Kingdom of Saudi Arabia
National Commission for
Academic Accreditation & Assessment

المملكــة العربيــة السعوديــة
الهيئــة الوطنيــة للتقويـم
والاعـتـمـاد الأكـاديـمـــي

ATTACHMENT 5.

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

14014704-3 Natural Language Processing
(CS)

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Course Specifications

Institution	Umm Al Qura University	Date	9 / 7 / 1437

College/Department	College of Computers and Information Systems

A. Course Identification and General Information

1. Course title and code: 14014704-3 Natural Language Processing

2. Credit hours 3

3. Program(s) in which the course is offered. Computer Science
(If general elective available in many programs indicate this rather than list programs)

4. Name of faculty member responsible for the course Curriculum Committee

5. Level/year at which this course is offered This course is from the department elictives

6. Pre-requisites for this course (if any) 14013102-4 Object Oriented Programming
14013701-4 Artificial Intelligence

7. Co-requisites for this course (if any)

8. Location if not on main campus Al-Zaher campus (Girls),
Makkah Al Mukarramah

9. Mode of Instruction (mark all that apply)

a. traditional classroom	✓	What percentage?	100
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

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B Objectives

1. What is the main purpose for this course? This course is to introduce key concepts and ideas in natural language processing. It covers both the algorithms available for the processing of linguistic information and the fundamental computational properties of languages. By completing this course the students should be able to: 1. Students will learn about the basic architecture of NLP systems.   2. Students will understand parsing principles and the role of regular grammar and CFGs in parsing different elements of text corpus.   3. Students will be familiar with the algorithms of different language proceeding tasks.   4. Students will study the different semantic models for natural languages.   5. Students will get hands-on experience using different NLP tools.   6. Students will be familiar with the NLP applications. More specifically, will learn more about the most common applications such as information retrieval (web search), information extraction, and question-answering systems and summarisation.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)   1. Increase the use of the latest Web-based reference material and textbooks.   2. Increase the number of labscripts for student to make them get robust understanding of the course's contents.   3. Review and update the course materials as part of preparation to teach this course.   4. Gather students' opinions about their success in achieving course objectives by the end of the semester. This is done through number of survey questions that map one-to-one with course objectives.   5. Review and indicate which assessment instrument(s) to be used for assessing each course outcome, and what grading rubric will be used for each instrument.

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C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Introduction to natural language processing - Motivation - What is it? - State of the art - Applications	1	3
Linguistic Essentials; What NLE systems do - An overview of basic linguistic terms and concepts used in the module - A basic architecture for NL systems (levels of linguistic analysis)	1	3
Regular expressions + *Labscript*	2	3
Finite State Automata, Finite State Transducers	1	3
Basic Notions of Probability Theory, Statistical NLP (n-gram, smoothing) + *Labscript*	2	3
Part-of-speech tagging + *Labscript*	2	3
Grammers + *Labscript*	2	3
Complexity, Semantics	1	3

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Information Retrieval, Information Extraction, Question-Answering	2	3
Web search	1	3

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	33		12			
Credit						

3. Additional private study/learning hours expected for students per week. | 4 |

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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Basic understanding of how NLP systems work	Lectures, labs, assignments	Quiz, lab evaluation, assignment evaluation
1.2	Get hands-on experience using different NLP tools	Lectures, labs, assignments	Quiz, lab evaluation, assignment evaluation
1.3	Be familiar with state of the art systems and applications	Lectures, labs, assignments	Quiz, lab evaluation, assignment evaluation
1.4	Gain the ability to design and implement (built) an NLP system.	Lectures, labs, assignments	Quiz, lab evaluation, assignment evaluation
2.0	**Cognitive Skills**		

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2.1			
2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1			
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1			
5.0	**Psychomotor**		
5.1			
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.) (I = Introduction P = Proficient A = Advanced)											
Course LOs #	**Program Learning Outcomes** (Use Program LO Code #s provided in the Program Specifications)										
	a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**
1.1	P									P	
1.2			P						P		
1.3	P	P							P		
1.4						p					P

6. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quiz 1	4	5
2	Assignment 1	5	15
3	Midterm	9	20
4	Assignment 2	11	15
5	Quiz 4	14	5
6	Final	16	40

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D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
Office hours between 2-4 hours per week.

E Learning Resources

1. List Required Textbooks
D. Jurasfky and J. Martin, Speech and Language Processing Prentice-Hall (2008). It should be available from Waterstone's on campus; a few volumes are also on reserve in the library.
2. List Essential References Materials (Journals, Reports, etc.)
Lecture slides and notes
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
• Steven Bird, Ewan Klein, and Edward Loper Natural Language Processing with Python – Analyzing Text with the Natural Language Toolkit. O'Reilly (2009). • W. Bruce Croft, Donald Metzler, Trevor Strohman Search Engines: Information Retrieval in Practice. Addison Wesley (2009). • Ricardo Baeza-Yates and Berthier Ribeiro-Neto Modern Information Retrieval. Addison Wesley (2011). • Christopher D. Manning and Hinrich Schutze, Foundations of Statistical Natural Language Processing, 1999. ISBN 0-262-13360-1 • Christopher D. Manning, Prabhakar Raghavan and Hinrich Schütze, An Introduction to Information Retrieval. Cambridge University Press (2008).
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
• Chris Manning and Dan Jurafsky's NLP course on Coursera • Chris Manning's CS224 at Stanford

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5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room (max 40 students) Computer lab (max 20 students) Overhead projector and internet connection
2. Computing resources (AV, data show, Smart Board, software, etc.) Integrated Development Environment (e.g., NetBeans, Eclipse, JBuilder). Java Development Kit (JDK)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G   Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching A student-feedback form is distributed at the end of the course.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department

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3 Processes for Improvement of Teaching
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Name of Instructor: _____

Signature: _____   Date Report Completed: _____

Name of Course Instructor _____

Program Coordinator:_____

Signature: _____   Date Received: _____