UNIVERSITY OF HARGEISA

COLLEGE OF COMPUTING & INFORMATION TECHNOLOGY

Course Syllabus

A. Course Information

1	**Course title**	Selected Topics in Computer Science
2	**Course code**	~~404~~
3	**Credit hours (theory, practical)**	3
4	**Prerequisite (if any)**	Probability, Statistics and Linear Algebra
5	**Co-requisite (if any)**	Machine Learning
6	**Program (s) in which the course is offered**	BSc in Computer Science
7	**Study level and semester**	Senior classes; Semester II
8	**Required/Elective**	Required
9	**Name of instructor (s)**	Suleiman M. A. Gargaare
10	**Contact**	+252 63 412 7539
11	**Date of production/revision**	09, February, 2024
12	**Mode of Delivery**	*Lectures* and *Lab (Practical) sessions*

B. Course Description

This course aims to provide advanced background on Artificial Intelligence especially Natural Language Processing (NLP) problems and Computer Vision Algorithms.

C. Course Learning Outcomes (CLO)

Upon successful completion of this course students will be able to

- Ability to use AI and Machine Learning tools to build solutions for Natural Language Processing (NLP) and Image Processing problems.
- Understand the basic concepts and basic algorithms of Natural Language Processing and Image Processing.
- Ability to use existing NLP tools to conduct basic NLP, such as text normalization, named entity extraction, or syntactic parsing.
- Ability to use existing Image Processing tools to conduct basic Image Processing, such as Image Enhancement and Image Recognition.
- Understand the concepts and algorithms of Deep Learning & Neural Networks

D. Topic Outline and Schedule

Week	Topic	Evaluation Methods	Reference
1	**Topic 1**: Python for AI		
2	Introduction		
3	Unravelling the Python Resources of AI		
4	**Topic 2**: Natural Language Processing		
5	Morphology, Syntax and Semantics		
6	Lemmatization and Stemming		
7	Context Free Grammar and POS Tagging		
8	**MIDTERM EXAM**		
9	**Topic 3:** Image Processing (Computer Vision)		
10-11	Image Enhancement		
12-13	Morphological Image Processing		
14	Image Segmentation		
15	**Topic 4**: Neural Networks & Deep Learning		
16	**FINAL EXAM**		

E. Evaluation Methods

Evaluation Type	Weight	Expected Due Date
Quizzes + Reading Assignment	10%	March 16, 2024
Midterm Exam	20%	April 6, 2024
Final Exam	50%	June 22, 2024
Group Assignments	20%	June 1st, 2024

F. Textbook/References

Required

1. Natural Language Processing with Python by Steven Bird, Ewan Klein and Edward Loper.
2. Programming Computer Vision with Python Jan Erik Solem.

References:

1. Artificial Intelligence A Modern Approach, 3rd Edition by Stuart J. Russell & Peter Norvig.

G. Course Policies:

Cheating	Cheating or copying on exam or quiz is an illegal and unethical activity, University of Hargeisa policy will be applied. All graded assignments must be your own work (your own words).
Attendance	• Excellent attendance is expected. • The University of Hargeisa policy requires the faculty member to assign ZERO grade (F) if a student misses 25% of the classes that are not excused. • If you miss class, it is your responsibility to find out about any announcements orassignments you may have missed.
Workload	• Average work-load student should expect to spend 6 hours per week.

Participation	• Participation in and contribution to class discussions will affect your final gradepositively. Raise your hand if you have any question. • Making any kind of disruption and (side talks) in the class will affect you negatively.
Concerns or Complaints	• Concerns or complaints should be expressed in the first instance to the lecturer; if no resolution is forthcoming or it is a cross sections issue, then the issue should be brought to the attention of associate dean who will take the concerns to the dean.
University Regulations	For more details on university regulations please visit http://www.uoh-edu.net

Name of Course Coordinator: _____

Signature: _____ Date: _____

Head of Department: _____ Signature: _____

College Dean: _____ Signature: _____