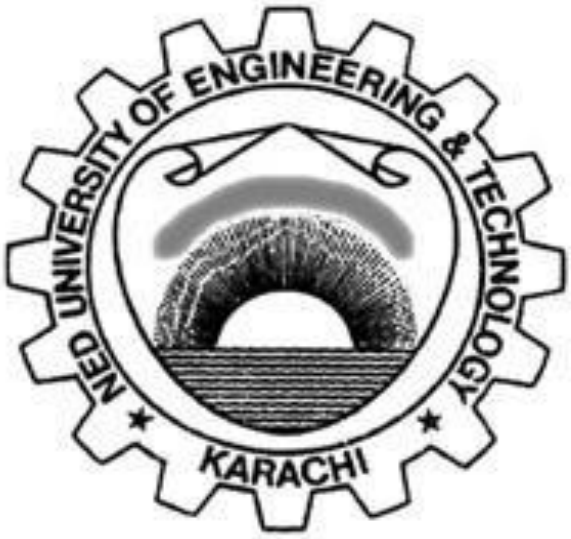
Practical Workbook
CS-323
Artificial Intelligence



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Department: _____

Department of Computer & Information Systems Engineering
NED University of Engineering & Technology,

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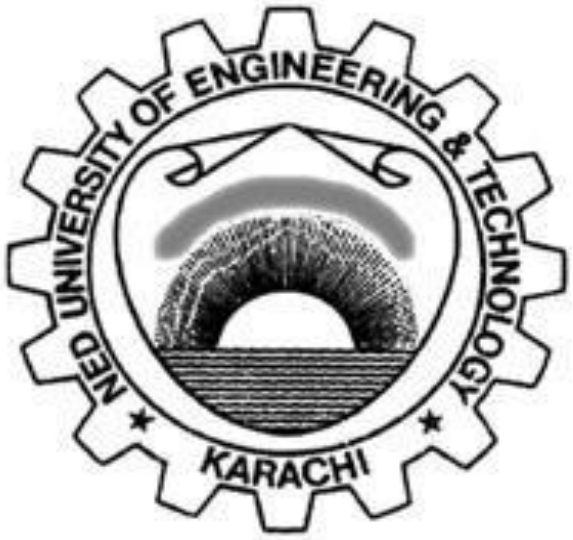

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INTRODUCTION

The Laboratory Workbook supports the Practical Sessions of the course Artificial Intelligence (CS-323). The Workbook has been designed to cover the major areas of Artificial Intelligence including Expert Systems, Machine Learning, and Fuzzy Logic Systems.

The Course Profile of CS-323 Artificial Intelligence lays down the following Course Learning Outcome:

> **"Demonstrate** the use of modern tools and techniques for developing intelligent systems.(C3, PLO-3)"

All lab sessions of this workbook have been designed to assist the achievement of the above CLO. A rubric to evaluate student performance has been provided at the end of the workbook.

First five lab sessions of this workbook are related to Machine Learning algorithms using Artificial Neural Networks (ANN), which is a problem-solving paradigm, used to solve complex, non-linear problems where conventional algorithm solution is either not possible or not feasible. The section begins with laboratory session on implementation of basic logic function, and is followed by methods of creating and working on ANNs. Next lab session describes problems solving phases of ANNs; and finally, the effect of external have been observed on the performance of ANNs.

Lab sessions 6 and 7 explores the topics of Graph solving and searching options using Graph Solving tool.

Lab session 8 is based on consistency based CSP solver whereas Lab session 9 explores Stochastic local search based CSP solver.

Lab sessions 10 and 11 covers the basic and advanced concepts of developing Expert Systems. Lab session 12 covers the data-driven programming in Expert Systems.

Lab session 13 explains how to build Fuzzy Logic based applications using MATLAB Fuzzy Logic Toolbox. It also covers tools such as Fuzzy Tech for building these applications.

Lab 14 contains the complex engineering activity which needs to be carried out as per directions of lab instructor

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