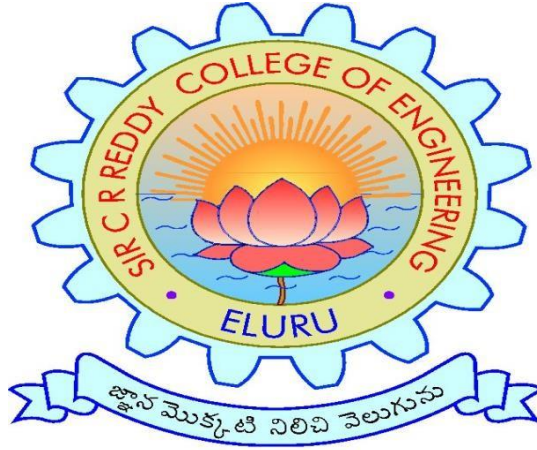# SIR C R REDDY COLLEGE OF ENGINEERING (AUTONOMOUS)

Eluru-534007, West Godavari Dist, Andhra Pradesh, India

(Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada)

Accredited by NBA

Telephone No: 08812-230840, 230565, Fax: 08812-224193

Website: www.sircrrengg.ac.in

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CR-24

M.TECH SYLLABUS with CO-PO MAPPING

w.e.f. Academic Year: 2024-2025

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	DEPARTMENT OF Computer Science & Engineering

SCHEME OF INSTRUCTION & EXAMINATION CR-24

M.TECH (COMPUTER SCIENCE & TECHNOLOGY)

(With effect from **2024-2025** Admitted Batch onwards**)**

III-SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1		**Program Elective-5** 1. Deep Learning 2. Ethical Hacking 3. MOOCs-1 through NPTEL/SWAYAM-12 Week Program related to the programme which is not listed in the course structure	PE	3	0	0	3
2		**Open Elective** 1. MOOCs-2 through NPTEL/SWAYAM- any 12 week course on Engineering/ Management/ Mathematics offered by other than parent department 2. Course offered by other departments in the college	OE	3	0	0	3
3		**Dissertation-I/Industrial Project #**	PJ	0	0	20	10
Total Credits							16

#Students going for Industrial Project/Thesis will complete these courses through MOOCs

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Course Objectives:
At the end of the course, the students will be expected to:
- Learn deep learning methods for working with sequential data,
- Learn deep recurrent and memory networks,
- Apply such deep learning mechanisms to various learning problems.
- Learn deep Turing machines, the open issues in deep learning, and have a grasp of the current researchdirections.

Course Outcomes:
After the completion of the course, student will be able to
- Demonstrate the basic concepts fundamental learning techniques and layers.
- Discuss the Neural Network training, various random models**.**
- Explain different types of deep learning network models.
- Classify the Probabilistic Neural Networks.
- Implement tools on Deep Learning techniques.

UNIT-I:
Introduction: Various paradigms of learning problems, Perspectives and Issues in deep learning framework, review of fundamental learning techniques. Feed forward neural network: Artificial Neural Network,activation function, multi-layer neural network

UNIT-II:
Training Neural Network: Risk minimization, loss function, back propagation, regularization, model selection, and optimization. **Deep Neural Networks:** Difficulty of training deep neural networks, Greedy layer wisetraining.

UNIT-III:
Deep Learning: Deep Feed Forward network, regularizations, training deep models, dropouts, Convolution Neural Network, Recurrent Neural Network, and Deep Belief Network.

UNIT-IV:
Probabilistic Neural Network: Hopfield Net, Boltzmann machine, RBMs, Sigmoid net, Auto encoders.

UNIT-V:
Applications: Object recognition, sparse coding, computer vision, natural language processing.
Introduction to Deep Learning Tools: Tensor Flow, Caffe, Theano, Torch.

Text Books:
1.Goodfellow, I., Bengio,Y., and Courville, A., Deep Learning, MIT Press, 2016..
2.Bishop, C. ,M., Pattern Recognition and Machine Learning, Springer, 2006.

Reference Books:
1.Yegnanarayana, B., Artificial Neural Networks PHI Learning Pvt. Ltd, 2009.
2.Golub, G.,H., and Van Loan,C.,F., Matrix Computations, JHU Press,2013.
3.Satish Kumar, Neural Networks: A Classroom Approach, Tata McGraw-Hill Education, 2004
4.Neural Networks: A Systematic Introduction, Raúl Rojas, 1996

CO-PO/PSO MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	1	1	-	-	-	-	-	-	-	3	-
CO2	3	3	2	2	1	-	-	-	-	-	-	-	3	-
CO3	3	2	3	2	2	-	-	-	-	-	-	-	3	-
CO4	3	3	2	2	2	-	-	-	-	-	-	-	3	-
CO5	3	3	3	3	3	-	-	-	-	-	-	-	3	-
Avg	3	2.6	2.4	2	1.8	-	-	-	-	-	-	-	3	-

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III Semester		L	T	P	C
		0	0	4	2

Mini Project with Seminar

For Mini Project with Seminar, a student under the supervision of a faculty member, shall collect the literature on a topic and critically review the literature and submit it to the department in a report form and shall make an oral presentation before the Project Review Committee consisting of Head of the Department, supervisor/mentor and two other senior faculty members of the department. For Mini Project with Seminar, there will be only internal evaluation of 100 marks. A candidate has to secure a minimum of 50% of marks to be declared successful.

IV-SEMESTER

Open Electives offered to other departments:

1. Python Programming
2. Web Technologies
3. Artificial Intelligence
4. Internet of Things
5. Machine Learning
6. Advanced Data Structures

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DEPARTMENT OF Computer Science & Engineering

I Year –		**L**	**T**	**P**	**C**
I & II Semester		**2**	**0**	**0**	**0**
AUDIT COURSE-2					

List of Audit Courses and their Syllabi are mentioned in the First Semester Syllabus.

The students can opt any one course for AC 2 from the list mentioned in first semester by not opting the course which is already taken for AC 1