Course Name	Artificial Neural Networks	**Course Code**	COMP		442
Credit Hours	3	**Contact Hours**	Lec	Lab	Total
			2	2	4
Track	☐ **University Requirement** ☐ **College Requirement** ☒ **Program Requirement** ☒ **Core** ☐ **Elective** ☒ **COMP** ☐ **INFS** ☐ **CNET**				
Level	10th Level	**Prerequisite**	COMP 241		

Course Description:

This course provides an introduction to artificial neural networks. It reviews biological neural networks, and presents a general framework to construct their mathematical models with a view to study their applications. It gives a historical view to the McCulloch-Pitts model, application of Rosenblatt's Perceptron learning model in both linear and non-linear classification problems and the Widrow-Hoff's ADALINE model. It discusses important issues in the design, training, troubleshooting, and testing of neural network applications.

Course Objectives:

The objectives of the course in neural networks are:

- Familiarize students with the basic concepts and needs of neural networks in current area of computer science and engineering applications.
- Describe and apply appropriate neural networks design techniques.
- Designing a neural network using back propagation based on the nature of the problem.
- Develop the skills required for designing, training, testing, and troubleshooting neural network applications on real world.

Grading	☒ **Assignments**	**20%**	☒ **Exam-1**	**10%**	☒ **Exam-2**	**10%**
	☐ **Mini Project**	**NA**	☒ **Lab Exam**	**20%**	☒ **Final**	**40%**

Text Books:

Neural Networks: A Comprehensive Foundation By Simon Haykin, 2007, 3rd Edition Publisher : Prentice Hall, ISBN:0131471392

References:

- Fundamentals of Artificial Neural Networks, By Mohamad H. Hassoun, 2003, PHI Learning Private Limited, ISBN-13: 978-0262514675
- Artificial Neural Networks By Yegnanarayana, Prentice-Hall of lndia Private Limited, 2004, ISBN: 978-81-203-1253-1
- Neural Networks and Learning Machines: A Comprehensive Foundation, Foundation By Simon Haykin, 2008, 3rd Edition, Prentice Hall, ISBN-13: 978-0131471399
- Computational Intelligence: Principles, Techniques and Applications By: Amit Konar, 2005, Springer, ISBN-13: 978-3540208983