**COURSE DESCRIPTION FORM**

**INSTITUTION**  \_\_\_\_\_\_FAST-NUCES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

BS Computer Science

**PROGRAM (S) TO BE**

**EVALUATED**

1. **Course Description**

(Fill out the following table for each course in your computer science curriculum. A filled out form should not be more than 2-3 pages.)

| **Course Code** | AI 2002 | | | |
| --- | --- | --- | --- | --- |
| **Course Title** | Artificial Intelligence | | | |
| **Credit Hours** | 3+1 | | | |
| **Prerequisites by Course(s) and Topics** | OOP | | | |
| **Assessment Instruments with Weights** (homework, quizzes, midterms, final, programming assignments, lab work, etc.) | **Midterm Examination (2) 30 %**  **Assignment (3) & Quizzes (3) 20% (10% each)**  **Term Project 10%**  **Final Exam 40%** | | | |
| **Course Coordinator** | Dr. Kashif | | | |
| **URL (if any)** |  | | | |
| **Current Catalog Description** | This is a under-graduate level course introducing the vast field of Artificial Intelligence. The course introduces Search, Game Playing, Logic, Inference and Machine Learning. The course has special focus on Machine Learning, as it is widely used in today’s AI system. The topics of ML are taught in the first part of the course, so the students can create a ML project in the lab part of the course. | | | |
| **Textbook** (or **Laboratory Manual** for Laboratory Courses) | Artificial Intelligence: Modern Approach, (3rd & 4th ed.), Stuart Russel and Peter Norvig.<http://aima.cs.berkeley.edu/> | | | |
| **Reference Material** |  | | | |
| **Course Goals** |  | | | |
| **Topics Covered in the Course, with Number of Lectures on Each Topic** (assume 15-week instruction and one-hour lectures) | **Week 1** | | **Introduction** Background & History, Agents, Environment, Search Space | |
| **Week 2** | | **Uninformed Search** DFS, BFS, IDS | |
| **Week 3** | | DLS, Bidirectional, UCS | |
| **Week 4** | | **Informed Search** Best first, | |
| **Week 5** | | A\* | |
| **Week 6** | | **Local Search** Hill Climbing, Genetic Algorithms | |
| **Week 7** | | Genetic Algorithms | |
| **Week 8** | | **Adversarial Search** Min Max, Alpha-beta | |
| **Week 9** | | **Supervised Machine Learning** Linear Regression | |
| **Week 10** | | Multiple Regression | |
| **Week 11** | | Neural Networks, MLP | |
| **Week 12** | | Back propagation | |
| **Week 13** | | **Clustering** K means, K Medoid, | |
| **Week 14** | | Nearest Neighbours, Agglomerative | |
| **Week 15** | | **Expert Systems** | |
|  | **Week 16** | | **Project Evaluation** | |
| **Laboratory Projects/Experiments Done in the Course** | A Project was assigned to student. It was a group activity. .Labs are arranged for 1 additional credit hour | | | |
| **Programming Assignments Done in the Course** | 3 | | | |
| **Class Time Spent on** (in credit hours) | **Theory** | **Problem Analysis** | **Solution Design** | **Social and Ethical Issues** |
| 20 | 12 | 12 | 1 |
| **Oral and Written Communications** | Project viva of each student typically 5 minute’s duration. | | | |

**Instructor Name Muhammad Saif ul islam**

**Instructor Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date \_\_\_\_22-May-2023\_\_\_\_\_\_\_\_\_\_\_\_\_\_**