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| University of Science and Technology of Hanoi  Address: Education and Service Building,  18 Hoang Quoc Viet, Cau Giay, Hanoi  Telephone/Fax: + 84-4 37 91 69 60  E-mail: officeusth@usth.edu.vn  Website: http://www.usth.edu.vn | **5th-logo-USTH.png** |

**BACHELOR COURSE SYLLABUS**

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| --- | --- |
| **Subject:** | Artificial Intelligent and Machine Learning |
| **Specialty:** | Information and Communication Technology |
| **Lecturer:** | Le Huu Ton, Ph. D |
| **Phone:** | 01685794025 |
| **E-mail:** | lehuuton@gmail.com |
| **Academic year:** | Second Year (Semester 4) (A Quang điền giúp em nhé) |

**COURSE DESCRIPTION**

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| --- | --- | --- | --- |
| **Credit points** | 4 | | |
| **Level** | Undergraduate | | |
| **Location** | University of Science and Technology of Hanoi | | |
| **Time commitment** | Lecture | 30 hours | |
| Exercise | 10 hours | |
| Practice | 0 hours | |
| Project | 0 hours | |
| Total | 40 hours | |
| **Prerequisites** | - | | |
| **Subject Description** | The aim of this course is to give student basic concepts of artificial intelligent and machine learning: scopes, techniques, problems in AI and ML | | |
| **Objectives / Outcomes** | As a result of successfully completing this course, students are able to:   * Know the basic principles of AI and ML * Understand popular technique used in AI and ML * Able to solve some simple learning problems | | |
| **Assessment** | Attendance | | 10% |
| Exercises | | 30% |
| Practice | | 0% |
| Project work | | 0% |
| Final Exam | | 60% |
| **Reference Textbooks** | [1]. A Modern Approach (3rd Edition) by Stuart Russell[2]. **Machine Learning by Thomas M. Mitchell** | | |

**COURSE CONTENTS AND SCHEDULE**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Chapter** | **Contents** | **Hour** | | | | **Ref.** | **Assignments** |
| **L** | **E** | | **P** |
| 1 | Introduction | * Introduction to Artificial Intelligent and Machine Learning | 3 | |  |  |  |  |
| 2 | Game theory | * The concept of game theory and how it be used to solve a specific problem | 3 | 2 | |  |  |  |
| 3 | Searching problem | * Searching problem in Artificial Intelligent * Some popular searching algorithms | 6 | 2 | |  |  |  |
| 4 | Learning problems | * Introduce different types of learning * Focus on supervised learning and decision tree | 4 | 2 | |  |  |  |
| 5 | Unsupervised learning and Reinforcement Learning | * Unsupervised learning and reinforcement learning and some techniques used to solve this kind of problem | 4 |  | |  |  |  |
| 6 | Support Vector Machine and Artificial Neural Network | * Introduction SVMs and ANN as well as their application in learning | 4 | 2 | |  |  |  |
| 7 | Probabilistic Models | * Introduce to some probabilistic models and how they be applied in AI and ML | 6 | 2 | |  |  |  |

Abbreviation: L – Lecture, E – Exercise, P – Practice.