Course specification

(3104 **Human Computer Interface**)

Faculty:	*HICIT- **Higher Institute for Computers & Information Technology**-El Shorouk Academy*
Programme(s) on which the course is given:	Under graduate program in Computer Science
Major or minor element of programme:	Core
Department offering the programme	Department of Computer Science
Department offering the course:	Department of Computer Science
Year / Class	3rd Year – 1st semester
Date of specification approval	1/8/2022

A- Basic Information

Title: Human Computer Interface	***Code:** 3104*		
Weekly Hours:			
Lecture: 3	**Exercise: -**	**Practical :**3	**Total:** 6

B- Professional Information

1- Course Aim :

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

After completing this course, the student should be able to:

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

2- Program ILOs Covered by Course

Program Intended Learning Outcomes			
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**

3- Intended learning outcomes of course (ILOs)

a: Knowledge and Understanding

a1. Describe and apply a wide range of principles and tools available to the HCI principles. [A13, A20]

a2. Explain the notion of human, computer and interaction in general. [A21]

a3. Explain the HCI in the software process. [A2]

a4. Explain the design rules. [A21]
a5. Clarify the Evaluation techniques. [A20]
a6. Define the communication and collaboration models. [A21]
a7. Explain the task analysis, task decomposition and knowledge-based analysis. [A20]

b: Intellectual skills

b1. Synthesis and evaluating the technical concepts of the syllabus. [B4]
b2. Appraisal of theory and its relevance to different situations. [B4]
b3. Analyze of tasks into understandable and manageable subtasks. [B3]
b4. Synthesis of clearly and precisely stated solutions for problems. [B3]
b5. Evaluate and test the proposed. [B4]

c: Professional and practical skills

c1. Design a computer prototype and real systems covering all the basic concepts in HCI [C1, C5, C8, C10, C16]

d: General and transferable skills

d1. Communicate effectively by oral, written and visual means. [D5]
d2. Work effectively as an individual and as a member of a team. [D5]

4- Contents

Topic	Hours	Lec.	Exc/Lab
The human: Input-Output channels, Human memory, thinking (reasoning and problem solving)	6	3	3
The computer: Text entry devices, display devices, physical controls, sensors and special devices, memory.	6	3	3
The interaction: Models of interaction, frameworks and HCI, interaction styles. Software Engineering Life Cycle.	6	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.	12	6	6
Design rules: principles to support usability, standards, Guidelines, Golden rules and heuristics.	12	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.	12	6	6
Communication and collaboration models: Face – to - Face communication, conversation, Group working.	12	6	6
Task analysis: Difference between task analysis and other techniques, task decomposition, knowledge – based analysis.	9	3	6
Selected Topics	3	3	-

5- Teaching and learning methods

Teaching and learning methods	Used
Active Learning	
Lectures (blending learning – online learning using virtual classroom)	√
Tutorial Exercises	-
Practical Lab	√
Exercises	-
Discussions.	√
Self – Learning strategy	
Reading material	√
Websites search	√
Research and reporting	-
Self-studies	√
Experimental strategy	
Group work	√
Presentation	-
Problem solving strategy	
Problem solving/problem solving learning based	√
Case study	-
Synchronous E-Learning	
Virtual lab	-
Virtual class	-
Chat Room	-
Video lectures	-
Asynchronous E-Learning	
E-Learning	√

6 -Student assessment methods

Methods	Assessment	Used
Electronic Midterm Exam	To assess the knowledge and understanding achieved by the student during the previous weeks. (online on e-learning hub)	√
Pencil-to-Paper Final Exam	To evaluate what the student gain at the end of the course, and to assess: the knowledge and understanding, general skills, and intellectual skills.	√
Course Project	To allow students work in team, and to evaluate knowledge, understanding, intellectual, and transferable skills. (online on e-learning hub, FTF)	√
Electronic Course Work & Quizzes	To keep the student always in the course, and to evaluate knowledge, understanding, intellectual, and transferable skills. (online on e-learning hub)	√

Practical Exam	To measure the ability of students to design and implement a software program (FTF).	-
Participation	To assess the knowledge and understanding achieved by the student during the previous weeks.	√

Assessment Schedule

Assessment	Week #
Participation	**3-14**
Electronic Mid Term Exam	**8**
Final Exam	**16**
Electronic/ hard copy Course Project	**3-14**
Electronic/ hard copy Course Work &Quizzes	**2-14**
Practical Exam	**15**

Assessment Weight

Assessment	Weight %
Participation	**5%**
Electronic Mid Term Exam	
Final Exam	**80%**
Electronic / hard copy Course Project	**10%**
Electronic/ hard copy Course Work &Quizzes	**5%**
Total	**100**

- Course Work &Quizzes:
  - Short Exams, Assignments, Researches, Reports, Presentations on e-learning hub Class/Project discussion

7 -List of references

Text Books	• Sharp, Helen, et al. *Interaction Design: Beyond Human-Computer Interaction*. 2019.
Recommended books	• Loizides, Fernando, et al., editors. *Human Computer Interaction and Emerging Technologies: Adjunct Proceedings From the INTERACT 2019 Workshops*. 2020.
Periodicals, website	**PowerPoint presentations of all course materials** https://moodle.sha.edu.eg/course/view.php?id=1365 **All labs material** [https://drive.google.com/drive/folders/1Q8HwtxjY7mc14FXzo3_bABPU2Vm_RIf1]

8- Required Facilities

8.1 Tools/Software

- Android Studio

8.2 Teaching facilities:

	Lecture	*class*	*Lab*
Whiteboard	Used	-	used
Pc/laptop	Used	-	used
Data show	Used	-	used
Webinars	MS TEAMS	-	MS TEAMS
Social Media	Facebook Page for 3rd year	-	Facebook Page for 3rd year
ChatRoom	ChatTeams	-	ChatTeams
Videos	MOODLE	-	MOODLE
Website	MOODLE	-	MOODLE

9-Course Matrices

9.1-Course Content/ILO Matrix

	Knowledge & understanding							**Intellectual skills**					**Professional and practical skills**	**General**	
course contents	**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)	√	√	√			√			√	√			√		
The computer: Text entry devices, display devices, physical controls, sensors and special devices, memory.	√	√	√						√	√			√		
The interaction: Models of interaction, frameworks and HCI, interaction styles. Software Engineering Life Cycle.	√			√	√		√		√	√			√		
Paradigms: paradigms of interaction. Interaction design basics: what is design? the process of design. HCI in the software process: The software life cycle.	√			√	√		√		√	√					
Design rules: principles to support usability, standards, Guidelines, Golden rules and heuristics.	√			√	√		√		√	√	√	√			
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.	√		√	√	√		√		√	√	√	√			
Communication and collaboration models: Face – to - Face communication, conversation, Group working.	√		√				√	√	√	√	√	√			
Task analysis: Difference between task analysis and other techniques, task decomposition, knowledge – based analysis.	√							√							
Selected topics													√	√	√

9.2-Learning Method /ILO Matrix

learning methods	Knowledge & understanding							Intellectual skills					Professional and practical skills	General	
	a1	a2	a3	a4	a5	a6	a7	b1	b2	b3	b4	b5	c1	d1	d2
Lectures	√	√	√	√	√	√	√	√	√	√	√	√	√		
Discussions.								√	√	√	√	√	√	√	√
Practical Lab													√		
Reading Material	√	√	√	√	√	√	√							√	√
Website Search	√	√	√	√	√	√	√							√	√
Self-studies	√	√	√	√	√	√	√								
Group work													√	√	√
Problem-solving													√		
E-learning	√	√	√	√	√	√	√						√	√	√

9.3Assessment Methods /ILO Matrix

assessment methods	Knowledge & 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	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

10. Course ILOs Vs Program ILOs

Course ILOs \ Prog ILOs		Knowledge & understanding				Intellectual skills		Professional and practical skills						General
		A2	A13	A20	A21	B3	B4	C1	C5	C8	C10	C16	C18	D5
K&U	a1		√	√										
	a2				√									
	a3	√												
	a4				√									
	a5			√										
	a6				√									
	a7			√										
INT.	b1						√							
	b2						√							
	b3					√								
	b4					√								
	b5						√							
P. &P.	c1							√	√	√	√	√	√	
GENERAL	d1													√
	d2													√

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