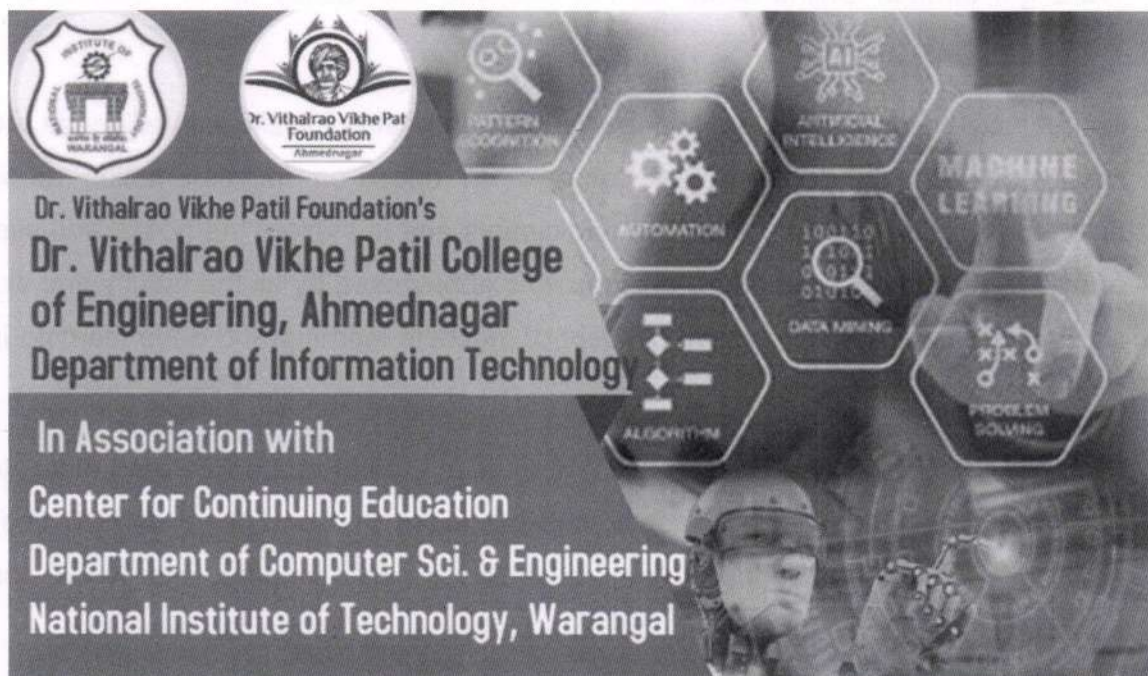


Dr. Vithalrao Vikhe Patil College of Engineering, Ahmednagar

Department of Information Technology

**A REPORT OF FIVE DAYS NATIONAL LEVEL ONLINE FACULTY DEVELOPMENT
PROGRAM ON NEXT GENERATION SYSTEMS-MACHINE LEARNING & DEEP
LEARNING APPLICATIONS**



**Dr. Vithalrao Vikhe Patil Foundation's
Dr. Vithalrao Vikhe Patil College
of Engineering, Ahmednagar
Department of Information Technology**

**In Association with
Center for Continuing Education
Department of Computer Sci. & Engineering
National Institute of Technology, Warangal**

July 26-30, 2021

10:00 am - 1:00 pm

Online Faculty Development Program

**Next Generation Systems
Machine Learning and
Deep Learning Applications**

Course Contents

- Machine Learning Techniques ✓
- Classification: Logistic Regression ✓
- Decision Trees, Random Forests ✓
- Research issues challenges ✓
- Applications of ML and DL ✓
- Deep learning: CNN, RNN ✓

Registration

Faculty/Students: Rs.500/-
Industry Persons: Rs.1000/-

Link for Registration

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Our Contacts :

Dr. D. A. Vidhate, Coordinator
hod_it@enggnagar.com

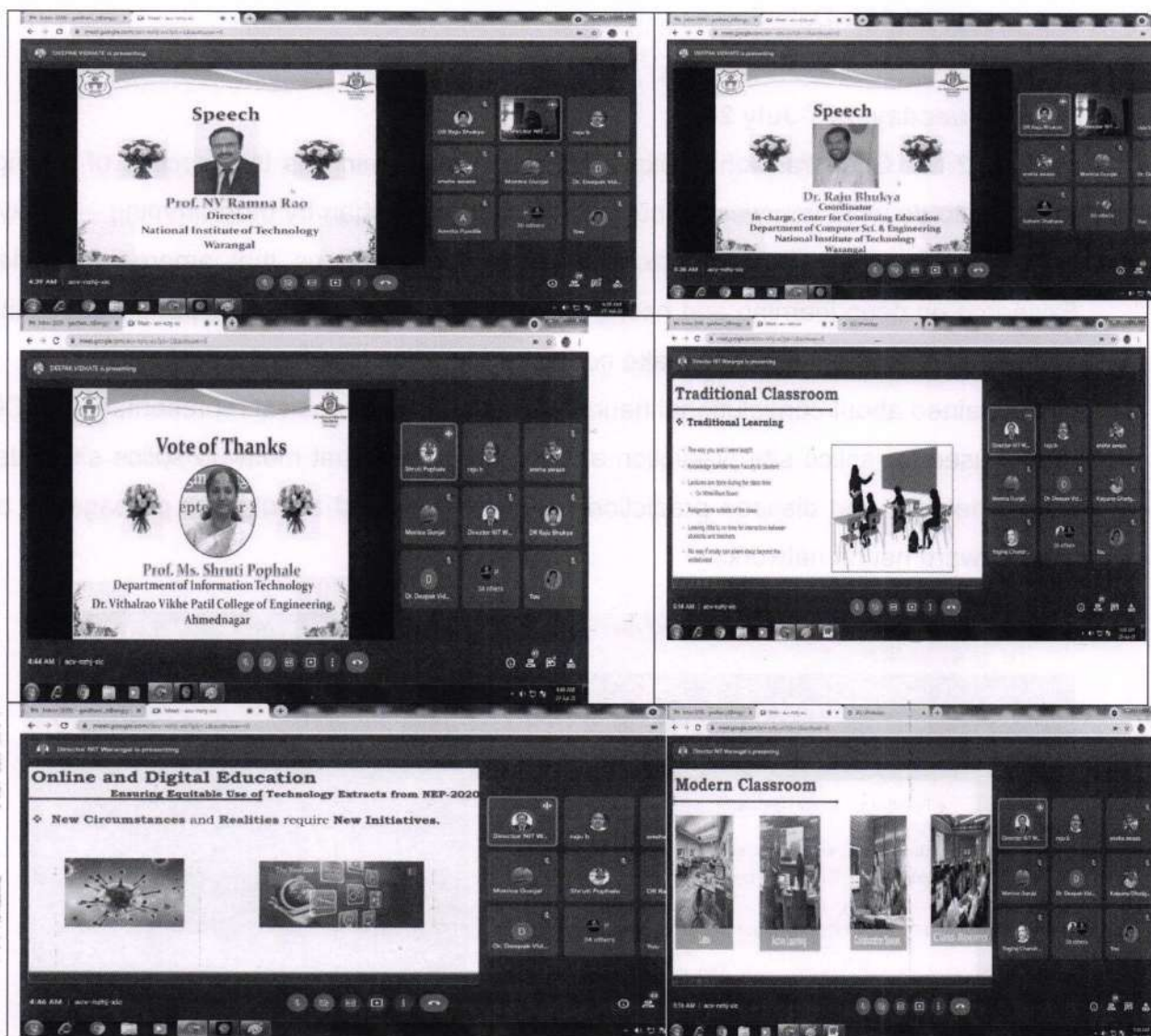
Dr. Raju Bhukya
CCE Incharge & Coordinator
NIT, Warangal
raju@nitw.ac.in

Account Name:	Center for Continuing Education NITW
Bank Name	SBI
Branch	NIT WARANGAL
Account No	62403680215
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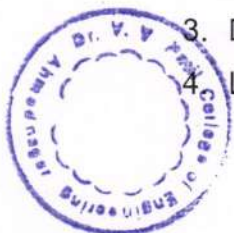


Online inauguration of Five Days FDP

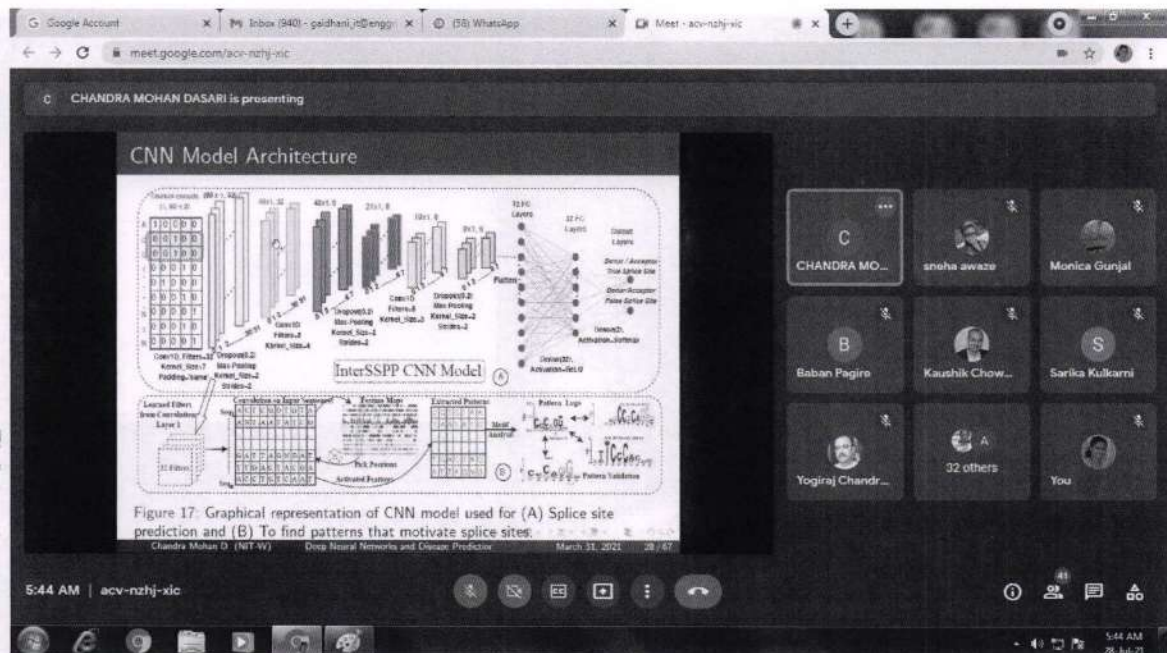
DAY 1: Monday, 26th July 2021:

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1. What is python?
2. Applications of python (web applications, web frameworks, GUI based desktop applications etc.)
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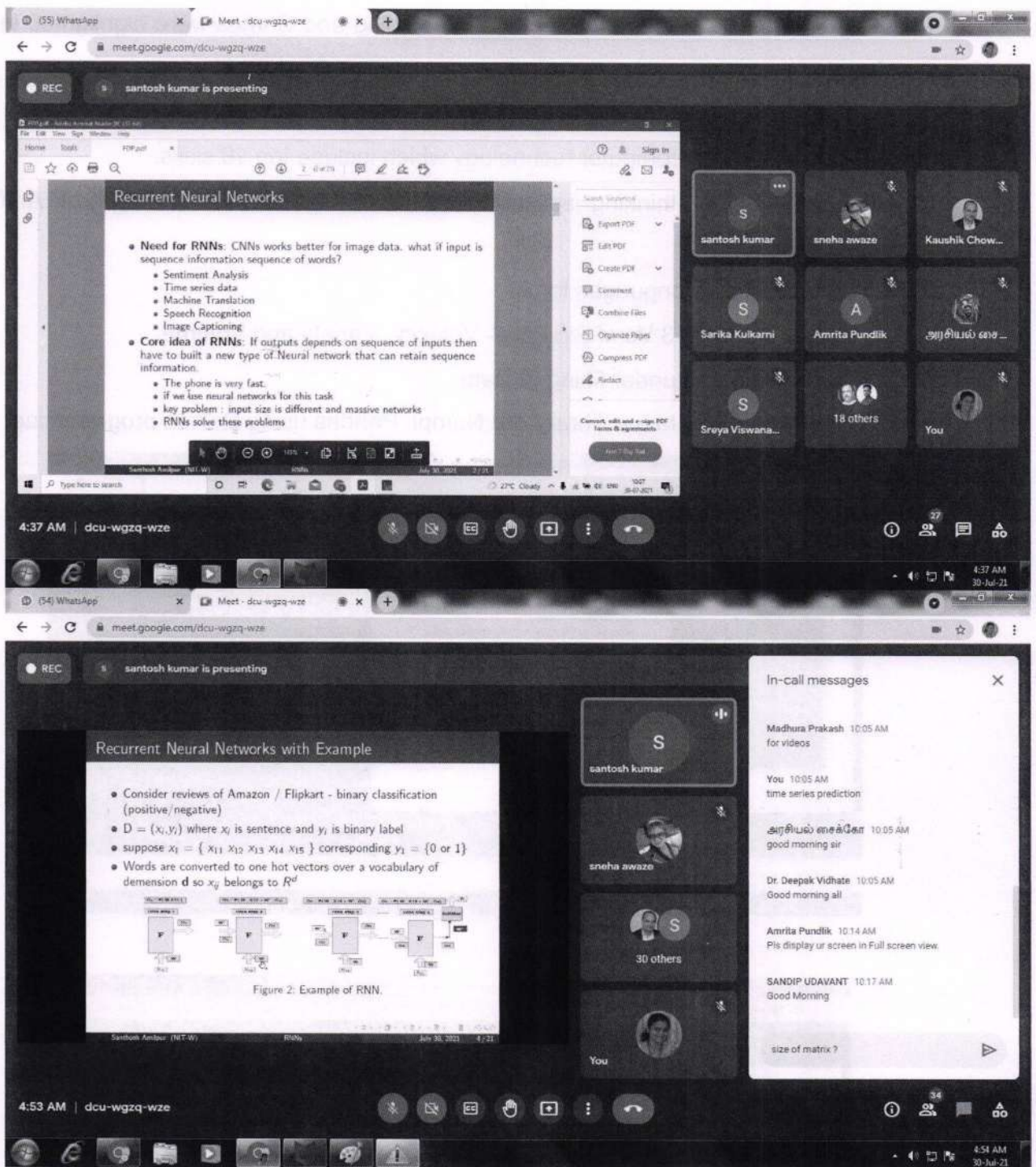


Day 3: Wednesday, 28th July 2021

On day 3 Mr. Santosh taught the faculties about the current demand in the field of Python Programming, ranging from the basics of Python to the Machine Learning and Artificial Intelligence. Mr. Santosh discussed about how we can make our own machine learning model to successfully detect COVID-19 patients from chest x-ray by building a simple CNN. He also covered the points like Dataset preparation, understanding the dataset, Building a CNN and model training. He also covered the points like how dataset is uploaded, use of classifier, clustering and obtain result according to user requirements.



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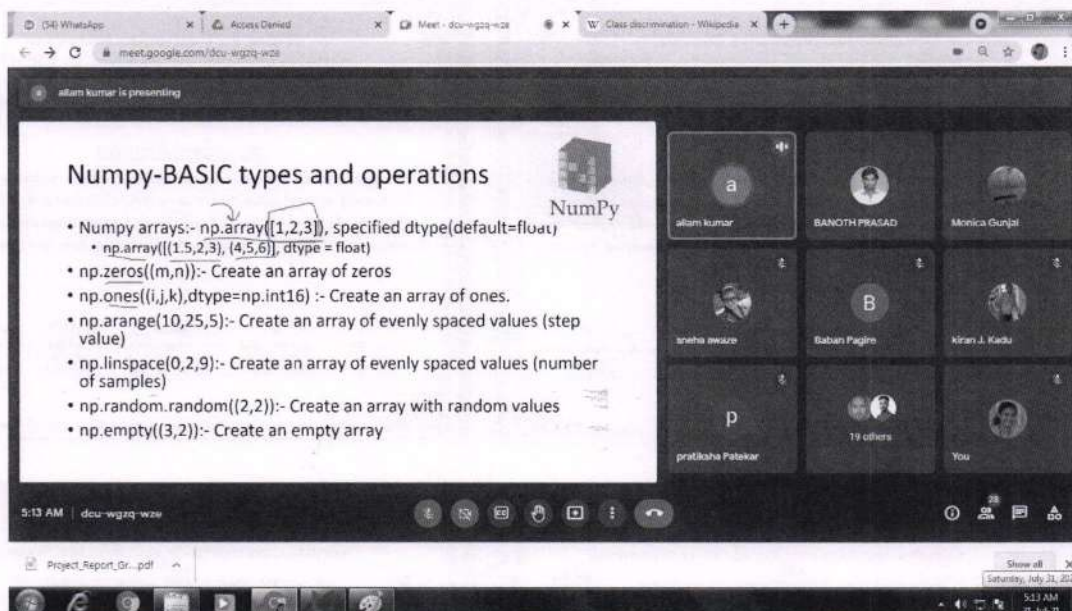


Day 5: Friday, 30th July 2021

Mr. Allam Kumar explained about general classification of Artificial intelligence (AI), importance of AI, broad classification of AI, machine learning and python library numpy and pandas with python programming. Traditional programming was compared to Artificial Intelligence. Terms like Deep Learning, Face recognition, supervised - unsupervised learning was emphasized. He discussed about the evolution of AI and it's buzz. Various applications of AI-Computer Vision, Robotics, NLP, Expert systems,



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Faculty and students have shown keen interest in learning the concepts, methodologies and gave satisfactory feedback at the end of the session. They also suggested that the duration of the session should be increased so that they may explore in the same. The session ended with a vote of thanks and appreciation to all speakers of NITW for taking the time to upgrade the knowledge of the faculties and students. The faculties and students interacted with the speaker even after the end of the session through online mode.

Total 35 participants from Ahmednagar, Pune, Nashik and Lucknow attended the FDP. At the end of the FDP, all participants were seen really satisfied and happy with the knowledge that enlightened by subject experts about skill enhancement in the Artificial Intelligence and machine learning along with practical knowledge. The response from the participants about the workshop was immensely good and positive and as per the feedbacks they would like to attend such programs in future. Certificates were distributed to all participants from NIT, Warangal. Shri. Sunil Kalhapure, Hon'ble Deputy Director and Dr. U.P. Naik, Principal congratulated and appreciated Dr. D. A. Vidhate, HOD IT, FDP Coordinator and all faculty members of the department for the efforts taken towards the grand success in organizing the said FDP. Dr. D. A. Vidhate expressed deep gratitude to all speakers from NIT, Warangal for their whole hearted support. He also expressed special thanks to Dr. Raju Bukya, for continuous guidance and motivation.

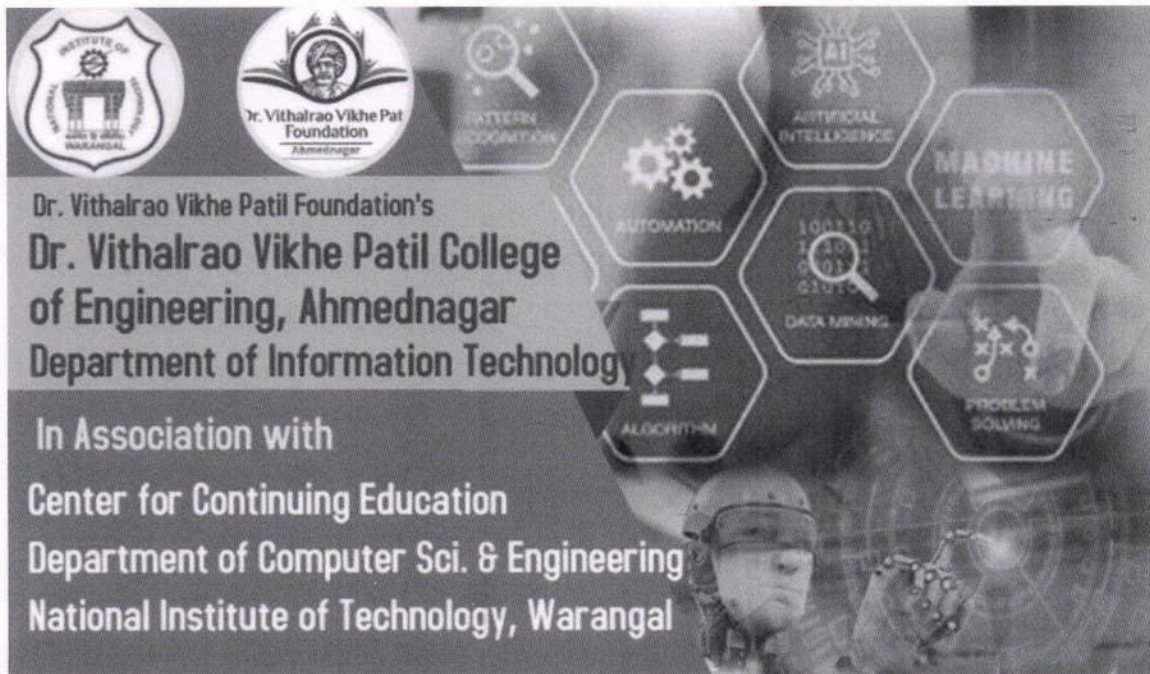


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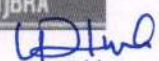
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Five Days National Level Online Faculty Development Program (FDP) on "Next Generation Systems- Machine Learning & Deep Learning Applications" was organized by the Department of Information Technology of Dr. Vithalrao Vikhe Patil College of Engineering, Ahmednagar in association with Center for Continuing Education, Department of Computer Science & Engineering, National Institute of Technology (NIT), Warangal through Online mode for the students and faculty on 27th July to 31st July 2021.

The objective was to address modern trends in the field of Artificial Intelligence with real time problem solving. This FDP focused on hands-on implementation of various algorithms to deliver practical skill to participants and to explore the power and simplicity of python & data science. This workshop was appreciated by all the faculty and students as they were able to understand concept of machine learning and deep learning in their technical skill set.

Prof. N. V. Ramanarao Director, NIT, Warangal inaugurated the FDP and motivated the faculty and students with his speech and explained that such kind of FDP and other certification courses needed to be conducted in collaboration with NITW that are beneficial for students for their upcoming placements and technical knowledge.

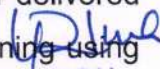
Dr. D.A. Vidhate, FDP Coordinator and Head of Department, Information Technology, delivered the welcome address and enlightened with aims and objectives of FDP. He extended warm welcome to all participants and expressed his deep gratitude towards Director and Coordinator of NIT, Warangal. Dr. D. A. Vidhate expressed special thanks to Shri. Sunil Kalhapure, Hon'ble Deputy Director and Dr. U.P. Naik, Principal of the college for encouragement and support extended towards the FDP. He further explained how this FDP deals with the important aspects of artificial intelligence and machine learning like sentimental analysis, image processing, and market analysis.

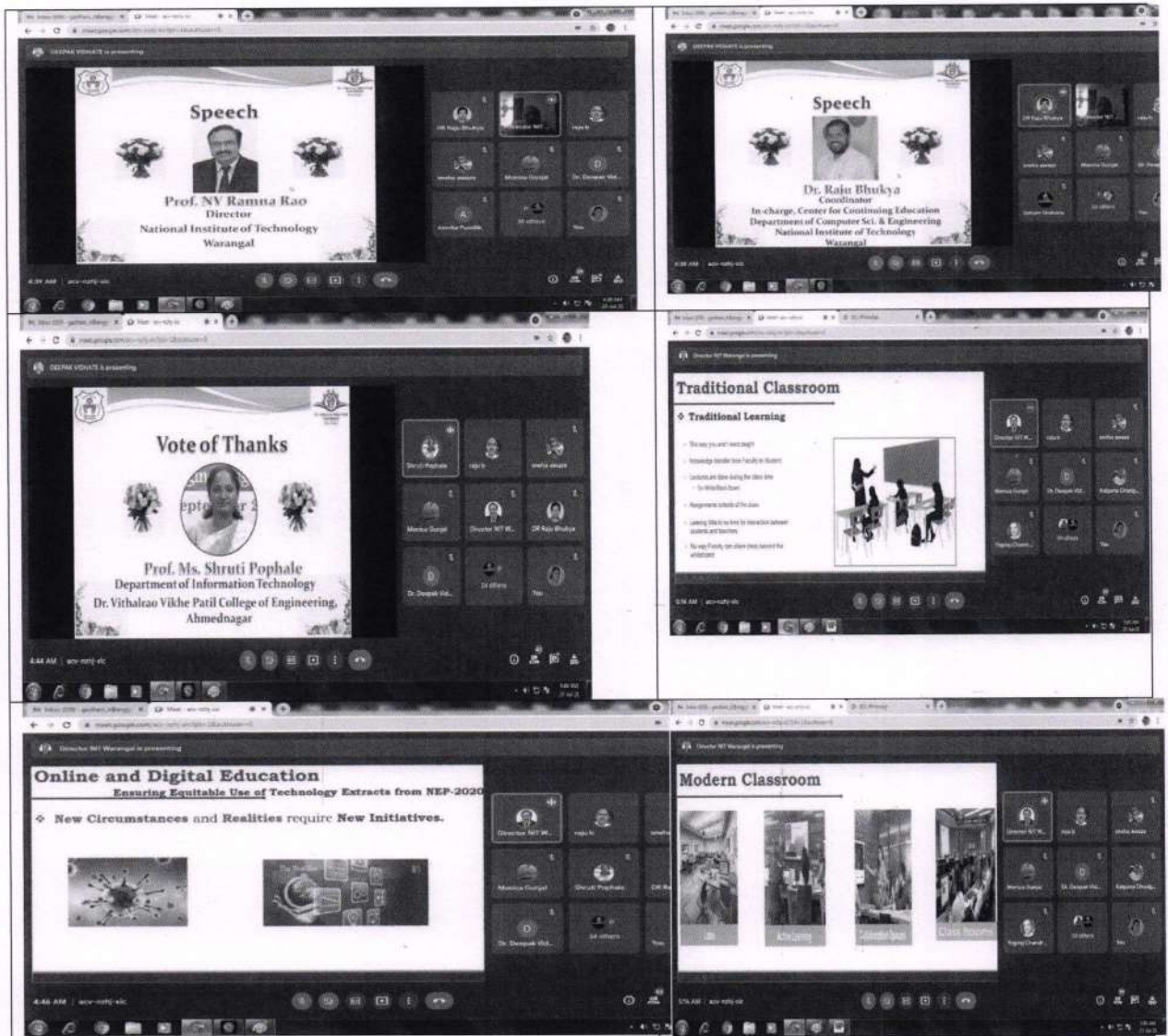
Prof. Mrs. J.P.Gaidhani anchored the program nicely. At the outset, Prof. Mrs.J.P.Gaidhani introduced briefly about the Institution and NIT Warangal.

Prof. Ms. S. S. Pophale proposed the vote of thanks on behalf of the Department of Information Technology.

The various speakers from National Institute of Technology (NIT), Warangal delivered the mix of theory and practical knowledge of machine learning and deep learning using python programming.




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5. Introduction of various Python libraries such as Pandas, Numpy, Matplotlib essential for Data Science.

Day 2: Tuesday, 27th July 2021:

On day 2 Mr. Chandra Mohan explained machine learning as the process of getting a machine to do what you want through examples rather than by programming—a way of teaching a machine to recognize and understand patterns that emerge from data. Research on deep learning and neural networks—extremely effective pattern recognition techniques based on efforts to make computers function like the human brain.

He explained about convolutional neural network(CNN), Graphical representation of CNN model used for splice site prediction and to find pattern that motivate splice sites, deep neural network and disease prediction. He also explained about back propagation and feed forward neural networks.

The screenshot shows a Google Meet interface. The main window displays a presentation slide titled "Back Propagation". The slide content includes:

- Function f_j : i is the layer number, j is the index number of the function
- Output O_j : i is the layer number, j neuron in that layer
- Weight W_{ij}^k : Going to k^{th} layer, from i^{th} neuron to j^{th} neuron

Below the text is a diagram of a "Fully Connected Neural Networks" with three layers of nodes. The input layer has nodes $x_{11}, x_{12}, x_{13}, x_{14}$. The hidden layer has nodes f_{11}, f_{12}, f_{13} . The output layer has nodes f_{21}, f_{22} . Weights are labeled between nodes, and outputs are labeled $O_{11}, O_{12}, O_{13}, O_{21}, O_{22}$. The diagram is captioned "Figure 6: Fully connected layers with weights, outputs."

The Meet interface shows the presenter as "CHANDRA MOHAN DASARI". The participant list on the right includes Kalpana Ghadg..., CHANDRA MO..., sneha awaz..., Monica Gunjal, Kaushik Chow..., Sarika Kulkarni, Shruti Pophale, 29 others, and You. The bottom status bar shows the time as 4:42 AM and the meeting ID as acv-nzhj-xic.



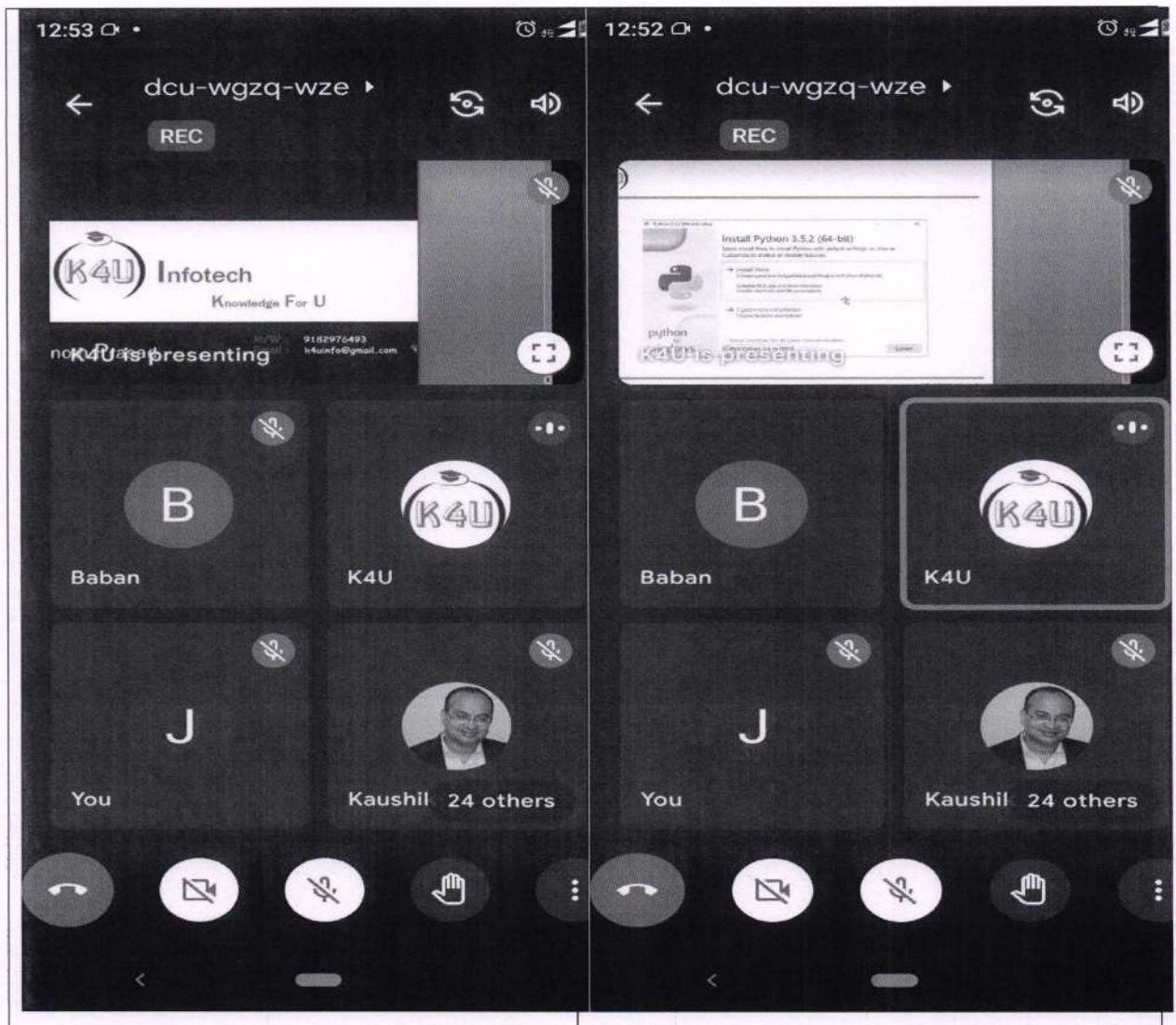
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Day 4: Thursday, 29th July 2021

Mr. Santosh explained the concept of Recurrent neural network(RNN) where the output from previous step are fed as input to the current step and need of RNN for sentimental analysis, time series data prediction, Machine translation, speech recognition and image capturing. He has provided the example of Amazon/Flipkart for sentimental analysis.



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Recurrent Neural Networks

- Need for RNNs: CNNs works better for image data, what if input is sequence information sequence of words?
 - Sentiment Analysis
 - Time series data
 - Machine Translation
 - Speech Recognition
 - Image Captioning
- Core idea of RNNs: If outputs depends on sequence of inputs then have to build a new type of Neural network that can retain sequence information.
 - The phone is very fast.
 - If we use neural networks for this task
 - key problem : input size is different and massive networks
 - RNNs solve these problems

Recurrent Neural Networks with Example

- Consider reviews of Amazon / Flipkart - binary classification (positive/negative)
- $D = (x_i, y_i)$ where x_i is sentence and y_i is binary label
- suppose $x_1 = \{x_{11} x_{12} x_{13} x_{14} x_{15}\}$ corresponding $y_1 = \{0 \text{ or } 1\}$
- Words are converted to one hot vectors over a vocabulary of dimension d so x_{ij} belongs to R^d

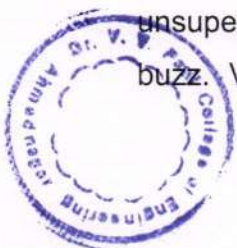
Figure 2: Example of RNN.

In-call messages

- Madhura Prakash 10:05 AM for videos
- You 10:05 AM time series prediction
- அறிவுறு என்னை 10:05 AM good morning sir
- Dr. Deepak Vidhate 10:05 AM Good morning all
- Amrita Pundlik 10:14 AM Pls display ur screen in Full screen view.
- SANDIP UDAVANT 10:17 AM Good Morning
- size of matrix ?

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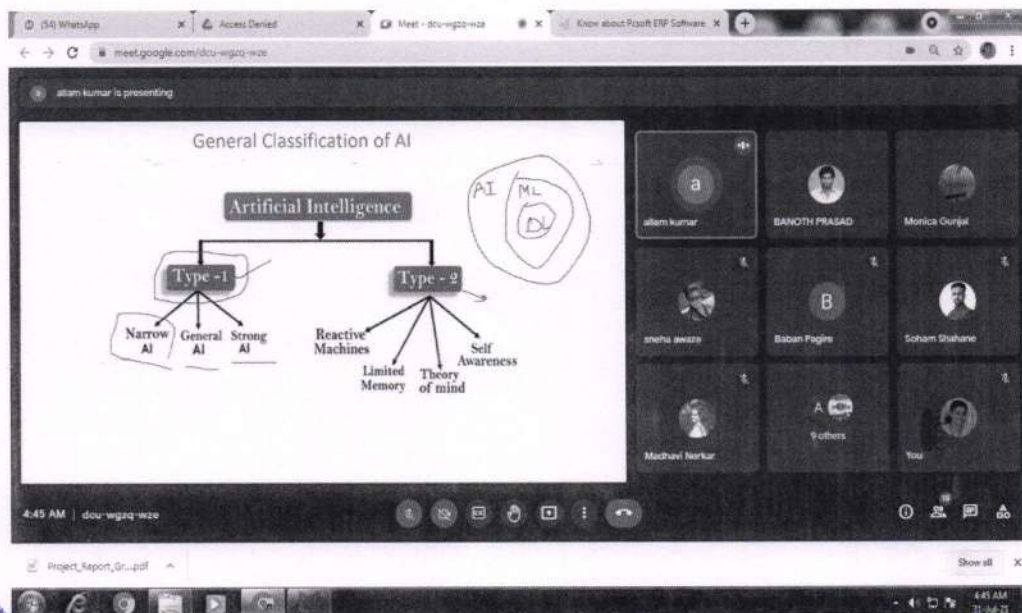
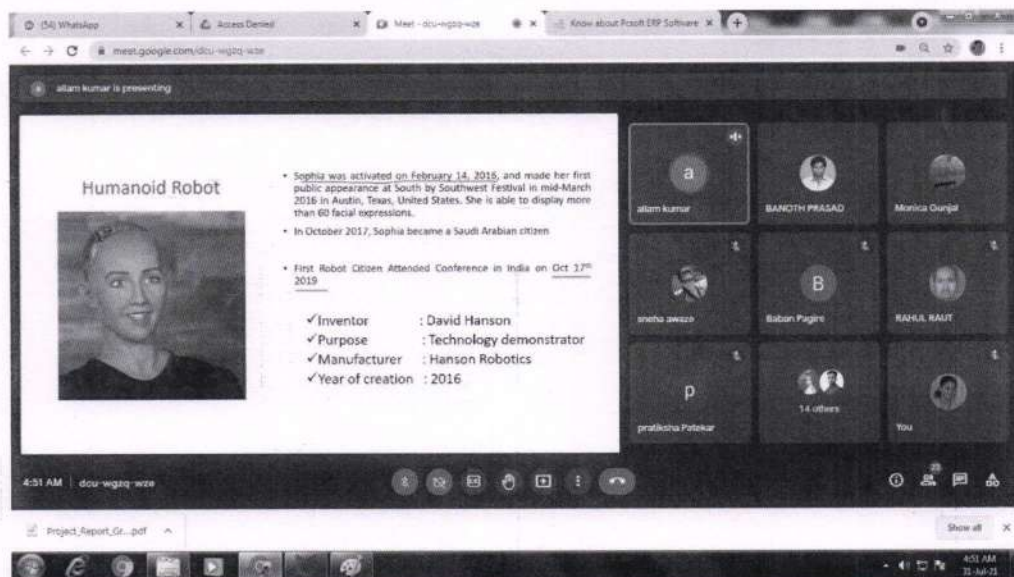


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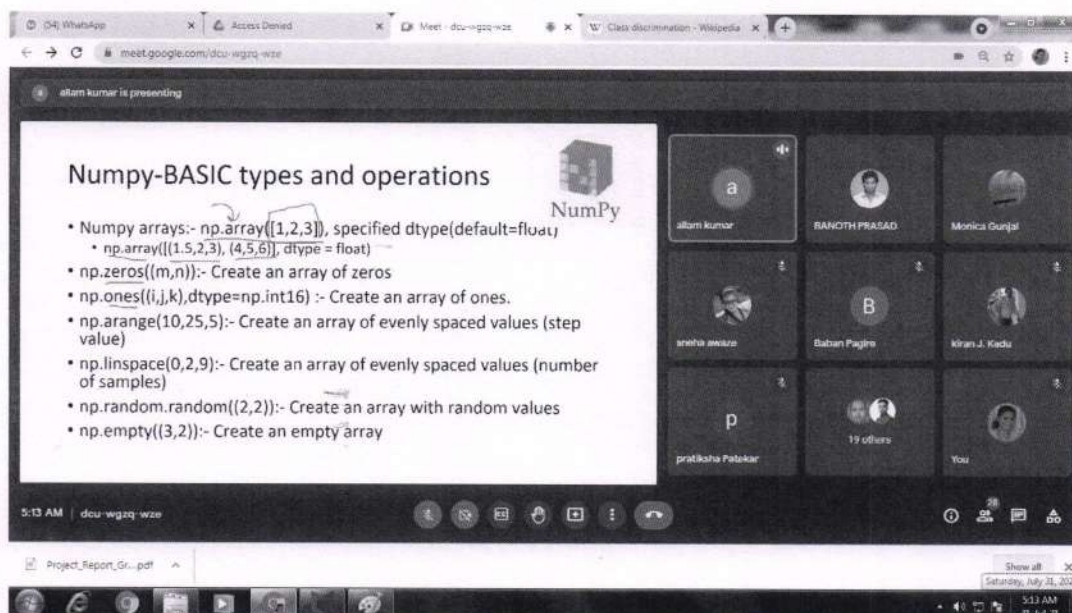
Planning and rescheduling, Learning, User modeling and Games were highlighted in the session.

- Megatrends in computer technology
- Valued skills in computer technology which include top 10 skills.
- Computational thinking as third aspect of Science, in the age of Artificial Intelligence
- Programming languages for AI
- Data collection- 3 Vs of Big data– Velocity, Variety and Volume
- Over-fitting and under fitting of Data

He also explained how to use library like Numpi, Pandas using Python programming.



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<p align="center">Centre for Continuing Education NATIONAL INSTITUTE OF TECHNOLOGY, WARANGAL AND DR. VITHALRAO VIKHE PATIL COLLEGE OF ENGINEERING, AHMEDNAGAR</p> <p align="center"><u>Participation Certificate</u></p> <p>This is to certify that Prof. Mrs. Jyoti P. Gaidhani from Dr. Vithalrao Vikhe Patil College of Engineering attended online Faculty Development Program on Next Generation Systems: Machine Learning & Deep Learning Applications conducted by the Department of Computer Science and Engineering from 27-07-2021 to 31-07-2021.</p> <div> <div>Dr. D. A. Vidhate Coordinator & HOD - IT</div> <div>Dr. Raju Bhutya Coordinator & Faculty-in charge CCE</div> <div>Prof. P. Rudra Krishna Head of Department CSE, NIT Warangal</div> <div>Dr. U.P. Nalla Principal DYVPCOE</div> <div>Prof. N.V. Ramana Rao Director NIT Warangal</div> </div>	<p align="center">Centre for Continuing Education NATIONAL INSTITUTE OF TECHNOLOGY, WARANGAL AND DR. VITHALRAO VIKHE PATIL COLLEGE OF ENGINEERING, AHMEDNAGAR</p> <p align="center"><u>Participation Certificate</u></p> <p>This is to certify that Faizan Mahmood from SR Institute of Management and Technology attended online Faculty Development Program on Next Generation Systems: Machine Learning & Deep Learning Applications conducted by the Department of Computer Science and Engineering from 27-07-2021 to 31-07-2021.</p> <div> <div>Dr. D. A. Vidhate Coordinator & HOD - IT</div> <div>Dr. Raju Bhutya Coordinator & Faculty-in charge CCE</div> <div>Prof. P. Rudra Krishna Head of Department CSE, NIT Warangal</div> <div>Dr. U.P. Nalla Principal DYVPCOE</div> <div>Prof. N.V. Ramana Rao Director NIT Warangal</div> </div>
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