

DETAILS OF FUNCTIONAL MEMORANDUM OF UNDERSTANDING (MoU)

MOU with MathLab Institute, Cochin

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DETAILS OF FUNCTIONAL MEMORANDUM OF UNDERSTANDING (MoU)

NAME OF THE INSTITUTION:

CHRIST COLLEGE, IRINJALAKUDA

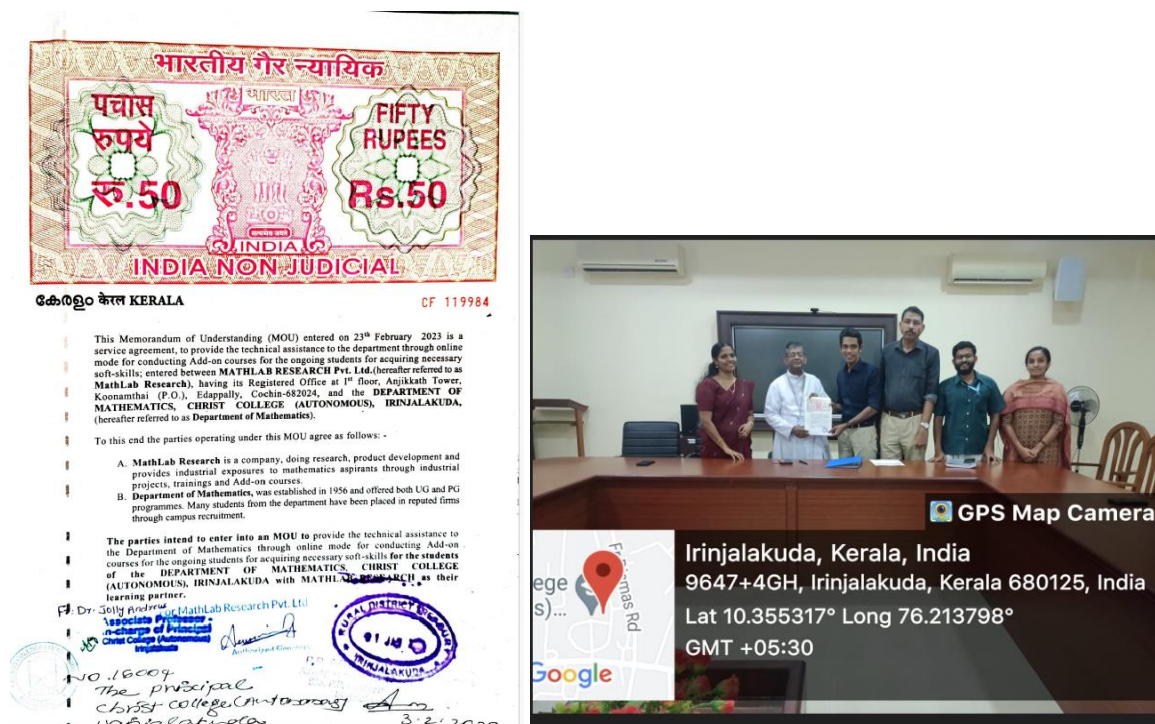
File No:	2023.9
Name of the Collaborating Institution	MATHLAB RESEARCH, COCHIN
Area of collaboration	Certificate courses, JAM coaching
Date of Initiation	23-02-2023
Co-ordinator Name	Ms. Tintumol Sunny Mary Pauly K(Joint Coordinator)
National/ International	National
Duration of collaboration	3 Years
Targeting departments/ beneficiaries	Mathematics
Number of Students/ Faculty participated	56

Details of Activities under MoU

Introduction

The Postgraduate and Research Department of Mathematics, Christ College (Autonomous) Irinjalakuda has successfully collaborated with MathLab Institute Cochin, fostering a productive partnership that has enriched our students' learning experience. MathLab Research is a company, doing research, product development and provides industrial exposures to mathematics aspirants through industrial projects, trainings and Add-on courses. During the academic year 2023-24 and 2024-25, this association has yielded the key Initiatives like certificate courses, JAM coaching etc.

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Activities conducted:

- Certificate Courses:** Department of Mathematics, Christ College (Autonomous) Irinjalakuda conducted three certificate courses: *Basics of Geogebra*, *Basics of Microsoft Excel*, *formulae and Functions in Microsoft Excel*- in collaboration with Mathlab institutions, focusing on advanced mathematical concepts and applications and Excel fundamentals. The significant contribution of Mathlab institution in formulating the syllabus of our certificate courses is remarkable. Their expertise and input have been invaluable in ensuring that our courses are relevant, comprehensive, and industry-aligned.

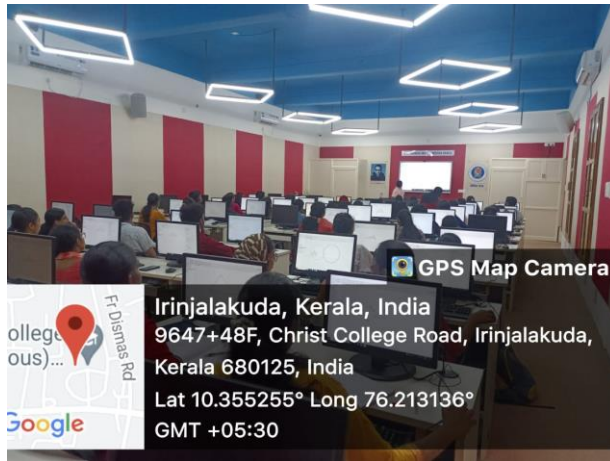
Course Outcomes


Upon completion of this course, students were able to:

- Understand the new software Geogebra and its interface
- Plotting lines, points, polygons and circles in Geogebra
- Learn new tools and plot functions in Geogebra
- Construct conics in Geogebra, Plot complex numbers in Geogebra
- Demonstrate proficiency in navigating the Excel user interface and performing basic operations.

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6. Input, format, and manipulate data in spreadsheets effectively.
7. Create basic data visualizations such as charts and graphs.
8. Apply Excel skills to solve simple real-world business problems





CHRIST
COLLEGE (AUTONOMOUS)
IRINJALAKUDA, KERALA

DEPARTMENT OF MATHEMATICS

CERTIFICATE COURSE DETAILS

NAME OF THE COURSE
Basics of GeoGebra

COURSE CODE
CPC44

COURSE DETAILS
Total hours: 30

COURSE COORDINATOR
Mr. Tintamad Sunny

PARTNERSHIP WITH
MATH Lab Cochin

ABOUT COLLEGE
Christ College (Autonomous) Irinjalakuda, established in the year 1956 by CMI fathers has always been place where young generations are moulded towards a bright future. College has excellent infrastructure, with state-of-the-art laboratories, seminar rooms and lecture halls. The campus is Wi-Fi enabled. Presently College is house for 4500+ students, 200 teaching staff and 45 supporting staff. The strength of the College lies in its handworking and tech savvy teachers who are eager to involve in all matters of students. The lush green campus with gardens and open gym is moving towards the next phase on education both offline and online.

AIM OF THE COURSE
To understand the features and uses of the software 'GeoGebra'. To learn the different tools and their applications and various commands in GeoGebra. To create geometrical shapes and plot mathematical functions in GeoGebra. To depict the geometrical meaning of calculus using GeoGebra. To construct 3D shapes and objects in GeoGebra

PROGRAM SPECIFIC OUTCOME

- To learn the concepts of mathematics in an interesting way
- To Understand and present mathematical ideas using the GeoGebra software

- To visualize 3D functions and shapes and thus learn 3D related topics easily.

SUGGESTED METHODOLOGY OF TEACHING AND LEARNING

- Online/Offline classes
- Practical sessions on GeoGebra
- Practicing constructions in GeoGebra

COURSE OUTCOMES

C01	Understanding a new software and its interface
C02	Plotting lines, points, polygons and circles in GeoGebra
C03	Learn new tools and plot functions in GeoGebra
C04	Construct conics in GeoGebra, plot complex numbers in GeoGebra

SYLLABUS

Module 1: INTRODUCTION TO GEOGEBRA
Introduction to Euclid's Geometry- Euclid's axioms, Euclid's postulates.
Introduction to GeoGebra- GeoGebra Classic' features- How to install.
GeoGebra interface-Menu bar, Toolbar, input bar- Algebra View and Graphic's View.

Module 2: BEGINNING GEOGEBRA
Points and lines-plotting points, lines, line segments, point of intersection, mid-point, perpendicular and parallel lines.

Module 3: NEW TOOLS AND PLOTTING FUNCTIONS
Slider tool, Trace and Animation, Area using GeoGebra, Checkbox and Input box,
Plotting functions-Polynomial, modulus, rational, signum, greatest integer, square root.
Trigonometric functions.

Module 4: CONIC SECTIONS, SEQUENCE AND COMPLEX NUMBERS
Parabola, Ellipse, Hyperbola- Various commands to construct and tools for conics.
Sequences and Sum, Complex Numbers plotting, arithmetic operations, modulus, argument.

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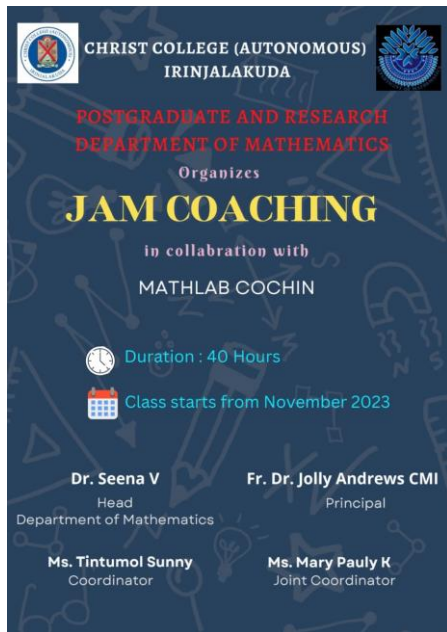
2. JAM Coaching: Post Graduate and Research Department of Mathematics, Christ College Irinjalakuda, in collaboration with Mathlab Cochin, organized a comprehensive coaching program for the IIT Joint Admission Test for MSc (IIT JAM), with a focus on preparing undergraduate students aspiring to pursue postgraduate studies in Mathematics. The coaching sessions were designed to enhance students' theoretical knowledge, and problem-solving abilities, which are essential for success in this competitive exam.

Objective

The primary objective of this coaching initiative was to:

1. Equip students to excel in the IIT-JAM and other entrance exams for M.Sc. Mathematics programs at reputed institutions by familiarizing them with the exam structures and syllabi.
2. Provide guidance on syllabus topics and frequently tested concepts.
3. Equip students with effective problem-solving strategies.

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CHRIST COLLEGE (AUTONOMOUS)
IRINJALAKUDA

**POSTGRADUATE AND RESEARCH
DEPARTMENT OF MATHEMATICS**
Organizes

JAM COACHING
in collaboration with
MATHLAB COCHIN

Duration : 40 Hours
Class starts from November 2023

Dr. Seena V
Head
Department of Mathematics

Fr. Dr. Jolly Andrews CMI
Principal

Ms. Tintumol Sunny
Coordinator

Ms. Mary Pauly K
Joint Coordinator



OBJECTIVES

- Equip students to excel in the IIT-JAM and other entrance exams for M.Sc. Mathematics programs at reputed institutions by familiarizing them with the exam structures and syllabi.
- Provide guidance on syllabus topics and frequently tested concepts.
- Equip students with effective problem-solving strategies.

TOPICS COVERED

- Linear Algebra
- Sequence and Series of Real numbers
- Integral Calculus
- Differential Equations
- Power Series
- Group Theory
- Functions of One Real Variable
- Functions of Two or Three Real Variables



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DECLARATION

We hereby declare that the above activities detailed in the current report was conducted under the MoU between our institutions.

Christ College (Autonomous), Irinjalakuda	MathLab Institute, Cochin
<p data-bbox="491 555 598 629"></p> <p data-bbox="443 667 673 797">Fr. Dr. Jolly Andrews Assistant Professor- In-charge of Principal Christ College (Autonomous) Irinjalakuda</p> <p data-bbox="384 831 671 1081"></p> <p data-bbox="220 1111 389 1140">PRINCIPAL</p>	<p data-bbox="938 663 1166 770"></p> <p data-bbox="847 869 1267 898">HEAD OF THE INSTITUTION</p>