CSIT 191: INTRODUCTION TO ARTIFICIAL INTELLIGENCE

1. Course Information

Subject
CSIT - Computer Science/ Information Technology

Course Number
191

School
Science, Technology, Engineering, Mathematics

Course Title
Introduction to Artificial Intelligence

2. Hours

Semester Hours
3

Lecture
3

Lab
0

Practicum
0

3. Catalog Description

For display in the online catalog
This course introduces the student to the emerging field of Artificial Intelligence and its applications. Students will be provided a basic understanding of what comprises the many fields of Artificial Intelligence (AI). Students will also explore how AI is used in Machine Learning and Neural Networks. Topics covered include the various areas of Machine Learning such as Supervised Learning, Unsupervised Learning, and Reinforcement Learning as well as Neural network applications such as Computer Vision and Natural Language Processing. This course will also examine and discuss the impacts of AI in the world, in the student's daily lives, and the potential impacts to their careers.

4. Requisites

Prerequisites
None

Corequisites
None

5. Course Type

Course Fee Code
3

Course Type for Perkins Reporting
vocational (approved for Perkins funding)

6. Justification

Describe the need for this course
This is a required course for Computer Science, Associate in Applied Science with Artificial Intelligence Concentration. This course can also be used as an elective for any computer science and business programs. Students will master the concepts and applications of Artificial Intelligence, study the AI Project life cycle, and be exposed to AI topics such as Machine Learning and Neural Networks.

7. General Education

Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?

No

If the course does not satisfy a general education requirement, which of the following does it satisfy:

Program-specific requirement

8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:

	Add item
1	Offer comprehensive educational programs that develop intentional learners of all ages and ensure the full assessment of student learning in these programs. (Mission Statement)
2	Foster educational innovation through effective teaching-learning strategies, designed to develop and nurture intentional learners who are informed and empowered. (Vision Statement)
3	Employ technology and learning outcomes assessment to ensure student success in an increasingly diverse and complex world. (Vision Statement)
4	Prepare students for entrance into the workforce and empower students through the mastery of intellectual and Practical Skills. (Academic Master Plan)
5	Challenge students to transfer information into knowledge and knowledge into action. (Academic Master Plan)

9. Related Courses at Other Institutions

Transferability of Course

If not transferable to any institution, explain:

This is a required course for Computer Science, Associate in Applied Science with Artificial Intelligence Concentration. There is no known course for the schools listed here where transfer credit will be given.

10. Course Learning Outcomes

Learning Outcomes

	Students who successfully complete this course will be able to:
CLO1	Explain what Artificial Intelligence is and give examples of applications where it is used.
CLO2	Examine the AI Project Lifecycle and identify the activities that occur during each stage of the cycle.
CLO3	Show what Data Science and Analytics is and how they are used for Machine Learning.
CLO4	Demonstrate when and how to apply the various types of Machine Learning including Supervised Learning, Unsupervised Learning and Reinforcement Learning.
CLO5	Explain what a Neural Network is.
CLO6	Discuss how Neural Networks are used in the fields of Computer Vision and Natural Language Processing.
CLO7	Identify the challenges that AI will bring into the world including career challenges as well as ethical challenges and social impacts.

11. Topical Outline

(include as many themes/skills as needed)

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
TO1	Introduction to Artificial Intelligence a) History of AI b) Applications that currently make us of AI c) AI Project Lifecycle and Problem Scoping d) The 3 domains of AI - Data, Computer Vision, Natural Language Processing e)Discussions of the various complex social issues surrounding AI. f) Current AI trends in the marketplace. g) Brief overview of future direction of technology.	Reading assignments In-class demonstrations In-class exercises In-class discussion Presentations	Homework Exam Presentations	CL01, CLO2
TO2	Data Science Fundamentals and Introduction to Machine Learning a) Problem Solving Techniques b) Basic Data Science Concepts c) Regression, Clustering, Classification Techniques d) What is Machine Learning	Reading assignments In-class demonstrations In-class exercises In-class discussion Presentations	Homework Exam Presentations	CL01,CLO3
TO3	Machine Learning Concepts a) What are the different ways a machine learns b) Supervised Learning c) Unsupervised Learning d) Reinforcement Learning e) Applications of Machine Learning and challenges	Reading assignments In-class demonstrations In-class exercises In-class discussion Presentations	Homework Exam Presentations Lab assignments	CL01, CLO3, CLO4
TO4	Neural Networks a) What are Neural Networks b) Neural Network applications c) Computer Vision d) Natural Language Processing e) Challenges	Reading assignments In-class demonstrations In-class exercises In-class discussion Presentations	Homework Exam Presentations Lab assignments	CL01, CLO5, CLO6
TO5	Assessing AI for the future a) Research and present on the potential impact of AI to our world b) Project: Imagining a future job in an AI world c) Appreciate the complexity of social issues d)Discuss AI ethics issues e.g. privacy, bias, access to AI e)Be able to determine where AI solutions would be appropriate	Reading assignments In-class demonstrations In-class exercises In-class discussion Presentations	Homework Exam Presentations	CL01, CLO7

12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized?

o Class lecture
o Discussion
o Demonstrations
o Lab assignments
o Programs and online presentations

13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

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Technological Competency
Yes

Related Course Learning Outcome
CLO1,CLO3,CLO4,CLO5,CLO6

Related Outline Component
TO1-TO5

Assessment of General Education Goal (Recommended but not limited to)
Presentations
Exams

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Information Literacy
Yes

Related Course Learning Outcome
CLO1-CLO7

Related Outline Component
TO1-TO5

Assessment of General Education Goal (Recommended but not limited to)
Presentations
Exams

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Independent/Critical Thinking
Yes

Related Course Learning Outcome
CLO1-CLO7

Related Outline Component
TO1-TO5

Assessment of General Education Goal (Recommended but not limited to)
Presentations
Exams

14. Needs

Instructional Materials (text etc.):

Appropriate textbooks and/or open educational resources will be selected. Contact the department for current adoptions. Class notes, presentations, software and online materials.

Technology Needs:

College Portal and/or College Distance Learning Platform and/or Textbook or Instructor Website.

Human Resource Needs (Presently Employed vs. New Faculty):

Presently employed

Facility Needs:

Laboratory classrooms equipped with computer workstations, each configured to support AI applications. Podium computer similarly equipped plus the ability to present audio-video presentations to the class.

Library needs:

NA

15. Grade Determinants

The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations

A: Excellent

B+: Very Good

B: Good

C+: Above Average

C: Average

D: Below Average

F: Failure

I: Incomplete

R: Audit

For more detailed information on the Ocean County College grading system, please see Policy #5154.

16. Board Approval

History of Board approval dates

New course board approved: August 26, 2021