

**Department of Computer Science & Information Technology**

Ref.No.:AJU/H/CS&IT/

Date: 04.05.22

**CIRCULAR**

Dear Students,

Department of Computer Science & IT is organizing a Value Added Course on "Introduction to MATLAB PROGRAM" on 11<sup>th</sup> May 2022. The timing of the Value Added course from 01:00 PM to 03:00 PM.

It is suggested to all the students to participate in the Value Added Course. For the same, every student need to register with the link given below.

Registration Link: <https://forms.gle/JRZCZHMMiSq4mvAn8>

The Registration link will be active till 10:00AM – 10<sup>th</sup> May 2022.



Mr. Arvind Kumar Pandey  
Head, CS&IT  
ARKA JAIN University,  
Jharkhand

## Report on Value Added Course Introduction to Matlab Programming Held on 11-05-2022 to 7-06-2022

Date of Event	11-05-2022 to 7-06-2022
Name and Type of Event	Value Added Course Introduction to Matlab Programming
Conducted by	Sweta Kumari Barnwal, Dr. Arvind Kumar Pandey
No. Of Participant	45

The Value-Added Course - Introduction to MATLAB PROGRAMMING was organized from 11-05-2022 to 7-06-2022, in the Department of Computer Science and IT ARKA Jain University, Jamshedpur. The Program was Coordinated by Sweta Kumari Barnwal and Dr. Arvind Kumar Pandey, Head of CS and IT Department.

In this course, students will able to

- Apply knowledge of mathematics and science in solving computational problems
- Understand the Computing concepts and their applications using the acquired board-based knowledge.
- Design, set up, and conduct practical.
- Use the techniques, skills, and modern Software tools for software development.
- Identify and analyze software application problems in multiple aspects including coding, testing, and implementation in industrial applications.
- Design, develop, and verify software systems to meet desired needs within realistic constraints, ensuring quality, reliability, security, and satisfying economical, ethical, social, and environmental constraints.
- Apply Enterprise-level application software for the design of diverse software products.
- Communicate effectively in diverse groups and exhibit leadership qualities.
- Understanding of professional and ethical responsibility.

The value-added course was initiated by Sweta Kumari Barnwal on 11-05-2022 in the Computer Lab of the Dept. of CS & IT from 1:00 PM to 3:00 PM. All the students had joined the course and learned about the MATLAB and learnt how to solve the lengthy mathematical problems in an easy way. Every day they were given some assignment work to do more practice. This course was completely practical-based. On the last day of the program students had appeared in the test and qualified the above-mentioned value-added course with the minimum criteria.

## Brochure of the event

<p><b>Program Outcomes</b></p> <ul style="list-style-type: none"> <li><b>PO 1</b> Apply knowledge of mathematics and science in solving computational problems</li> <li><b>PO 2</b> Understand the Computing concepts and their applications using the acquired board-based knowledge.</li> <li><b>PO 3</b> Design, set up, and conduct practical.</li> <li><b>PO 4</b> Use the techniques, skills, and modern Software tools for software development.</li> <li><b>PO 5</b> Identify and analyse software application problems in multiple aspects including coding, testing, and implementation in industrial applications.</li> <li><b>PO 6</b> Design, develop, and verify software systems to meet desired needs within realistic constraints, ensuring quality, reliability, security, and satisfying economical, ethical, social, and environmental constraints.</li> <li><b>PO 7</b> Apply Enterprise-level application software for the design of diverse software products.</li> <li><b>PO 8</b> Communicate effectively in diverse groups and exhibit leadership qualities.</li> <li><b>PO 9</b> Understanding of professional and ethical responsibility.</li> </ul> <p><b>Course Outcomes: –</b></p> <p>By the end of this course, the student will be able to</p> <ul style="list-style-type: none"> <li>Understand the main features of the MATLAB development environment</li> <li>Use the MATLAB GUI effectively</li> <li>Design simple algorithms to solve problems</li> <li>Write simple programs in MATLAB to solve scientific and mathematical problem</li> <li>Know where to find help</li> </ul>	<p><b>Course Content :</b></p> <ul style="list-style-type: none"> <li><b>UNIT I</b> 04 - Lecture Introduction to MATLAB: What is MATLAB? Symbolic Calculations, Basic of MATLAB: MATLAB Windows, On-line help, Input-Output, File types, General commands</li> <li><b>UNIT II</b> 06 - Lecture The Basics: MATLAB Session, Creating &amp; Working with Arrays of Numbers, Creating &amp; Plotting Simple Plots, Practice Set Solving The Basics: Creating, Saving, and Executing a Script File, Creating and Executing a Function File, Practice Set Solving</li> <li><b>UNIT III</b> 06 - Lecture Directional Explorations: Working with Arrays and Matrices, Working with Anonymous Functions, Symbolic Computation, Importing and Exporting Data, Working with Files and Directories, Working with Files and Directories</li> <li><b>UNIT IV</b> 08 - Lecture Matrices &amp; Vectors: Input, Indexing, Matrix Manipulation, Creating Vectors, Matrix and Array Operations: Arithmetic operations, Relational operations, Logical operations, Matrix functions Character strings: Manipulating character strings, The eval function Command- Line Functions: Inline functions, Anonymous functions</li> <li><b>UNIT V</b> 06 - Lecture Using Built-in Functions and On-line Help: Finding the determinant of a matrix, Saving and Loading Data: Saving into and loading from the binary Mat-files, Importing data files, Plotting Simple Graphs, Course Completion Test</li> </ul>	<p><b>JGI</b>   <b>ARKA JAIN University</b> Jharkhand (Jamshedpur)</p>  <p><b>Short-term Certification Course in</b> <b>Introduction to</b> <b>MATLAB</b> <b>PROGRAMMING</b> <i>Organized by</i> <b>Department of Computer Science &amp; Information Technology</b></p> <p><b>ARKA JAIN University</b> Jamshedpur, Jharkhand INDIA</p>
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**Convener:** Prof. Arvind Pandey

**COURSE DEVELOPERS:** Ms. Sweta Kumari Barwal & Dr. Arvind Kumar Pandey

**RESOURCE PERSONS:** Ms. Sweta Kumari Barwal

**COURSE LOCATION:** ARKA JAIN University, Jharkhand Offline/Online (Google Meet)

**Course Duration:** 30 Hours

**Commencement Date:** 11.05.2022

**Batch No:** First

**MASTER CLASSES EXPERTS:** A unique blend of Industry Experts and Academic Experts

**BLENDED LEARNING:** On-Campus & Online Modules

**WHO CAN ENROLL:** Faculty, Staff, and Students of ARKA JAIN University, Jharkhand



## Process of Enrolment & Certification:

Interested candidates will fill the Enrolment form by downloading the same from the website of ARKA JAIN University and submitting the form to the Course Head. After Successful Registration, the Participants will attend the 30-hours course, in which 70% attendance will be mandatory. At the end of each module, the participant will be submitting an Assignment each and at the end of all the Modules, there will be an Assessment Paper. In order to qualify for receiving the Certificate, the participant must submit at least 4 Assignments out of 5 and obtain a minimum of 60 % marks in the Assignments and Assessment Paper, the Certificate from ARKA JAIN University, Jharkhand, will be awarded to the participant.

## Who is the program for?

For candidates aspiring to learn or having a career in science, mathematics (abstract or applied), engineering, computational biology, physics, or data-oriented finance, should learn MATLAB. It is used as a tool in teaching about data analysis and mathematics. This course aims to give students a good knowledge of basic MATLAB so that "They can learn a lot of math with a little bit of coding."

## Learning Objectives :

- To learn features of MATLAB as a programming tool.
- Use of MATLAB and MathWorks Statistics and Machine Learning Toolbox.
- Create and troubleshoot basic m scripts.
- Import datasets for analysis.
- Plot datasets.
- Create publishable, reproducible analysis reports.
- To promote new teaching model that will help to develop programming skills and technique to solve mathematical problems.
- To understand MATLAB graphic feature and its applications.
- To use MATLAB as a simulation tool.

## Program Specific Outcomes :

- **[PSO1]:** - Prepare professionally trained in the area of programming, databases, software engineering, web designing, networking, and other application areas to acquire knowledge in various domain-based prospects.
- **[PSO2]:** - Encourage them to communicate effectively and to improve their competency skills to solve real-time problems.
- **[PSO3]:** - Understand to employ modern computer languages and applications for their successful career, create a platform to become entrepreneurs, and a relish for higher studies.



## Image of the Event

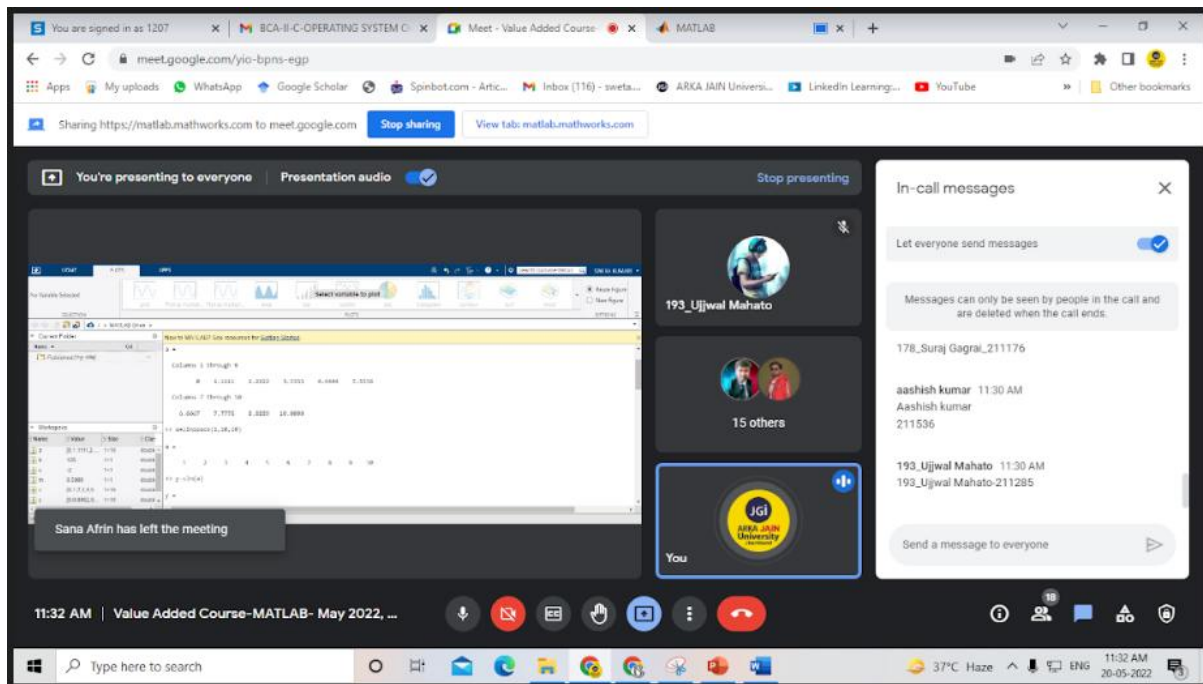


Fig 1.1 Photo of the Event Value Added Course Introduction to Matlab Programming

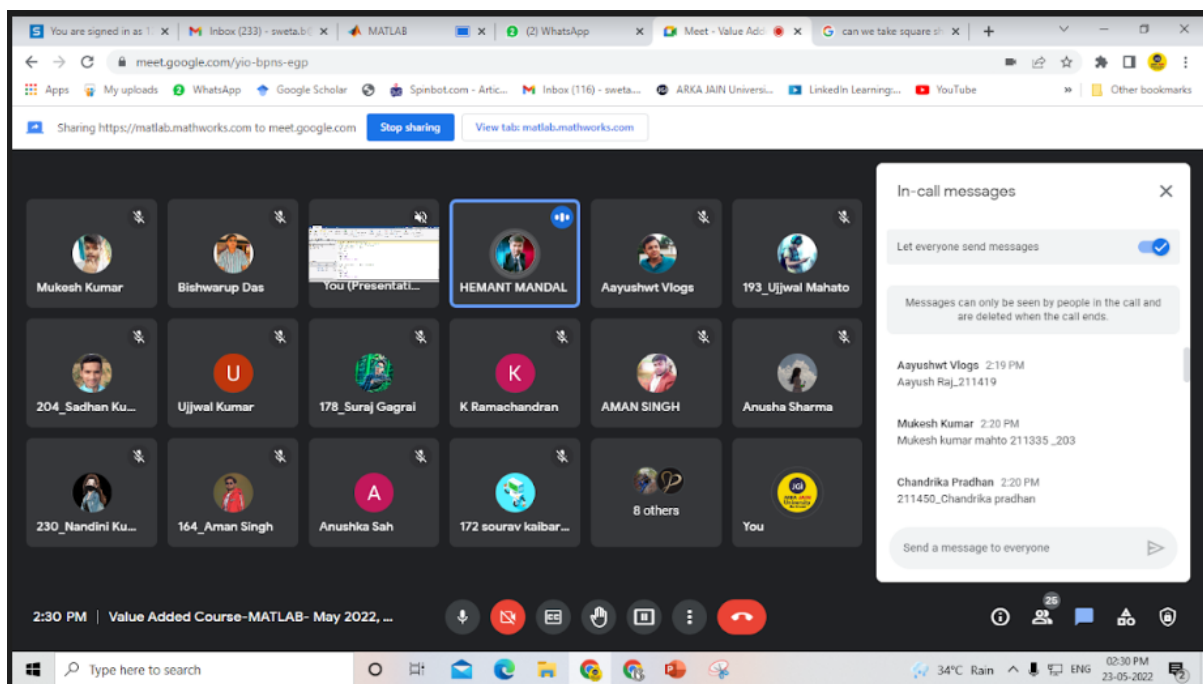


Fig 1.2 Photo of the Event Value Added Course Introduction to Matlab Programming





Fig 1.3 Photo of the Event Value Added Course Introduction to Matlab Programming

## Topic Covered in Value-Added Course

Sessions	Topics	Lectures*
	<b>UNIT: 1</b>	<b>6 HOURS</b>
1.	Introduction to MATLAB: What is MATLAB? Symbolic Calculations,	
2.	Basic of MATLAB: MATLAB Windows, On-line help, Input-Output,	
3.	File types, General commands	
	<b>UNIT: 2</b>	<b>4 HOURS</b>
4.	The Basics: MATLAB Session, Creating & Working with Arrays of Numbers, Creating & Plotting Simple Plots Practice Set Solving	
5.	The Basics: Creating, Saving, and Executing a Script File, Creating and Executing a Function File Practice Set Solving	
	<b>UNIT: 3</b>	<b>6 HOURS</b>
6.	Directional Explorations: Working with Arrays and Matrices, Working with Anonymous Functions	
7.	Symbolic Computation, Importing and Exporting Data, Working with Files and Directories	
8.	Working with Files and Directories, Publishing Reports	
	<b>UNIT: 4</b>	<b>8 HOURS</b>
9.	Matrices & Vectors: Input, Indexing, Matrix Manipulation, Creating Vectors	
10.	Matrix and Array Operations: Arithmetic operations, Relational operations, Logical operations, Matrix functions	
11.	Character strings: Manipulating character strings, The eval function	
12.	Command- Line Functions: Inline functions, Anonymous functions	
	<b>UNIT: 5</b>	<b>6 HOURS</b>
13.	Using Built-in Functions and On-line Help: Finding the determinant of a matrix,	
14.	Saving and Loading Data: Saving into and loading from the binary Mat-files, Importing data files	
15.	Plotting Simple Graphs, Course Completion Test	

## List of Students

Name	University Registration Number (AJU/XXXXXXX)	Course	Year	Email Address
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## Sample of the Certificate

