



Course Specification

— (Bachelor)

Course Title: Introduction to Artificial Intelligence Applications

Course Code: CSC 1251

Program: Bachelor of Science in Computer Science

Department: Computer Science

College: Computers and Information Technology

Institution: University of Tabuk

Version: 1.0

Last Revision Date: 21 January 2024



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A. General information about the course:

1. Course Identification

1. Credit hours: (3 hours)

2. Course type

A. University College Department Track Others
B. Required Elective

3. Level/year at which this course is offered: (Level 2/ Year 1)

4. Course general Description:

Artificial Intelligence is considered one of the branches of computer science and a fundamental pillar of the technology industry in the current era. It is the ability of machines and computers to perform tasks that are repetitive or similar to those performed by humans and other intelligent creatures, such as the ability to analyze, think, learn from previous experiences, or perform other cognitive processes. This course provides the fundamentals of Artificial Intelligence to students from various disciplines to increase their awareness of Artificial Intelligence and its potential for use in real life.

5. Pre-requirements for this course (if any):

Introduction to Computing - CSC1101

6. Co-requisites for this course (if any):

N/A

7. Course Main Objective(s):

- Demonstrate a fundamental understanding of the foundations of Artificial Intelligence.
- Understand the uses of Artificial Intelligence and its applications in society.
- Understand the applications of Artificial Intelligence and its applications in devices.
- Demonstrate the ability to participate in discussions about the current scope and limitations of Artificial Intelligence applications.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	45	100%
2	E-learning	-	-



No	Mode of Instruction	Contact Hours	Percentage
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 	-	-
4	Distance learning	-	-

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	-
3.	Field	-
4.	Tutorial	-
5.	Others (specify)	-
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Understand the role of data, algorithms, and hardware in Artificial Intelligence.	K2	<ul style="list-style-type: none"> Lectures 	<ul style="list-style-type: none"> Exams Class works Assignments
1.2	Learn about the various uses of Artificial Intelligence in society.	K1	<ul style="list-style-type: none"> Lectures 	<ul style="list-style-type: none"> Exams Class works Assignments
1.3	Understand the importance of data analysis in Artificial Intelligence.	K2,K3,K4	<ul style="list-style-type: none"> Lectures 	<ul style="list-style-type: none"> Exams Class works Assignments
1.4	Explain the techniques of machine learning and deep learning.	K2,K3,K4	<ul style="list-style-type: none"> Lectures 	<ul style="list-style-type: none"> Exams Class works Assignments





Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.5	Familiarize yourself with the mechanisms of applying hardware in Artificial Intelligence.	K2,K3,K4	<ul style="list-style-type: none"> Lectures 	<ul style="list-style-type: none"> Exams Class works Assignments
1.6	Understand the scope, limitations, and future of Artificial Intelligence.	K2,K3,K4	<ul style="list-style-type: none"> Lectures 	<ul style="list-style-type: none"> Exams Class works Assignments
2.0	Skills			
2.1	Analyzing real-world Artificial Intelligence problems that can be beneficial for end users.	S2	<ul style="list-style-type: none"> Class discussions Case study 	<ul style="list-style-type: none"> Exams Class works Assignments Project
3.0	Values, autonomy, and responsibility			
3.1	The ability to work in teams to develop teamwork and discussion skills.	V2	<ul style="list-style-type: none"> Class discussions 	<ul style="list-style-type: none"> Class works
3.2	Understanding the ethical use of intelligent applications.	V2	<ul style="list-style-type: none"> Case study 	<ul style="list-style-type: none"> Presentations

C. Course Content

No	List of Topics	Contact Hours
1.	Introducing AI: Definitions, Goals, Foundation, Main Topics and applications	6
2.	Defining the Role of Data: definitions, Big data, Source of Big data, data preprocessing, data compatibility, Dealing with missing data	6
3.	Considering the Use of Algorithms: definitions, Understanding the Role of Algorithms, AI algorithms: State-space search, Local search and heuristics, expert systems, Machine learning, Deep learning.	6
4.	Seeing AI Uses in Computer Applications: Common Application Type, Seeing How AI Makes Applications Friendlier, Performing Corrections Automatically, Making Suggestions, Considering AI-based Errors.	6
5.	Using AI to Address Medical Needs: Implementing Portable Patient Monitoring, Making Humans More Capable, Making surgical suggestions,	6





	da Vinci Surgical System, Working with medical records, Making procedures safer, Creating better medications.	
6.	Performing Data Analysis for AI: What is Data Analysis, What is Machine Learning, Types of Machine Learning.	3
7.	Improving AI with Deep Learning: Neural Networks VS Human Brain, Mimicking the Learning Brain, Introducing Deep Learning, Detecting Edges and Shapes from Images.	3
8.	Flying with Drones: Distinguishing between military and civilian drones, Discovering the possible uses of drones, Determining what AI could allow drones to achieve, Acknowledging regulations and limitations of drone operability.	3
9.	Utilizing the AI-Driven Car: Seeing the path to self-driving car autonomy, Imagining the future in a world of self-driving cars, Understanding the sense-plan-act cycle, Discovering, using, and combining different sensors.	3
10.	Future of AI and Limitations: Defining AI usage scenarios, Understanding what happens when AI fails, Developing solutions to non-existent problems.	3
Total		45

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Class Works (Class Activities)	1 – 13	10%
2.	Assignments	5,10	20%
3.	Mid-Term Exam	9	30%
4.	Final Exam	16	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Artificial Intelligence For Dummies, 2ed, John Paul Mueller, Luca Massaron, Wiley, 2021, ISBN-10:1119796768 ISBN-13 : 978-1119796763
Supportive References	Artificial Intelligence: A Modern Approach, 4/E. By Stuart Russell & Peter Norvig, Prentice Hall, 2020, ISBN-13: 978-0134610993, ISBN-10: 0134610997 Artificial Intelligence: Structures and Strategies for Complex Problem Solving, 6th Edition, George Luger, Pearson, 2008, ISBN-10: 0321545893, ISBN-13:978-0321545893
Electronic Materials	Saudi Digital Library (SDL) (www.sdl.edu.sa)





Other Learning Materials N/A

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom (25 seats)
Technology equipment (projector, smart board, software)	White board, Data show projector
Other equipment (depending on the nature of the specialty)	N/A

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of Teaching	Faculty, Program Leaders, and Advisory Board	Both Direct and Indirect
	Students	Indirect
Effectiveness of Students Assessment	Faculty, Program Leaders, Advisory Board, and Independent Opinion	Both Direct and Indirect
Quality of Learning Resources	Faculty, Students, and Advisory Board	Indirect
The Extent to which CLOs have been Achieved	Faculty, Program Leaders, Advisory Board, and Independent Opinion	Direct (as in section B) and Indirect/Surveys
	Students	Indirect
Other	-	-

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	

