FDP / Workshop

Sl.No	Date	Title of the FDP
1	17.05.2021 TO 21.05.2021	Demystifying Machine Learning Concepts (5 – Day Programme)
2	13.12.2021 TO 17.12.2021	"Bare Metal Programming and Real-Time Operating System Programming" (Online Mode- 5 Days)
3	04.03.2022 and 11.03.2022	Applied Artificial Intelligence and Machine Learning (Offline Mode- 2 Days)

BMS
INSTITUTE OF TECHNOLOGY & MANAGEMENT

Impavid Technologies

Department of Artificial Intelligence & Machine Learning

In association with Impavid Technologies, Bengaluru conducting Five days National level Virtual FDP program on "**Demystifying the Machine Learing concepts**" from 17th May 2021 to 21st May 2021.

Inauguration Schedule
17.05.2021

1. 1.30 pm to 1.35 pm : Invocation song
2. 1.35 pm to 1. 40 pm : Inugural address by
   Dr. Bharathi Malakreddy A.
   Chairperson – Dept of AI & ML
3. 1.40 pm to 1.48 pm : About the FDP by
   Mr. Ajith S., Technical Lead and Software Trainer, Impavid Technologies, Bengaluru
4. 1.48 pm to 1.55 pm : Presidential address by
   Dr. Mohan Babu G. N. – Principal , BMSIT & M, Bengaluru.
5. 1.55 pm to 2.00 pm : Vote of Thanks

Google meet link : meet.google.com/awf-nozc-tti

ABOUT THE INSTITUTE:

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ABOUT FDP:

Machine learning is one of the most vaguely described terms of the 21st century. The biggest reason for its ambiguous description is that it is a multi-disciplinary field and it borrows concepts from various fields, therefore The Department of AI & ML, BMSIT & M has come up with an online FDP platform to disambiguate and uncover all the concepts of machine learning and understand each aspect of it perfectly. The speakers shall throw light on various prospects and new avenues that have sprung up over the past. As the demand for skilled AI specialists is growing faster, we are lucky to be in the age of rising artificial intelligence and now it is time to march towards a better future.

FIVE DAYS NATIONAL LEVEL ONLINE FACULTY DEVELOPMENT PROGRAM ON

"DEMYSTIFYING THE MACHINE LEARNING CONCEPTS"

DATE: 17TH TO 21ST MAY 2021

Impavid Technologies

ORGANIZED BY

BRAINIUM,

THE TECHNICAL FORUM OF THE DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING, BMSIT&M

IN ASSOCIATION WITH

IMPAVID TECHNOLOGIES.

BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT

DODDABALLAPUR MAIN ROAD, AVALAHALLI, YELAHANKA, BENGALURU- 560 064, KARNATAKA.

RECOGNIZED BY AICTE & AFFILIATED TO VTU ALL ELIGIBLE PROGRAMMES ARE NBA ACCREDITED & AWARDED 'A' GRADE BY NAAC, MEMBER OF IIC-MHRD & UGC

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ORGANIZING CHAIR

DR. BHARATHI MALAKREDDY A.
PROFESSOR & HOD, DEPT OF AI&ML, BMSIT&M

COORDINATORS

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Email: vishwakiran@bmsit.in
DR. N. RAKESH
Email: n_rakesh@bmsit.in

ABOUT DEPARTMENT

Welcome to the Department of Artificial Intelligence and Machine Learning at BMSIT&M, Bengaluru. The Department is the realization of our Management's vision of offering an undergraduate program in the stream, a need of the hour to address the fast-growing industrial demands to embrace the technology of AI and methods of Machine Learning. Under the visionary leadership of our beloved Principal, Dr. Mohan Babu G. N., we started our exciting journey on August 02, 2019, with a sanctioned student strength of 60. The primary focus of our curriculum is to impart technical know-how to students, promote their problem-solving skills and innovation of new technologies. Our department maintains active research groups for carrying out collaborative and interdisciplinary research. We have state-of-the-art research facilities to support our academic programs and research. At present, the department faculty are guiding 6 Ph.D. scholars from industries and academics. It is heartening to find that our students look forward to contributing to solving the technological challenges of society with active participation, perseverance, and hard work. Skill & knowledge relevant to real-world problems is inseminated to produce dynamic, socially conscious, and sensitive human beings.

DEPARTMENT VISION

To develop professionals equipped to build sustainable and intelligent solutions that effectively interact with the natural intelligence towards creating a digitally empowered environment for future generations, safeguarding social ethics.

DEPARTMENT VISION

To enable students with the spirit and power of interdisciplinary acumen by integrating a world of knowledge into a world of intelligent systems and subsystems.

- Boost academic outcomes through place-based education and collaborations with established research labs and industries.
- Encourage entrepreneurship efforts among students and develop them into great leaders.

OBJECTIVES OF FDP

- To promote academic activities and nurture research potentials among teaching faculty/students in engineering institutions.
- To provide a forum for Researchers, Technologists, Faculty and Students to interact and enhance their skills.
- To provide rigorous industry-relevant programs designed and delivered in collaboration with eminent speakers from industry and academia.
- To create a great learning experience by merging **the latest technology, pedagogy, and services through Hands-on Sessions** with the speakers.

DEPARTMENT INFRASTRUCTURE

The **BRAIN HPAC LAB**, the VGST funded research lab of the Dept of Artificial Intelligence and Machine Learning, fosters research, innovation and technological excellence in the field of Artificial Intelligence. It proudly hosts EKA, the High-Performance Accelerated Computing facility, powered by NVIDIA V100 card. The Lab has joined hands with several NDA partners including HCG, Aleka Technologies, SimPragma Solutions, etc, for running cutting-edge research projects and innovative solutions in the field of precision medicine, automation and Language Engineering. The Dept. of AI & ML has a world-class state of art **Embedded Systems Laboratory** that consists of the latest hardware and software for experiments. The Internet of Things laboratory has different types of sensors, Embedded development kits, network gateways. We also have a **Bot Lab Centre of Excellence** to train students and faculty members of IT and non-IT branches on robotic process automation and develop automation projects.

Resource Persons

Mr. Ajith S, Technical Lead and Software Trainer

Mr. Amarthya K R, Developer and Software Trainer

Impavid Technologies, Bangalore

Who can Attend?

Faculty from Science and Engineering, Research Scholars, UG/PG Students

Registration Details

- **For All Participants,**
  Fee: ₹250/-
  Mode of Payment: UPI
  Link for registration:
  https://forms.gle/3giQcGRKyWjD4QFd7

Platform: Google Meet
Meeting Link will be sent through E-mail after registration

Program Duration: May 17th 2021 to May 21st 2021
Session Timing: 2:00PM to 4:30PM

General Instructions

- **The number of participants is limited to 100.**
- **Google meet link shall be shared with all the registered participants**
- **All instructions will be communicated through E-mail.**
- **E-Certificates will be provided for those who attend all the sessions and submit feedback**
- **For further details/queries, contact**
  - **hod_aiml@bmsit.in; or**
  - **brainium@bmsit.in**

Brainium 2021-EVEN Semester Report

Faculty Development Program on Demystifying Machine Learning Concepts in Association with Impavid Technologies(17-05-2021 to 21-05-2021)

This 5 day Faculty development program was organized by the Department of Artificial Intelligence and Machine Learning, BMSIT&M in association with Impavid technologies. The 5 Day program was designed in a way which introduced the attendees to get themselves familiarized with the basic concepts of Machine Learning from the basics, with the instructors being from both Impavid technologies and the department of Artificial Intelligence and Machine Learning. The following were the topics covered throughout the five day course:

Day	Topics covered
Day 1	• Introduction to Jupyter Notebook • Detailed Introduction to Python Data Structures – Lists, Dictionaries, Tuples. • A comprehensive explanation about 'Numpy' and 'Matplotlib'. • Hands-on Session based on the Python Libraries – Numpy, Matplotlib in Jupyter Notebook.
Day 2	• Conversion of an image to grayscale and finding the differences between two similar • images using the 'numpy' library. • An elaborate account on the attributes of the 'pandas' library. • Introduction to Dataframes and working with .csv files using pandas. • Learning about the possible Dataframe manipulations using a sample Student Performance dataset.
Day 3	**Machine Learning concepts:** • Regression – worked with Fuel Consumption and GDP of China datasets. • Logistic Regression – worked with Customer Churn data archives of a Telecommunications company. • Classification using KNN – worked with specialized dataset based on Customer Information of a Telecommunication • Company. • Decision Trees – worked with specialized dataset on Patients suffering from a particular disease. • Support Vector Machines – worked with real dataset from UCI ML Repository based on Human cells and its features to • determine the cell type(Benign or Malignant).
Day 4	• K-Means Clustering with a dataset on Customer Segmentation. • Agglomerative Hierarchical Clustering with a dataset of predetermined car clusters.
Day 5	• Prediction model using sklearn • Server Hosting with flask • Exporting a trained model with 'pickle'. • Web Scraping using Beautiful Soup Library.

Total Number of External Attendees:50

Brainium 2021-EVEN Semester Report

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FIVE DAYS NATIONAL LEVEL ONLINE FACULTY DEVELOPMENT PROGRAM ON

"DEMYSTIFYING THE MACHINE LEARNING CONCEPTS"

DATE: 17TH TO 21ST MAY 2021

Impavid Technologies

ORGANIZED BY

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THE TECHNICAL FORUM OF THE DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING, BMSITM

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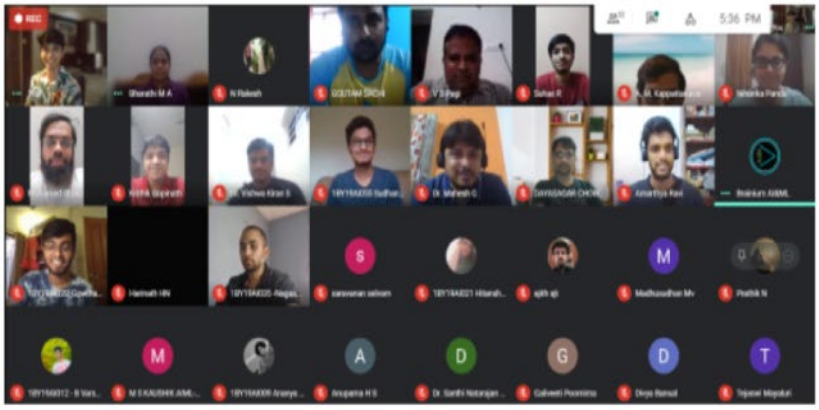

All India Council of Technical Educator (ATAL Faculty Development Programme)

BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Estd. In 2002, Affiliated to VTU, Belagavi, and approved by AICTE, New Delhi.

AICTE

All India Council of Technical Education

ATAL

Faculty Development Programme

On

"Bare metal Programming and Real-Time Operating System Programming"

PREAMBLE

ABOUT THE INSTITUTE

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CHIEF PATRONS

- **Sri. Aviram Sharma**
  Trustee, BMSET
  Chairman, BOG, BMSIT&M
  Chairman, BOG, BMSCCM &
  Chairman, ICD, Bengaluru
- **Dr. B. S. Ragini Narayan**
  Educationist
  Donor Trustee & Member Secretary
  BMSET & Chairperson, BMSET
- **Dr. P. Dayananda Pai**
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- **Sri. Ravi Venkatesam**
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- Dr. Mohan Babu G. N
  Principal, BMSIT&M, Bengaluru

CONVENER

- Dr. Bharathi Malakareddy
  Professor and Head, Dept of AI & ML
- Dr. Anupama H S
  Assoc. Prof, Dept of AI & ML

ORGANISING CHAIR

- Dr. Vishwa Kiran S
  Associate Professor, Dept of AI&ML

ABOUT FDP

This FDP focus on metal programming i.e., programming embedded devices without RTOS and building real-time applications using Free RTOS for embedded systems. After the completion of the course, participants must be able to build their multitasking applications by making use of different scheduling algorithms, queues, synchronization tools, event flags, etc. This course also focuses on the internals of the RTOS kernel. STM32 family of development boards will be used for porting FreeRTOS.

OBJECTIVE

- The objective of the FDP is to build embedded systems with or without operating systems.

TOPICS COVERED

- Broad Comparison of RTOS and Bare-Metal
- Architecture of Bare-Metal and RTOS.
- Comparison of Few RTOSes: CMSIS-RTOS, FreeRTOS, Zephyr, AWS-OS, ARM-OS, RT-Linux, Window-10-IoT, VxWorks
- Scheduling algorithms in RTOS, and Context Switching
- Data exchange mechanisms between processes in Bare-Metal and RTOS. (Software standards involved)
- Peripheral handling in Bare-Metal and RTOS. (locked/dedicated, configurable in runtime)
- Role of FPGA and Hardware Array.
- Bare-Metal/RTOS and AI.

TARGET AUDIENCE

The training program is focused with a vision to enhance the technical competency of Faculty members, undergraduate and post-graduate engineering students of all disciplines who are interested to develop software for embedded devices.

PRE-REQUISITES

- Basics of C Programming
- Basics of Operating System

DURATION OF THE COURSE

5 Days

Date: 13th to 17th December 2021

WHO ARE THE TRAINERS?

Resource persons are from the industry and Institutes of Eminence

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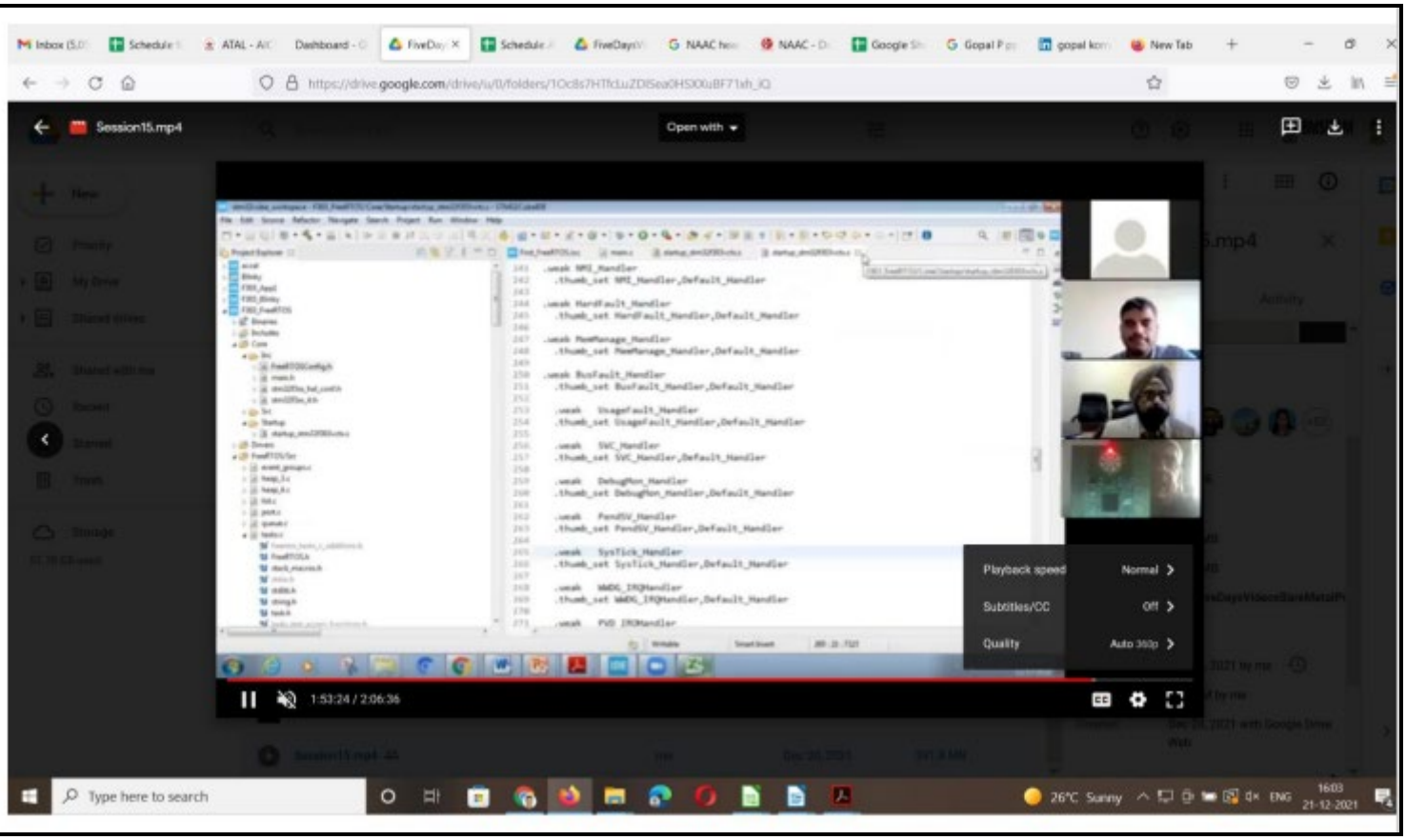
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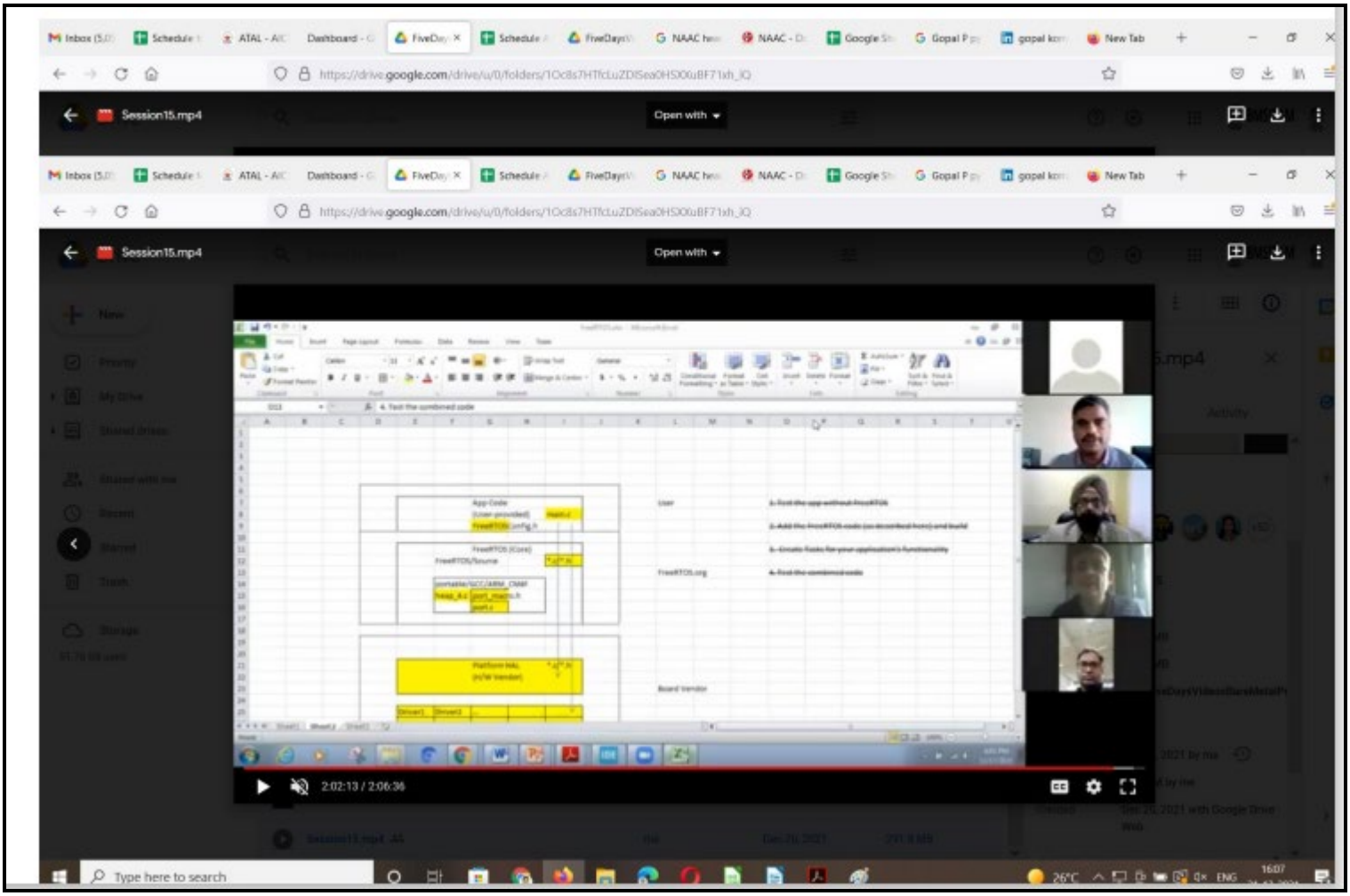
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Workshop on Applied Intelligence and Machine Learning:

BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT
(Autonomous Under VTU)

Workshop on
Applied Artificial Intelligence and Machine Learning
04th & 11th March 2022
Organized by
Department of Artificial Intelligence and Machine Learning

Preamble

This Workshop is designed to focus on the Artificial Intelligence and Machine Learning Concepts. AI is an interdisciplinary science with multiple approaches, but advancements in machine learning and deep learning are creating a paradigm shift in virtually every sector of the tech industry. We will discuss its concepts, types, algorithms, techniques and various practical applications. This Workshop will generate an ecosystem for research and provide the academic excellence in the system. The objective of this Workshop is to provide the theoretical and practical knowledge about the AIML. AIML has also opened interesting research and academic opportunities in Multidisciplinary areas.

About the Institution

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About the Workshop

- Artificial intelligence (AI) is wide-ranging branch concerned with building smart machines capable of performing tasks that typically require human intelligence.
- Machine learning feeds a computer data and uses statistical techniques to help it "learn" how to get progressively better at a task, without having been specifically programmed for that task, eliminating the need for millions of lines of written code.
- This Workshop on "Artificial Intelligence and Machine Learning" aims at providing an opportunity to enhance the knowledge about the latest technologies pertaining to Artificial Intelligence and Machine Learning.
- This Workshop would provide participants with the guidelines to explore the area of Artificial intelligence and its applications.
- The participants would learn to develop methods for solving problems related to diverse computational fields.

Course Content

* Introduction to Artificial Intelligence and Machine Learning.
* Python Installation and Machine Learning libraries in python
* Supervised Learning.
* Unsupervised learning.
* Applications of Artificial Intelligence and Machine Learning - Project Demonstration

Schedule

Date : 04-03-2022 Time : 1.45pm to 5.00pm	Introduction to AI and ML. Machine learning and Artificial Intelligence libraries in python.
Date : 11-03-2022 Time : 9.15am to 12.30pm 1.30pm to 5.00pm	Supervised learning, Unsupervised learning, Applications of AI & ML- Project demonstration

Chief Patrons

Sri. Aviram Sharma
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Dr. Bharathi Malakareddy
Professor and Head, Dept of AI & ML

Dr. Anupama H S
Assoc. Prof, Dept of AI & ML

Organizing Chair

Dr. Vishwa Kiran S
Associate Professor, Dept of AI&ML

Faculty Coordinators

Dr. Rakesh N
Associate Professor

Dr. Umashankar M L
Assistant Professor

Dr. Pradeep K R
Assistant Professor

Faculty Conducting This Program

* The program will be conducted by the faculty members from Department of Artificial Intelligence and Machine Learning.

Eligibility and Registration

* Free Registration - Link : https://forms.gle/WtvXBvZ7LSajLQUq9
* The program is open to the faculty of BMS Institute of Technology & Management.

Venue

* Department of Artificial Intelligence and Machine Learning, BSN Block 5th Floor.

BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT
(An Autonomous Institution, Affiliated to VTU, Belagavi)
Department of Artificial Intelligence and