credits
	Semester I		
MCH-011	Inorganic Chemistry -I	Theory	04
MCH-012	Organic Chemistry-I	Theory	04
MCH-013	General Physical Chemistry	Theory	04
MCH-014*	Mathematics for Chemists	Theory	02
MCH-015*	Biology for Chemists	Theory	02
MCHL-011	Chemistry Lab-I	Lab	02
MCHL-012	Chemistry Lab-II	Lab	02
MCHL-013	Chemistry Lab-III	Lab	02
	Semester II		
MCH-016	Inorganic Chemistry -II	Theory	04
MCH-017	Organic Chemistry-II	Theory	04
MCH-018	Quantum Chemistry and group theory	Theory	04
MCH-019	Green Chemistry	Theory	02
MCHL-014	Chemistry Lab-IV	Lab	02
MCHL-015	Chemistry Lab-V	Lab	02
MCHL-016	Chemistry Lab-VI	Lab	02
	Semester III		
MCH-020	Atomic and Molecular spectroscopy	Theory	04
MCH-021	Chemistry of Materials	Theory	04
MCH-022	Separation and Spectroscopic Methods	Theory	04
MCHL-017	Separation and Spectroscopic Methods Lab	Lab	02
MCH-023	Environmental Chemistry	Theory	04
MCHL-018	Environmental Chemistry Lab.	Lab	02
	Semester IV		
MCH-024	Introduction to research	Theory	02
MCH-025	Electroanalytical and Other analytical methods	Theory	04
MCHL-019	Electroanalytical and Other analytical methods Lab	Lab	02
MCHE-011	Elective- I: Applications of spectroscopy to Inorganic &Bioinorganic molecules	Elective	04
MCHE-012	Elective- II: Spectroscopic Identification of Organic Compounds	Elective	04
MCHE-013	Elective- III: Supramolecular Chemistry	Elective	04
MCHE-014	Elective – IV: Primary and Secondary Metabolites	Elective	04
MCHE-015	Elective – V: Advanced Kinetics and Electrochemistry	Elective	04

<sup>\*</sup> The learners with biology background should choose MCH-014 (Mathematics for Chemists) course and the learners with mathematics background should choose MCH-015 (Biology for Chemists) course



Learn. Up-Skill. Flourish.

