جمهورية مصر العربية
وزارة التعليم العالي والبحث العلمي
Ministry of Higher Education and Scientific Research

SH. A.
أكاديمية الشروق

المعهد العالى للحاسبات وتكنولوجيا المعلومات
مدينة الشروق ـ القاهرة
شعبة علوم الحاسب

Course specification

Course Code: CS 314

Course Title: Human Computer Interaction

Academic Year: /

Course specification
(CS 314 - Human Computer Interaction)

Course Outline	
Faculty:	*HICIT- (**Higher Institute for Computers & Information Technology**-El Shorouk Academy)*
Programme(s) on which the course is given:	Undergraduate program in Computer Science
Major or minor element of programme:	Core
Department offering the program	Department of Computer Science
Department offering the course:	Department of Computer Science
Level	Third Level
Date of specification approval	3/9/2022

Basic Information				
Code:	CS 314	***Title:***	Human Computer Interaction	
Prerequisites:		CS 102 Computer Programming		
Weekly Hours:				
Lecture: 2		**Exercise: -**	**Practical: 2**	**Total: 3 credit hours**

Professional Information

Course Aims:

The objective of this course is to teach the Human Computer Interaction methodologies.

After completing this course students must be able to:

- Understand the HCI theory.
- Understand the HCI techniques related to the analysis, design, and implementation of the system.
- Understand how to apply the HCI concepts in building a real system.

Program ILOs Covered by Course			
Knowledge and understanding	**Intellectual Skills**	**Professional and practical skills**	**General and Transferable skills**
A2, A13, A20, A21	B3, B4	C1, C5, C8, C10, C16	D5

a2	Deep understanding the concepts of the different high-level programming languages.
a13	Demonstrate strong knowledge of fundamentals of programming and the construction of computer-based systems.
a20	Describe the principals of generating tests which investigate the functionality of computer programs and computer systems and evaluating their results.
a21	Identify Modeling and design of computer-based systems bearing in mind the trade-offs
b3	Perform classifications of (data, results, methods, techniques, algorithms, etc.).
b4	Identify attributes, components, relationships, patterns, main ideas, and errors.
c1	Use appropriate programming languages and design methodologies.
c5	Specify, design, and implement and manage computer-based systems.
c8	Apply the principles of human-computer interaction to the evaluation and construction of a wide range of materials including user interfaces, web pages, and multimedia systems.
c10	Deploy effectively the tools used for the construction and documentation of software, with particular emphasis on understanding the whole process involved in using computers to solve practical problems.
c16	Apply tools and techniques for the design and development of applications.
d5	Demonstrate efficient IT capabilities.

Intended learning outcomes of course (ILOs)

a. Knowledge and Under-Standing:

a1. Understand and apply a wide range of principles and tools available to the HCI principles.
a2. Understand the notion of human, computer, and interaction in general.
a3. Understand the HCI in the software process.
a4. Explain the design rules
a5. Understand the Evaluation techniques.
a6. Understand the communication and collaboration models.
a7. Explain the task analysis, task decomposition and knowledge-based analysis.

b. Intellectual Skills:

b1. Synthesis and evaluating the technical concepts of the syllabus.
b2. Appraisal of theory and its relevance to different situations.
b3. Analyze of tasks into understandable and manageable subtasks.
b4. Synthesis of clearly and precisely stated solutions for problems.
b5. Evaluate and test the proposed.

c. Professional and practical skills

c1. Design a computer prototype and real systems covering all the basic concepts in HCI

d. General and transferable skills

d1. Communicate effectively by oral, written and visual means .
d2. Work effectively as an individual and as a member of a team.

Contents		
Topic	**Contact Hours**	
	lecture	**Lab**
The human: Input-Output channels, Human memory, thinking (reasoning and problem solving)	3	3
The computer: Text entry devices, display devices, physical controls, sensors and special devices, memory.	3	3
The interaction: Models of interaction, frameworks and HCI, interaction styles. Software Engineering Life Cycle.	3	3
Paradigms: paradigms of interaction. Interaction design basics: what is design?, the process of design. HCI in the software process: The software life cycle.	6	6
Design rules: principles to support usability, standards, Guidelines, Golden rules and heuristics.	6	6
Evaluation techniques: what is evaluation? Goals of evaluation. Evaluation through expert analysis and user participation, choosing an evaluation method. Universal design: Universal design principles, Multi-model interaction.	6	6
Communication and collaboration models: Face – to - Face communication, conversation, Group working.	6	6
Task analysis : Difference between task analysis and other techniques, task decomposition, knowledge – based analysis.	6	6

Teaching and learning methods	
Teaching and learning methods	**Used**
Lectures	√
Tutorial Exercises	√
Practical Lab	√
Discussions.	√
Self – Learning (Reading material, Websites search,)	√
Self-studies	√
Group work	√
Presentation	√
Problem solving/problem solving learning based	√
Case study	√
Synchronous E-Learning	√
Video lectures	√
Asynchronous E-Learning	√

Student assessment methods & Schedule		
Methods	**Used**	**Week#**
Midterm Exam	√	**8**
Final Exam	√	**16**
Course Project	√	**3-14**
Course Work & Quizzes	√	**2-14**

Assessment Weight	
Assessment	Weight %
Mid Term Exam	15
Final Exam	60
Course Project	10
Course Work & Quizzes	15
Total	100

Course Work &Quizzes
Short Exams, Assignments, Research, Reports, Presentations
Class/Project discussion

List of references	
Essential books (textbooks)	– -Human Computer Interaction, Alan Dix, Jannet Finlay, Gregory D. Abowd, and Russell Beale, 2004. – Human Computer Interaction Handbook: Fundamentals, Evolving Technologies, and Emerging Applications, Third Edition By Julie A. Jacko
Course notes	E-Learning Portal
Recommended books	Learn Human-Computer Interaction: Solve human problems and focus on rapid prototyping and validating solutions through user testing by Christopher Reid Becker (Author) 2020
Periodicals, website	https://www.usna.edu/Users/cs/adina/teaching/it350/fall2020/lectures/set16-hci.html#:~:text=Human%20Computer%20Interaction%20(HCI)%20is,The%20User's%20Cognitive%20Abilities
Videos link	

Required Facilities		
Tools & SW (Technology facilities):	- .NET framework	
Teaching facilities:	Whiteboard	√
	Computer Lab	√
	Data show	√
	E-Learning	√

	Videos	√
	Website	√

Course Content/ILO Matrix														
Course Contents	**Knowledge & understanding**							**Intellectual skills**					**Professional and practical skills**	**General**	
	a1	**a2**	**a3**	**a4**	**a5**	**a6**	**a7**	**b1**	**b2**	**b3**	**b4**	**b5**	**c1**	**d1**	**d2**
The human: Input-Output channels, Human memory, thinking (reasoning and problem solving)	x	X	x												
The computer: Text entry devices, display devices, physical controls, sensors and special devices, memory.	x	X	x					x	x	x	x				
The interaction: Models of interaction, frameworks and HCI, interaction styles. Software Engineering Life Cycle.													x		
Paradigms: paradigms of interaction. Interaction design basics: what is design?, the process of design. HCI in the software process: The software life cycle.													x		
Design rules: principles to support usability, standards, Guidelines, Golden rules and heuristics.				x				x	x	x	x				
Evaluation techniques: what is evaluation? Goals of evaluation. Evaluation through expert analysis and user participation, choosing an evaluation method. Universal design: Universal design principles, Multi-model interaction.	x								x	x	x				
Communication and collaboration models: Face – to - Face communication, conversation, Group working.													x	x	x

Learning Method /ILOs Matrix															
Learning Methods	**Knowledge and understanding**							**Intellectual skills**					**Professional and practical skills**	**General**	
	a1	**a2**	**a3**	**a4**	**a5**	**a6**	**a7**	**b1**	**b2**	**b3**	**b4**	**b5**	**c1**	**d1**	**d2**
Lectures	x	x	x	x	x	x	x	x	x	x	x	x	x		
Tutorial Exercises								x	x	x	x	x	x		
Discussions.								x	x	x	x	x	x	x	x

Assessment Methods /ILOs Matrix															
Assessment Methods	**Knowledge and understanding**							**Intellectual skills**					**Professional and practical skills**	**General**	
	a1	**a2**	**a3**	**a4**	**a5**	**a6**	**a7**	**b1**	**b2**	**b3**	**b4**	**b5**	**c1**	**d1**	**d2**
Mid Term Exam	√	√	√	√	√	√	√	√	√	√	√	√	√		
Final Exam	√	√	√	√	√	√	√	√	√	√	√	√			
Course Project	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Course Work &Quizzes	√	√	√	√	√	√	√	√	√	√	√	√	√		

Course ILOs Vs Program ILOs													
Prog ILOs / Course ILOs		**Knowledge & understanding**				**Intellectual skills**		**Professional and practical skills**					**General**
		A2	**A13**	**A20**	**A21**	**B3**	**B4**	**C1**	**C5**	**C8**	**C10**	**C16**	**D5**
Knowledge and understanding	a1	√	√	√									
	a2	√											
	a3	√		√									
	a4			√									
	a5	√			√								
	a6	√			√								
	a7	√	√		√								
Intellectual skills	b1					√							
	b2						√						
	b3					√	√						
	b4					√	√						
	b5					√	√						
Professional and practical skills	c1							√	√	√	√		
General skills	d1												√
	d2												√

Course Coordinator : Dr. Mohamed Ahmed Hussein **( )**
Head of Department : Dr. Ahmed El-Abbassy **( )**
Date: 3/9/2023