IS6423: ARTIFICIAL INTELLIGENCE FOR BUSINESS APPLICATIONS

Effective Term
Semester B 2024/25

Part I Course Overview

Course Title
Artificial Intelligence for Business Applications

Subject Code
IS - Information Systems
Course Number
6423

Academic Unit
Information Systems (IS)

College/School
College of Business (CB)

Course Duration
One Semester

Credit Units
3

Level
P5, P6 - Postgraduate Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
IS6400 Business Data Analytics

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract

This Master-level course explores the practical applications of Artificial Intelligence (AI) in the context of business. Students will learn how to leverage these techniques and models to solve complex business problems, optimize processes, enhance decision-making, and drive innovation. The course will cover theoretical foundations, hands-on practical exercises, and case studies to provide students with a comprehensive understanding of AI techniques and their impact on business strategies.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Describe the fundamental concepts and principles of Artificial Intelligence and their applications in business.	10			
2	Apply various AI techniques and models used in different business domains.	25	x	x	
3	Apply practical skills to design, implement, and evaluate AI solutions for business applications.	25	x	x	
4	Apply AI techniques to real-world business challenges and decision-making processes.	25	x	x	x
5	Critically evaluate the impact of AI on business strategies, innovation, and customer experience.	15	x	x	

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	LTA1: Lecture	Students will learn the concepts of Artificial Intelligence and its applications in business.	1, 2, 3	
2	LTA2: Case Studies	Students will learn and discuss the examples of various AI in different business domains.	1, 2	
3	LTA3: Demonstrations and hands-on exercises	Students will demonstrate and practice AI technique design, implementation, and conduct evaluation for real-world business challenges and decision-making processes.	2, 3, 4	

4	LTA4: Project	Students would have to complete a group project to demonstrate the ability on effectively applying AI to solve real-world business problems.	1, 2, 3, 4, 5		

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	AT1. Participation and Exercises Each exercise consists of impromptu quizzes, paired/small group discussions, role-plays, self reflection, or student presentations to assess students' understanding of the chosen topics and their abilities to apply their skills.	1, 2, 3, 4, 5	10	
2	AT2. Group Project A group project, which includes a project report and/or a presentation, will be assigned to let students apply AI concepts and techniques to for solving real-world business problems.	1, 2, 3, 4, 5	40	

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

2

Additional Information for ATs

Note: Students must pass BOTH coursework and examination in order to get an overall pass in this course.

Assessment Rubrics (AR)

Assessment Task

1. AT1: Seminar Participation and Exercises (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

· Ability to accurately describe all key concepts and principles of AI and its applications in business;
· Ability to accurately describe various AI techniques and models used in different business domains;
· Capability to creatively and effectively design, implement, and evaluate AI solutions for business applications;

· Capability to creatively and effectively apply AI techniques to real-world business challenges and decision-making processes;
· Ability to critically evaluate the impact of AI on business strategies, innovation, and customer experience

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

2. AT2: Group Project (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

· Ability to accurately describe all key concepts and principles of AI and its applications in business;
· Ability to accurately describe various AI techniques and models used in different business domains;
· Capability to creatively and effectively design, implement, and evaluate AI solutions for business applications;
· Capability to creatively and effectively apply AI techniques to real-world business challenges and decision-making processes;
· Ability to critically evaluate the impact of AI on business strategies, innovation, and customer experience

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

3. AT3: Final Exam (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

· Ability to accurately describe all key concepts and principles of AI and its applications in business;
· Ability to accurately describe various AI techniques and models used in different business domains;
· Capability to creatively and effectively design, implement, and evaluate AI solutions for business applications;

· Capability to creatively and effectively apply AI techniques to real-world business challenges and decision-making processes;
· Ability to critically evaluate the impact of AI on business strategies, innovation, and customer experience

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

1. AT1: Seminar Participation and Exercises (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion
· Ability to accurately describe all key concepts and principles of AI and its applications in business;
· Ability to accurately describe various AI techniques and models used in different business domains;
· Capability to creatively and effectively design, implement, and evaluate AI solutions for business applications;
· Capability to creatively and effectively apply AI techniques to real-world business challenges and decision-making processes;
· Ability to critically evaluate the impact of AI on business strategies, innovation, and customer experience

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Moderate

Failure

(F) Not even reaching marginal levels

Assessment Task

2. AT2: Group Project (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion
· Ability to accurately describe all key concepts and principles of AI and its applications in business;
· Ability to accurately describe various AI techniques and models used in different business domains;
· Capability to creatively and effectively design, implement, and evaluate AI solutions for business applications;
· Capability to creatively and effectively apply AI techniques to real-world business challenges and decision-making processes;
· Ability to critically evaluate the impact of AI on business strategies, innovation, and customer experience

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Moderate

Failure

(F) Not even reaching marginal levels

Assessment Task

3. AT3: Examination (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

· Ability to accurately describe all key concepts and principles of AI and its applications in business;
· Ability to accurately describe various AI techniques and models used in different business domains;
· Capability to creatively and effectively design, implement, and evaluate AI solutions for business applications;
· Capability to creatively and effectively apply AI techniques to real-world business challenges and decision-making processes;
· Ability to critically evaluate the impact of AI on business strategies, innovation, and customer experience

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Moderate

Failure

(F) Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

Introduction to Artificial Intelligence in Business
· Overview of Artificial Intelligence and its applications in business
· Introduction to machine learning, deep learning, and other AI techniques
AI Techniques and Models for Business
· Machinelearning algorithms overview
· Deep learning algorithms overview
· Sequence modeling
· Reinforcement learning and its applications in business
· Natural language processing (NLP) and text analytics
· Computer vision and image recognition
AI Model Development and Evaluation
· Model selection and evaluation metrics
· Training and validation techniques
· Hyperparameter tuning and optimization

· Model performance assessment and interpretation

AI Applications in Business
· Predictive analytics for sales forecasting and demand prediction
· Customer segmentation and personalized marketing
· Recommender systems for personalized recommendations
· Fraud detection and anomaly detection
· Process optimization and supply chain management

Case Studies and Industry Applications
· AI in financial services
· AI for research and innovation
· AI in e-commerce and online platforms

Innovation and Future Trends in Applied AI
· Emerging trends and advancements in AI technologies
· Implications for business innovation and disruption
· Explainability and transparency

Practical Projects and Hands-on Exercises
· Implementing AI models using popular frameworks and libraries
· Solving business problems through AI projects
· Presenting and discussing project outcomes and insights

Reading List

Compulsory Readings

	Title
1	Aurélien Géron, Hands-On Machine Learning with Scikit-Learn and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems, O'Reilly Media, 2017.
2	Ian Goodfellow, Yoshua Bengio, Aaron Courville, Deep Learning, MIT Press, 2016

Additional Readings

	Title
1	Nil