SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF INFORMATION TECHNOLOGY
TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Periods /Week	Academic Year	Date of commencement of Semester
23CD6T01	DEEP LEARNING	VI	CSE-DS	5	2025-26	10-12-2025

COURSE OUTCOMES

1	Explore feed forward networks and Deep Neural networks
2	Mathematically understand the deep learning approaches and paradigms
3	Apply the deep learning techniques for various applications

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book/ Reference	Contact Hour	Delivery Method
I	CO – 1	1.1	Basics- Biological Neuron	T1,T2	1	Chalk & Board; Power point presentation; Assignment; Test
		1.2	Basics- Biological Neuron	T1,T2	1	
		1.3	Idea of computational units	T1,T2	1	
		1.4	Idea of computational units	T1,T2	1	
		1.5	McCulloch–Pitts unit	T1,T2	1	
		1.6	Thresholding logic	T1,T2	1	
		1.7	Linear Perceptron	T1,T2	1	
		1.8	Linear Perceptron	T1,T2	1	
		1.9	, Linear separability	T1,T2	1	
		1.10	Perceptron Learning Algorithm,	T1,T2	1	
		1.11	Convergence theorem for Perceptron Learning Algorithm	T1,T2	1	
		1.12	Convergence theorem for Perceptron Learning Algorithm	T1,T2	1	
				Total	12	
II	CO – 2	2.1	Feed forward Networks- Multilayer Perceptron	T1,R1	1	Chalk & Board
		2.2	Introduction	T1,R1	1	
		2.3	Multilayer Perceptron	T2,R2	1	
		2.4	Multilayer Perceptron	T2,R2	1	
		2.5	Gradient Descent	T2,R2	1	
		2.6	Backpropagation	T2,R2	1	

		2.7	Empirical Risk Minimization	T2,R2	1	Power point presentation Assignment Test
		2.8	Empirical Risk Minimization	T1,T2	1	
		2.9	regularization	T1,T2	1	
		2.10	autoencoders	T1,T2	1	
		2.11	Deep Neural Networks: Difficulty of training deep neural networks	T1,T2	1	
		2.12	Deep Neural Networks: Difficulty of training deep neural networks	T1,T2	1	
		2.13	Greedy layer wise training	T1,T2	1	
		2.14	Greedy layer wise training	T1,T2	1	
				Total	14	
III	CO – 3	3.1	Better Training of Neural Networks –Newer optimization methods for neural networks	T1,T2	1	Chalk & Board Power point presentation Assignment Test
		3.2	Adagrad, adadelta, rmsprop, adam, NAG),	T1,T2	1	
		3.3	Adagrad, adadelta, rmsprop, adam, NAG),	T1,T2	1	
		3.4	Adagrad, adadelta, rmsprop, adam, NAG),	T1,T2	1	
		3.5	second order methods for training	T1,T2	1	
		3.6	second order methods for training	T1,T2	1	
		3.7	Saddle point proble minneural networks	T1,T2	1	
		3.8	Saddle point proble minneural networks	T1,T2	1	
		3.9	Saddle point proble minneural networks	T1,T2	1	
		3.10	Saddle point proble minneural networks	T1,T2	1	
		3.11	Regularization methods	T1,T2	1	
		3.12	Regularization methods	T1,T2	1	
		3.13	Regularization methods	T1,T2	1	
		3.14	Regularization methods	T1,T2	1	
		3.15	Regularization methods (dropout, drop connect, batch normalization).	T1,T2	1	
				Total	15	
IV	CO – 4	4.1	Recurrent Neural Networks- Back propagation through time &	T1,T2	1	

		4.2	Long Short-Term Memory	T1,T2	1	Chalk & Board Power point presentation Assignment Test
		4.3	Gated Recurrent Units	T1,T2	1	
		4.4	Bidirectional LSTMs, Bidirectional RNNs	T1,T2	1	
		4.5	Convolutional Neural Networks: LeNet, Alex Net	T1,T2	1	
		4.6	Generative models: Restrictive	T1,T2	1	
		4.7	Boltzmann Machines (RBMs)	T1,T2	1	
		4.8	Introduction to MCMC and Gibbs Sampling	T1,T2	1	
		4.9	Introduction to MCMC and Gibbs Sampling	T1,T2	1	
		4.10	Gradient computations in RBMs	T1,T2	1	
		4.11	Gradient computations in RBMs	T1,T2	1	
		4.12	Deep Boltzmann Machines	T1,T2	1	
		4.13	Deep Boltzmann Machines	T1,T2	1	
				Total	13	
V	CO – 5	5.1	Recent trends	T1,R1	1	Chalk & Board Power point presentation Assignment Test
		5.2	Recent trends	T1,R1	1	
		5.3	Recent trends	T1,R1	1	
		5.4	Variational Autoencoders	T1,R1	1	
		5.5	Variational Autoencoders	T1,R1	1	
		5.6	Variational Autoencoders	T1,R1	1	
		5.7	Transformers	T1,R1	1	
		5.8	Transformers	T1,R1	1	
		5.9	Transformers	T1,R1	1	
		5.10	GPT	T1,R1	1	
		5.11	Applications	T1,R1	1	
		5.12	Vision, NLP, Speech	T1,R1	1	
		5.13	Vision, NLP, Speech	T1,R1	1	
				Total	13	
				CUMULATIVE PROPOSED PERIODS	67	

Text Books:

S. No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Ian Good fellow and Yoshua Bengio and Aaron Courville, Deep Learning MIT Press, 2016

Reference Books:

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S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	RaúlRojas,Neural Networks: A Systematic Introduction,1996
2	Christopher Bishop,Pattern Recognition and Machine Learning,2007
3	François Chollet,Deep Learning with Python, Manning Publications,2017
Web Details:	
1	Foundations of Deep Learning: Concepts and Applications - Course
2	Deep Learning - IIT Ropar - Course

		Name	Signature with Date
i.	Faculty	Mrs. V. Sivani	10/12/25
ii.	Module Coordinator	Mr. K. Raja	
iii.	Programme Coordinator	Dr. RVVSV Prasad	10/12/25

Principal