

School: CSE		Program:B.Tech		Semester:IV
Course Title:		Soft Computing Lab		
Course Code:		CSP DC-202		
Course Coordinator:		Prof. Manoj Kumar Gupta		
L-T-P:		0-0-2		
Evaluation Scheme (Total Marks 100)				
Lab Exam (40 Marks)		Lab Record	Viva-Voice	Total
Written	Lab-Performance	30 Marks	30 Marks	100 Marks
WEEKS		DETAILS OF EXPERIMENTS TO BE PERFORMED		
Week1		1. Design and simulate the behaviour of AND, OR, XOR and NAND Gate in C Language. Make menu driven program which continue to execute untill user choose so.		
		2. Implement the different activation functions to train Neural Network.  A. Step function  B. Signum Function  C. Binary sigmoidal function  D. Bipolar sigmoidal function  E. ReLu function		

<b>Week 2</b>	<p><b>3. Design and simulate the behaviour of AND, OR using McCulloch-Pitts Neuron in C Language</b></p> <p><b>4. Design and simulate the behaviour of XOR using McCulloch-Pitts Neuron in C Language. Draw the final network with weights.</b></p>
<b>Week 3</b>	<p><b>5. Design and simulate the behaviour of Hebb Network by implementing AND and OR gate using</b></p> <p><b>A. bipolar inputs and targets</b></p> <p><b>B. Binary inputs and targets</b></p> <p><b>Draw the final network with weights.</b></p>
<b>Week 4</b>	<p><b>6. Design and simulate the behaviour of AND Gate using Perceptron Network</b></p> <p><b>A. for binary inputs and targets</b></p> <p><b>B. for binary inputs and bipolar targets</b></p> <p><b>C. for bipolar inputs and targets.</b></p> <p><b>7. Design and simulate the behaviour of OR Gate using Perceptron Network</b></p> <p><b>A. for binary inputs and targets</b></p> <p><b>B. for binary inputs and bipolar targets</b></p> <p><b>C. for bipolar inputs and targets.</b></p> <p><b>Draw the final network with weights.</b></p>
<b>Week 5</b>	<p><b>8. Design and simulate the behaviour of OR Gate using Adaline Network in C for bipolar inputs and targets. Draw the final network with weights. Plot the graph number of epochs vs error (root mean square error).</b></p>
<b>Week 6</b>	<p><b>9. Design and simulate the behaviour XOR Gate using Madaline network in C language for bipolar inputs and targets.</b></p>
<b>Week 7</b>	<p><b>10. Design and simulate the behaviour of XOR gate using Back Propagation Network in c for Bipolar inputs and Binary targets.</b></p>
<b>Week 8</b>	<p><b>11. Write a program in C to Implement the various primitive operations of classical sets.</b></p>
<b>Week 9</b>	<p><b>12. Write a program in C to implement and verify various Laws associated with Classical sets.</b></p>

Week10	13. Write a program in C to perform various primitive operations on Fuzzy Sets with Dynamic Components.
Week 11	14. Write a program in C to verify various Laws associated with Fuzzy Sets.
Week12	15. Write a program in C to perform Cartesian product over two given Fuzzy Sets.
Week13	16. Write a program in C to perform Max-Min Composition of Two Matrices obtained from Cartesian Product.
Week 14	17. Write a program in C to perform Max-Product Composition of Two Matrices obtained from Cartesian Product.
Week 15	18. Write a program in C to maximize $F(X) = X^2$ using Genetic Algorithm where $0 < X < 31$
Week 16	Lab Exam

**Course Outcomes:**

CO1: Comprehend the implementation of the various types of neural networks

CO2: Develop the understanding of implementation of fuzzy sets and operations

CO3 Design and Implement of some applications using genetic algorithm

**Signature of Course Coordinator :**