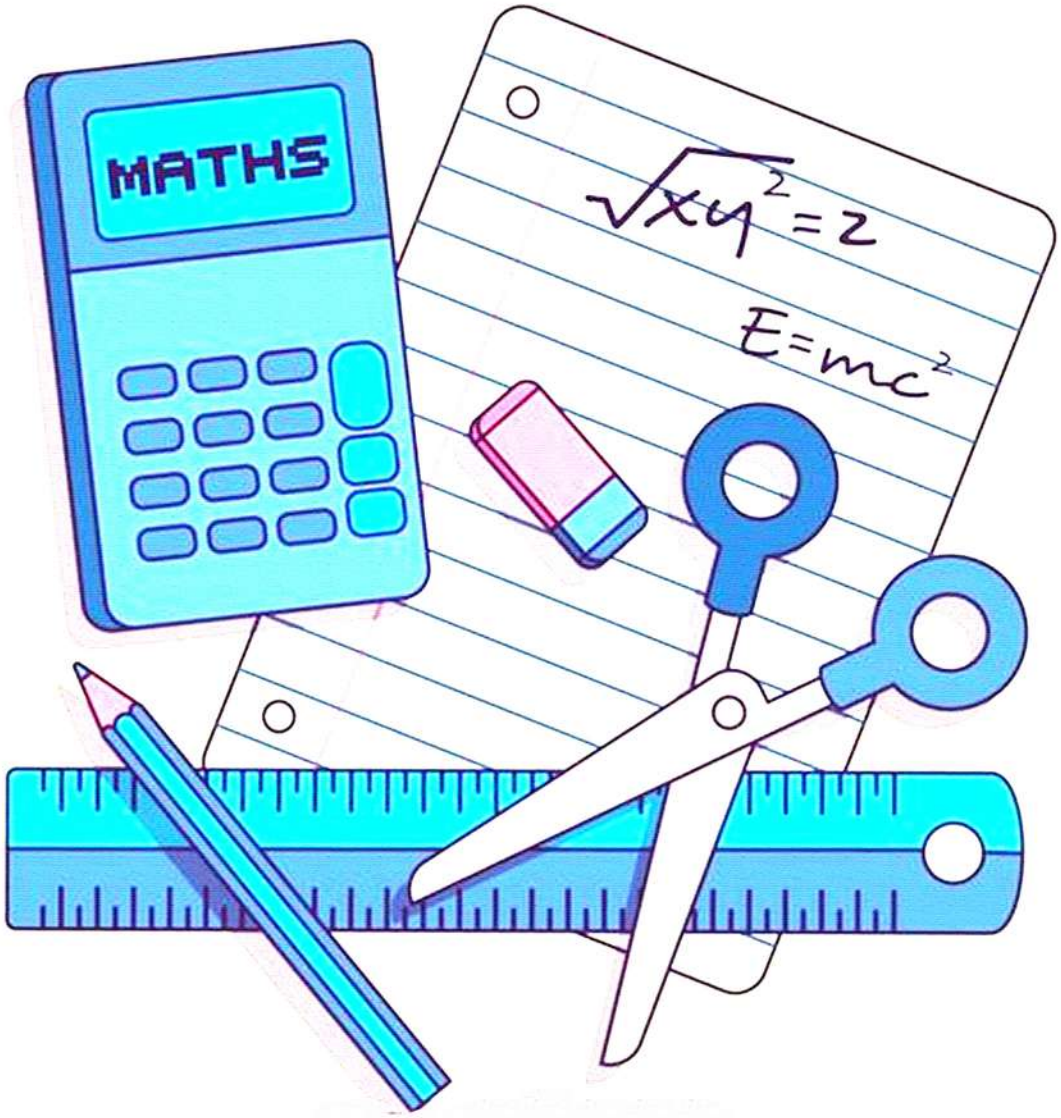
M. Sc. Mathematics with Applications in Computer Science



learnwise

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.

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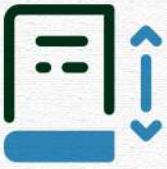
About IGNOU

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. Mathematics with Applications in Computer Science

Affiliated to: IGNOU

Program Code: MACS

Minimum age: No bar

Maximum age: No bar

Eligibility: Graduate with a Major, or Honours in Mathematics OR Graduate with a BA/B.Sc. degree with Mathematics as one of the three main subjects with equal weightage

Course Duration: Minimum 2 years, Maximum 4 years

Session starts: January & July of every year

This unique programme emphasises on the courses which have vast potential for applications in the areas such as computer science, economics, biology, etc. It offers an exciting opportunity to people who are interested in mathematics and who wish to understand how mathematics can be put to practical use. It discusses modelling and solving real world problems in the contexts of computer applications. In fact, these applications have become essential even in undergraduate education for all students, including those preparing to be scientists, engineers, technicians, teachers and leaders in business and government organisations.

Objectives of the programme:

This programme has the following broad objectives:

• To emphasise the relevance and usefulness of mathematics from an application point of view;
• To equip the learners with the core mathematical knowledge and training necessary for use in many application areas;
• To expose the learner to real-life problems and promote the use of mathematics in industry and applied sciences;
• To develop human resource in emerging disciplines such as Mathematical Biology, Computational Mathematics, etc.

M. Sc. Mathematics with Applications in Computer Science Program Structure

Studies in this 2 year programme are divided into 4 semesters (2 semesters per year). The first semester is from January to June and second semester is from July to December of each year. To successfully complete this programme, you will have to earn 64 credits over a period of 2 to 4 years depending on your convenience. However, you will not be allowed to earn more than 16 credits in a semester. These 64 credits comprise

1. Core Courses 34 credits
2. Elective Courses 26 credits
3. Project 4 credits

Total 64 credits

The details of these courses are given in Secs.5 and 6. After successfully completing the programme you will be awarded the degree of M.Sc (Mathematics with Applications in Computer Science).

Core Courses

The core courses are designed to provide mathematical knowledge and techniques, necessary for use in many application areas. These core courses, which you will be studying during the first two semesters of your studies, will prepare you well to study the courses offered during the third and the fourth semesters. We have given the pre-requisite, qualifications needed (if any) for the courses, along with their syllabus in Sec. 5.

Elective Courses

The elective courses will expose you to the applications of mathematics in the area of computer sciences.The details of these courses are given in Sec. 6.

Project

Project work is compulsory for every learner. It aims to provide you with an opportunity to undertake hands-on work in some Industry/Organizations/R&D establishment/Institution. The Project Guide that is sent to you along with the fourth semester material will give you all the details related to the project work.

Practical Work

Nine out of seventeen courses of study of the programme have a computer practical component. Computer practicals will be held at the Programme Centres. Attending practical sessions is compulsory for each student. The total number of practical sessions per semester ranges between 11 to 36. These sessions are spread over the entire semester. Completing 70% of the sessions is compulsory in the practical sessions of a course. It qualifies you to appear for the term-end practical exam of the course. Schedule for practical sessions will be provided to you by the Programme Facilitator of your centre. In some of the courses, practical assignments are given separately whereas, for some they are printed at the end of the units in the block. Please do your assignments independently and do not forget to read the instructions regarding the practical work given in the practical manual or the printed blocks of the course material.

In order to enable you to complete your M.Sc (MACS) programme within the minimum period of two years, you will have to take 16 credits worth of courses in each of the four semesters. Registration to the programme is semester-wise. After the first/second/third semester, irrespective of whether you pass or not in all the courses of the semester, you must re-register for the second/third/fourth semester courses respectively, by submitting the Course Re-registration Form with the requisite programme fee. The course re-registration form for second/-fourth, and third semesters, respectively, are given as Forms No. 9, 10 and 11, re-spectively.

It is quite possible that you cannot find sufficient time to prepare for the Term End Examinations of all the 16 credits worth of courses you have registered for in a particular semester. You can focus only on those courses in which you intend to take the examination. You can give the examination of the remaining courses later. Examinations are held in the month of June/December of each year. In this way, you can plan your courses for more than two but not more than four years. By a proper planning every year, you can complete this programme according to your convenience. The semester-wise details of the courses of M.Sc (MACS) programme is as follows: (The courses with a practical compo-nent are marked with a *)

First Semester

S. No	Course Code (Tentative)	Title of the Course	Credits	Type of Material Available
1.	MMT-001	Programming & Data Structures *	4	Print (4 Blocks)
2.	MMT-002	Linear Algebra	2	Print (2 Blocks)
3.	MMT-004	Real Analysis	4	Print (3 Blocks)
4.	MMT-005	Complex Analysis	2	Wrap-around (Text Book + Printed Study Guide)
5.	MMT-007	Differential Equations and Numerical Solutions *	4	Print (4 Blocks)

Second Semester

S. No	Course Code (Tentative)	Title of the Course	Credits	Type of Material Available
6.	MMT-003	Algebra	4	Wrap-around (Text Book + Study Guide 1 and 2.)
7.	MMT-006	Functional Analysis	4	Wrap-around (Text book + Study Guide)
8.	MMT-008	Probability and Statistics *	8	Print (8 Blocks)

Third Semester

S. No	Course Code (Tentative)	Title of the Course	Credits	Type of Material Available
9.	MMT-009	Mathematical Modelling *	2	Print (2 Blocks)
10.	MMTE-001	Graph Theory *	4	Wrap-around (Text Book + Study Guides 1 and 2.)
11.	MMTE-002	Design & Analysis of Algorithms	4	Wrap-around (Text Book)
12.	MMTE-003	Pattern Recognition & Image Processing *	4	Wrap-around (Text Book)
13.	MMTE-004	Computer Graphics *	2	Wrap-around (Text Book + Study Guide)

Fourth Semester

S. No	Course Code (Tentative)	Title of the Course	Credits	Type of Material Available
14.	MMTE-005	Coding Theory *	4	Wrap-around (Text Book)
15.	MMTE-006	Cryptography *	4	Print (3 blocks)
16.	MMTE-007	Soft Computing & its Applications *	4	Print (4 Blocks)
17.	MMTP-001	Project	4	Project Guide

Learn. Up-Skill. Flourish.

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