MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(An UGC Autonomous Institution, Affiliated to JNTUH, Hyderabad Accredited 2nd time by NAAC with 'A' Grade & NBA and Recipient of World Bank Assistance under TEQIP--II S.C. 1.1)

Maisammaguda (H), Medchal-Malkajgiri District, Secunderabad, Telangana State – 500100

www.mrec.ac.in

Department of Computer Science and Engineering

CIRCULAR

Date: 08/05/2021

All the students are hereby informed that Value Added Course on **"Machine Learning "** is being organized by the **Computer Scienceand Engineering** department on dated **14th May 2021 to   20th Jun 2021**. The resource person for the course isMr. **Shyam Sunder, IBM**

Students are advised to register their names to the program me coordinator "**Mr. M.Srikanth , Asst Prof, CSE Dept**", on or before 12/05/2020 and utilize this opportunity to enhance their skills by attending the programme.

The detailed schedule of the programme will be displayed in the notice board.

Head of the Department

Head of the Department
Dept. of Computer Science and Engineering
Malla Reddy Engineering College (Autonomous)
Secunderabad, Telangana State - 500 100.

PRINCIPAL
Malla Reddy Engineering College
(Autonomous)
Maisammaguda, Dhulapally,
(Post Via Kompally), Sec'bad-500 100

Copy to:

1) Circulation in Students classroom
2) All HOD's
3) Notice Boards
4) PA to principal for filing.

About the Institution

Malla Reddy Engineering College (Autonomous) is one of the reputed engineering colleges in Hyderabad, Telangana. **MREC (A)** is part of Malla Reddy Group of Institutions (MRGI), founded by Sri. Ch. Malla Reddy, currently Hon'ble Minister,Labor and Employment, Factories, Women and Child Welfare and Skill Development, Govt. of Telangana State. The college is situated in a serene,lushgreenenvironmentin Maisammaguda, Gundlapochampally,Medchal(M),Medchal-Malkajgiri District Telangana– 500100.

The college was established in 2002 and is an autonomous institution approved by UGC and affiliated to JNTUH. The college is re-accredited by NAAC with 'A' Grade (II Cycle) and was conferred autonomous status by JNTUH in 2011 and by UGC in 2014 for a period of 6 years. Our eligible UG and PG programs received NBA accreditation and some of them received reaccreditation too. The college caters to wide ranging aspirations and goals of student communities by offering new courses in UG courses provides PG courses and MBA along with programs in various streams of Engineering & Technology and Management. It boasts of world-class infrastructure and well-equipped laboratories in all departments and is skillfully and smartly guided by **Dr. S. Sudhakara Reddy, Principal, MREC (A)** who have a rich teaching and industrial experience.

Advisory Committee

Chief Patrons: Sri. Ch. Malla Reddy, Minister-Telangana State-India.
Founder Chairman
Malla Reddy Group of Institutions

Patrons: **Sri.Ch. Mahender Reddy**
Secretary, MRGI
Dr.Ch.Bhadra Reddy
President, MRGI

Co-Patrons: **Dr.A. Ravinderaa**
Principal, MREC (A)

Convener: **Dr.Lakshmipathi Anatha**
HOD CSE
Coordinator: Mr. M.Srikanth
Assistant Professor, CSE

Resource Person: Mr. Shyam sunder ,IBM

Organizing Committee:

Dr. G.Charles Babu ,Professor, CSE
Dr. S. Dhanalakshmi, Professor, CSE
Mr. **Sanjeeva Polepaka,** Associate Professor, CSE
Mr. **K Arun Kumar,** Assistant Professor, CSE
Ms. **S. Sandhya Rani,** Assistant Professor, CSE
Mr.**Md. Inayathulla,** Assistant Professor, CSE
Mr.A.Lakshman, Assistant Professor, CSE
Mr.M.Srikanth, Assistant Professor, CSE
Mrs.G. Vamshi Krishna, Assistant Professor, CSE

A One-Week Skill development Course
(Value added Course)
On
"Machine Learning"
(14th May 2021 to 20th Jun, 2021)
(02.30 PM to 04.15 PM)

Organizedby
Department of
Computer Science and Engineering
MALLA REDDY ENGINEERING COLLEGE
(AUTONOMOUS) MAIN CAMPUS
An UGC Autonomous Institution, Approved by AICTE & Affiliated to JNTUH-Hyderabad Reaccreditedby NAACwith'A'Grade (II Cycle) **Maisammaguda(H)**, Gundlapochampally (V), Medchal (M), Medchal - Malkajgiri District Telangana - 500100, **India.**

Registration Form

Name of the Participant :----------------------------

Branch& Year :-------------------------------------

Name of Institution:------------------------------

Address for Communication:--------------------

Mobile Number:-----------------------------------

E-Mail ID:---

DECLARATION:
The information furnished above is true to the best of my Knowledge.

Place:

Date:

Signature of Applicant

About the Department

The Department of CSE was started in the year 2005 with a vision of imparting high-quality education to suite the global standards in Computer science and Engineering. The department has got highly qualified & committed faculty members supported by dedicated technical staff.

The department has its own library and sophisticated laboratories not only to suite curriculum requirements but also to serve research needs such as Computer Networks, Data Mining, Software Engineering, Image processing & Cloud Computing. Workshops, software simulation etc.
The department formed CSI and ISTE student branch for the benefit of students and faculty by conducting technical Conferences, workshops, FDPs and Guest lectures.

Overview of the Programme

Machine learning.is an application of AI that is based on the idea that when machines are provided new data, they can learn, grow, and develop on their own without explicit human intervention/programming.

The primary goal of the *workshop* was to bring together providers of *machine learning* toolkits and framework providers with Web platform practitioners to enrich the Open Web Platform with better foundations for machine learning.

Objectives of the Programme

This course creates exposure in identifying the various components in Machine Learning.

To make the students understand algorithms of Machine learning.

To provide the knowledge in supervised and unsupervised methods.

To provide the knowledge and assist the participants in developing new concepts of Machine Learning.

Topics to be covered

- Introduction of Machine learning
- Supervised methods.
- Unsupervised methods.
- Reinforcement learning
- Sample programs using R Tool
- Hands-on experience using R Tool

Certificate

After successful completion of the course the certificates shall be issued to the participants.

Outcome of the program,

On completion of this course, participants will be able to have a good understanding of the fundamental issues and challenges of machine learning: data, model selection, model complexity, etc.
Appreciate the underlying mathematical relationships within and across Machine Learning algorithms and the paradigms of supervised and un-supervised learning.

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MACHINE LEARNING SYLLABUS

Course code: VACCS06   **Duration of the course: (hrs):36**

Objective of the course:

- The main goal of this course is to help students learn, understand.
- practice machine learning approaches, which include the study of modern computing big data technologies.
- scaling up machine learning techniques focusing on industry applications.
- conceptualization and summarization of big data and machine learning, trivial data versus big data, big data computing technologies, machine learning techniques, and scaling up machine learning approaches

Syllabus

Unit-1   Total hrs: 6

Introduction to ML - Definition of learning systems, Goals and applications of machine learning. Aspects of developing a learning system: training data, concept representation, function approximation.

Inductive Classification - The concept learning task, Concept learning as search through a hypothesis space, General-to-specific ordering of hypotheses, Finding maximally specific hypotheses, Version spaces and the candidate elimination algorithm. Learning conjunctive concepts,The importance of inductive bias.

Decision Tree Learning - Representing concepts as decision trees, Recursive induction of decision trees, Picking the best splitting attribute: entropy and information gain,Searching for simple trees and computational complexity, Occam's razor. Overfitting, noisy data, and pruning.

Unit-2   Total hrs: 6

Ensemble Learning - Using committees of multiple hypotheses, Bagging, boosting, and DECORATE ,Active learning with ensembles.

Experimental Evaluation of Learning Algorithms - Measuring the accuracy of learned hypotheses, Comparing learning algorithms: cross-validation, learning curves, and statistical hypothesis testing.

Computational Learning Theory - Models of learnability: learning in the limit; probably approximately correct (PAC) learning. Sample complexity: quantifying the number of examples needed to PAC learn. Computational complexity of training. Sample complexity for finite hypothesis spaces. PAC results for learning conjunctions, kDNF, and kCNF. Sample complexity for infinite hypothesis spaces, Vapnik-Chervonenkis dimension.

Unit-3   Total hrs: 5

Rule Learning: Propositional and First-Order - Translating decision trees into rules. Heuristic rule induction using separate and conquer and information gain. First-order Horn-clause induction (Inductive Logic Programming) and Foil. Learning recursive rules. Inverse resolution, Golem, and Progol.

Artificial Neural Networks - Neurons and biological motivation. Linear threshold units. Perceptrons: representational limitation and gradient descent training. Multilayer networks and backpropagation. Hidden layers and constructing intermediate, distributed representations. Overfitting, learning network structure, recurrent networks.

Support Vector Machines - Maximum margin linear separators. Quadractic programming solution to finding maximum margin separators. Kernels for learning non-linear functions.

Unit-4   Total hrs: 6

Bayesian Learning - Probility theory and Bayes rule. Naive Bayes learning algorithm. Parameter smoothing. Generative vs. discriminative training. Logisitic regression. Bayes nets and Markov nets for representing dependencies.

Instance-Based Learning - Constructing explicit generalizations versus comparing to past specific examples. k-Nearest-neighbor algorithm. Case-based learning.

Text Classification - Bag of words representation. Vector space model and cosine similarity. Relevance feedback and Rocchio algorithm. Versions of nearest neighbor and Naive Bayes for text.

Unit-5   Total hrs: 7

Clustering and Unsupervised Learning - Learning from unclassified data. Clustering. Hierarchical Aglomerative Clustering. k-means partitional clustering. Expectation maximization (EM) for soft clustering. Semi-supervised learning with EM using labeled and unlabled data.

Language Learning - word-sense disambiguation, sequence labeling. Hidden Markov models (HMM's). Veterbi algorithm for determining most-probable state sequences. Forward-backward EM algorithm for training the parameters of HMM's. Use of HMM's for speech recognition, part-of-speech tagging, and information extraction. Conditional random fields (CRF's). Probabilistic context-free grammars (PCFG). Parsing and learning with PCFGs. Lexicalized PCFGs.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VAC- MACHINE LEARNING (ML)- Summary

15.06.2021

Course duration:14th May 2020 to 20th Jun 2020

Overview of the Course

This ML course is ideal for working professionals with programming knowledge. It covers key concepts like Statistics, Machine Learning, Deep Learning, NLP, and Reinforcement Learning. This program is delivered through our interactive learning model with live sessions by global practitioners, labs, and industry projects.

The main objective of this programme is to introduce students to the basic concepts and techniques of **Machine Learning**. To develop skills of using recent **machine learning** software for solving practical problems. To gain experience of doing independent study and research.

The speaker also covered the following topics:

- Introduction to Programming
- Data Structures and Algorithms
- Machine Learning & Deep Learning

The primary purpose of **machine learning** is to discover patterns in the user data and then make predictions based on these and intricate patterns for answering business questions and solving business problems. **Machine learning** helps in analysing the data as well as identifying trends

After successful completion of the course thecertificates are issued to the participants

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VAC MEACHINE LEARING

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CERTIFICATE OF COMPLETION

This is to certify that <u>MR/MS.ADLA RAJA REDDY</u> bearing **Roll No.** <u>18J41A0501</u>

has successfully completed Certificate / Value Added Course / Workshop in <u>MECHINE</u>

<u>LEARNING</u> conducted by the Department of **Computer Science and Engineering** from

<u>14/05/2021-20/06/2021.</u>

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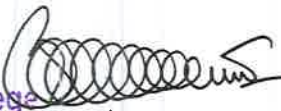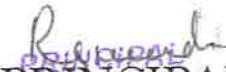
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CERTIFICATE OF COMPLETION

This is to certify that **MR/MS ARE CHAKRI** bearing **Roll No. 18J41A0502** has successfully completed Certificate / Value Added Course / Workshop in **MECHINE LEARNING** conducted by the Department of **Computer Science and Engineering** from 14/05/2021-20/06/2021.

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CERTIFICATE OF COMPLETION

This is to certify that Mr./Ms. ARUPULA KISHORE bearing Roll No. 18J41A0503

has successfully completed Certificate / Value Added Course / Workshop in MECHINE

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This is to certify that **Mr./Ms.** BALUSANI SRICHARAN bearing **Roll No.** 18J41A0504 has successfully completed Certificate / Value Added Course / Workshop in MECHINE LEARNING conducted by the Department of Computer Science and Engineering from 14/05/2021- 20/06/2021.

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This is to certify that **Mr./Ms.** BHUKYA BALARAJU bearing **Roll No.** 18J41A0506 has successfully completed Certificate / Value Added Course / Workshop in MECHINE LEARNING conducted by the Department of **Computer Science and Engineering** from 14/05/2021-20/06/2021.

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This is to certify that **Mr./Ms. BIDAR PRANEEL** bearing **Roll No. 18J41A0507** has successfully completed Certificate / Value Added Course / Workshop in **MECHINE LEARNING** conducted by the Department of **Computer Science and Engineering** from 14/05/2021-20/06/2021.

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This is to certify that **Mr./Ms.** BOLLAMPALLI RAKESH bearing **Roll No.** 18J41A0508 has successfully completed Certificate / Value Added Course / Workshop in MECHINE LEARNING conducted by the Department of Computer Science and Engineering from 14/05/2021-20/06/2021.

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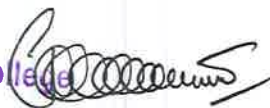(UGC Autonomous Institution, Affiliated to JNTUH, Accredited 2nd time by NAAC with 'A' Grade)

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This is to certify that **Mr./Ms. BOYA NITHISHA** bearing **Roll No. 18J41A0509** has successfully completed Certificate / Value Added Course / Workshop in **MECHINE LEARNING** conducted by the Department of **Computer Science and Engineering** from **14/05/2021-20/06/2021.**

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This is to certify that **Mr./Ms. CHALVADI DHANUSH** bearing **Roll No.** 18J41A0510 has successfully completed Certificate / Value Added Course / Workshop in MECHINE LEARNING conducted by the Department of Computer Science and Engineering from 14/05/2021-20/06/2021.

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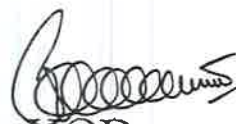
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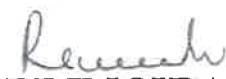## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE OF COMPLETION

This is to certify that **Mr./Ms.** <u>CHAMARTHI KALYAN VARMA</u> bearing **Roll No.** <u>18J41A0511</u> has successfully completed Certificate / Value Added Course / Workshop in <u>MECHINE LEARNING</u> conducted by the Department of Computer Science and Engineering from <u>14/05/2021-20/06/2021.</u>

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