

**MINUTES OF THE SEVENTH MEETING OF THE ACADEMIC COUNCIL HELD
BY CIRCULATION ON 31ST JANUARY, 2023**

The agenda was circulated to the following members:

S. No	Name of the Member	Designation	Present/ Absent
1	Dr. S Ramachandram, Vice Chancellor	Chairperson	Present
2	Dr Balaji Utlal, Dean, School of Management & Chairperson, BoS, Business Management	Member	Present
3	Dr. V Vijaya Kumar, Dean, R& D and Chairperson, BoS, CSE	Member	Present
4	Dr. G Vishnu Murthy, Dean, School of Engineering	Member	Present
5	Dr. M Mutha Reddy, s Dean, Examinations	Member	Absent
6	Dr. KS Reddy, Dean, Academic & Planning & Head, Department of IT & Chairperson, BoS, IT	Member	Present
7	Dr. Narayana Reddy, Dean, School of Agricultural Sciences	Member	Present
8	Dr. Vasudha Bakshi, Dean, School of Pharmacy & Chairperson, BoS, Pharmacy	Member	Present
9	Dr. V Srinivasa Rao, Dean, Student Affairs, & Chairperson, BoS, Mathematics	Member	Present
10	Dr. M Venkata Ramana, Director, IQAC	Member	Present
11	Dr. S Madhu, Head, Department of Mechanical Engineering	Member	Present
12	Dr T Krishnaiah, Chairperson, BoS, Mechanical Engineering	Member	Present
13	Dr. S Sathees Kumaran, Head, Department of ECE & Chairperson, BoS, ECE	Member	Present
14	Prof. N Mangala Gouri Head, Department of ECE	Member	Present
15	Dr. T Anil Kumar, Head, Department of EEE	Member	Present
16	Dr. L Rajasekhar Goud Chairperson, BoS, EEE	Member	Present
17	Dr. K Ramachandra Reddy, Chairperson, BoS, Civil Engineering	Member	Present

18	Dr. K Madhusudan Reddy, Head, Department of Civil Engineering	Member
19	Dr. Vishnu Vandana, Head, Department of Business Management	Member
20	Dr. G.V.S Ananta Lakshmi, Head, Department of English & Chairperson, BoS, English	Member
21	Dr. K Shiva Reddy, Head, Department of Mathematics	Member
22	Dr. Savita Belwal, Head, Department of Chemistry & Chairperson, BoS Chemistry	Member
23	Dr. M Srinivas Reddy, Head, Department of Physics & Chairperson, BoS Physics	Member
Governing Body Nominees		
24	Dr. Shanta Thoutam, Chief Innovation Officer, Govt of Telangana	Member
25	Prof. E Sai Baba Reddy, Former Rector & Prof, Dept. of Civil Engineering, JNTU, Hyderabad	Member
26	Dr. B Satyanarayana Reddy, MD, Nosch Labs, Hyderabad	Member
Student Nominees		
27	Ms. K. Sree Priya, ECE III Year, AU	Member
28	Mr. Akshay Reddy Kethidi, CSE III Year	Member
Sponsoring Body Nominees		
29	Dr. P Rajeshwar Reddy, Chairman, GECT	Member
30	Mrs. S Neelima, Managing Trustee, GECT	Member
31	Mr. Palla Anurag, Trustee, GECT	Member
32	Dr. M Srinivasa Rao, Associate Professor, English, AGI	Member
Vice - Chancellor Nominees		
33	Dr. M Sikindar Baba, Controller of Examination & Associate Professor, Department of Mechanical Engineering	Member
34	Dr. Laxmi Ramana, Professor, Department of English	Member
Registrar		
35	Dr. S Sameen Fatima, Registrar & Chairperson, BoS, AI	Member Secretary/ Member

Based on the consent received from the members, the Academic Council adopts the following resolutions:

Item 1: Approval of amendments to Course Structure and Syllabi of IV Year B.Tech. (R20)

Resolution 1: The Council resolves to approve amendments to the course structure and syllabi of IV Year B. Tech. as per the details given below:

1. The Lecture-Tutorial-Practical (LTP) for Open Electives offered in the 8th Semester are revised as 2-1-0, so as to bring in uniformity across all open electives of all the programs.
2. Python programming course is introduced as an Open Elective for ECE and Civil Engineering.
3. Based on the suggestions made by the members of the council, the course on Fundamentals of Python Programming has been renamed as Python Programming for ECE.
4. The syllabus of the Open Elective Course (OEC) - III titled "Introduction to Machine Learning" of the B.Tech program in the Department of AI offered to the B.Tech students of the Department of Civil Engineering has been revised and the same is at Annexure – I.
5. The LTP and credits for the Professional Elective-III and laboratory courses of AI and AIML programs are revised as under, in order to have commonality amongst other departments' courses:

Program	Category/ Course Name	Existing				Revised			
		L	T	P	C	L	T	P	C
AIML	PEC-III	3	1	0	4	3	0	0	3
AI	PEC-III	3	1	0	4	3	0	0	3
AI	PCC Lab (NLP Lab)	0	0	3	1.5	0	0	4	2
AI	PCC Lab (DL Lab)	0	0	3	1.5	0	0	4	2
AIML	PCC Lab (BD Lab)	0	0	3	1.5	0	0	4	2
AIML	PCC Lab (DL Lab)	0	0	3	1.5	0	0	4	2

6. Under Open Elective Course -II of the B.Tech program in the Department of CSE offered to the B.Tech students of the Department of Civil Engineering, the course "Introduction to Artificial Intelligence" is replaced with "Python Programming" as approved by the Board of Studies in CSE and offered by the Department of ECE.
7. The elective course Applications of AI in e-Governance has been dropped from the list of courses under PEC-IV and PEC-V in the structure for both AI and AIML.

INTRODUCTION TO MACHINE LEARNING

BTech (AI) IV Year II Semester					Dept. of Artificial Intelligence			
Code	Category	Hours / Week			Credits	Marks		
	*OEC-III	L	T	P	C	CIF	SFF	Total
		3	0	0	3	40	60	100

***Offered only to Civil Engineering**

Course Objectives

1. To understand the basic concept of machine learning
2. To understand the linear and logistic regression
3. To understand the supervised learning algorithms
4. To understand KNN and SVM learning algorithms
5. To understand unsupervised learning algorithms

Course Outcomes

At the end of this course, students will be able to:

1. Understand the essentials of machine learning concepts
2. Apply linear and logistic regression algorithm on the given dataset
3. Apply decision tree and Naïve Bayes algorithms on the given dataset
4. Classify given data using K-NN and SVM algorithms
5. Cluster the given dataset using unsupervised learning algorithms

UNIT-I

Introduction: Data, Statistical Learning Perspective, Computer Science Perspective, Models and Algorithms, learning a function, learning a function to make prediction, Techniques for Learning a Function, Supervised Machine Learning, Unsupervised Machine Learning, Semi-Supervised Machine Learning.

Bias-Variance Trade-Off: Overview of Bias and Variance, Bias Error, Variance Error, Bias-Variance Trade-Off, Generalization in Machine Learning, Statistical Fit, Overfitting in Machine Learning, Underfitting in Machine Learning, A Good Fit in Machine Learning, Limit Overfitting, Gradient Descent, Batch Gradient Descent, Stochastic Gradient Descent.

UNIT-II

Linear Regression: Model Representation, Learning the Model, Gradient Descent, Making Predictions with Linear Regression, Preparing Data for Linear Regression, Making Predictions, Estimating Error, Linear Regression Using Gradient Descent, Simple Linear Regression with Stochastic Gradient Descent.

Logistic Regression: Logistic Function, Representation Used for Logistic Regression, Logistic Regression Predicts Probabilities, Learning the Logistic Regression Model, Making

Predictions with Logistic Regression, Prepare Data for Logistic Regression, Logistic Regression Model, Logistic Regression by Stochastic Gradient Descent.

UNIT-III

Decision Trees: CART Model Representation, Making Predictions, learn a CART Model from Data, Preparing Data for CART, learning a CART Model, Making Predictions on Data.

Naive Bayes: Introduction to Bayes' Theorem, Naive Bayes Classifier, Gaussian Naive Bayes, Preparing Data for Naive Bayes, learn a Naive Bayes Model, Make Predictions with Naive Bayes.

UNIT-IV

K-Nearest Neighbors: KNN Model Representation, Making Predictions with KNN, Curse of Dimensionality, Preparing Data for KNN, KNN and Euclidean Distance, Making Predictions with KNN.

Support Vector Machines: Maximal-Margin Classifier, Soft Margin Classifier, Support Vector Machines (Kernels), Learn a SVM Model, Preparing Data For SVM, Training SVM With Gradient Descent, Learn an SVM Model from Training Data, Make Predictions with SVM Model

UNIT-V

K-means: Unsupervised vs. supervised learning, clustering, partitioning methods. K-means, Elbow method, SSE.

Hierarchical clustering: Hierarchical clustering, Agglomerative hierarchical clustering, divisive, hierarchical clustering.

Text Book

1. J. Brownlee, "Master Machine Learning Algorithms: Discover how they work and implement them from scratch", Jason Brownlee, 2016.
2. Saikat Dutt, Subramanian Chandramouli, Amit Kumar Das, "Machine learning", 2019, Pearson

References

1. Tom M. Mitchell, Machine Learning, McGraw-Hill Education (India) Private Limited, 2013.
2. Andreas C. Muller, Sarah Guido, Introduction to Machine Learning with Python, O'Reilly Media, Inc., October 2016




Dr. S Ramachandram,
Vice Chancellor



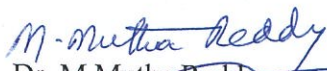
Dr Balaji Utla,
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Dean, R& D and
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Dean, Examinations



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Head, Department of IT &
Chairperson, BoS, II




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Chairperson, BoS, Pharmacy




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Mathematics




Dr. S Madhu,
Head, Department of
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Dr. T Krishnaiah,
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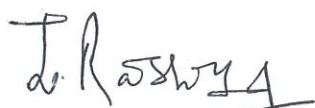
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Dr. T Anil Kumar,
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Dr. L Rajasekhar Goud
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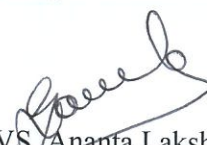
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