Course Specification of Human Computer Interaction

Course No (..................)

2020/2021

Head of Department	Vise Dean for Qulity Assurance	Dean of the Faculty	Dean of Development center and Quality Assurance
Assoc. Prof. Mansour N. Ali	Dr. Anwar Al-Shamiri	Dr. Nagi Al-Shibani	Assoc. Prof. Dr.Huda Al.Emad
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وحدة ضمان الجودة

I. Course Identification and General Information:

1	Course Title:	Human Computer Interaction
2	Course Code & Number:	……………..

3	Credit hours:	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		3	-	-	-	3

4	Study level/ semester at which this course is offered:	3rd year - 2nd semester
5	Pre–requisite (if any):	None
6	Co–requisite (if any):	None
7	Program (s) in which the course is offered:	Information Technology
8	Language of teaching the course:	English
9	Study System	Term Based System
10	Mode of delivery:	Full Time
11	Location of teaching the course:	Faculty of Computer and Information Technology
12	Prepared By:	
13	Date of Approval	

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II.   Course Description:

In this course, students are introduced to the fundamental concepts, principles, and theories of Human Computer Interaction (HCI), an interdisciplinary area concerned with the study of the interaction between humans and interactive computing systems. HCI teaches students to design, develop, and evaluate user interfaces based on their capabilities of computer technology and the needs of human factors, with an emphasis on usability, interaction paradigms, computer-mediated human activities, and implications to society.

Students design a user interface for a system and implement a prototype based on principles of and research methods in human computer interaction. The course will thus provide a background for students to practice system design, selection, installation, evaluation, and use with the knowledge of human characteristics, interaction styles, use context, task characteristics, and design processes.

III. Course Intended learning outcomes (CILOs) of the course (maximum 8CILOs)		Referenced PILOs (Only write code number of referenced Program Intended learning outcomes)
a.1	Understanding of HCI principles that influence a system's interface design, with an understanding of user interface design in general, and alternatives to traditional "keyboard and mouse" computing.	A1, A4, D1
a.2	Gain knowledge and skills to consider how to design interfaces for different environments, people, places, and activities.	A1
b.1	Analyze the local and global impact of models from cognitive psychology to predicting user performance in various HCI tasks and recognize the limits of human performance as they apply to computer operation.	B2
b.2	Analyze and identify user models, user support, organizational issues, and stakeholder requirements of HCI systems.	B4
c.1	Apply an interactive design process and universal design principles to designing HCI systems.	C2

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c.2	Develop skills to design prototypes and come up with methods and criteria for evaluation of the design.	C3, C5
d.1	Work effectively as individual or in small groups on a product design from start to finish will provide you with invaluable team-work experience.	D1
d.2	Communicate effectively in oral and written within working environment when doing HCI project and presentation.	D3

(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1. Demonstrate understanding of HCI principles that influence a system's interface design, with an understanding of user interface design in general, and alternatives to traditional input/output devices.	Lecture, Discussion	Written exams, oral exams, reports, quizzes.
A2. Gain knowledge and skills to consider how to design interfaces for different environments, people, places, and activities.	Lecture, Discussion	Written exams, oral exams, reports, quizzes.

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1. Analyze the local and global impact of models from cognitive psychology to predicting user performance in various HCI tasks and recognize the	Interactive Lecture Presentation	Written exams, oral exams, reports, quizzes

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limits of human performance as they apply to computer operation.	Group discussion	
b2. Identify user models, user support, organizational issues, and stakeholder requirements of HCI systems.	Interactive Lecture Presentation Group discussion	Written exams, oral exams, reports, quizzes

(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
c1. Apply an interactive design process and universal design principles to designing HCI systems.	Interactive Lecture, Presentation Group discussion	Reports and projects
c2. Develop skills to design prototypes and come up with methods and criteria for evaluation of the design.	Interactive Lecture Presentation Group discussion	Reports and projects

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1. Work effectively as individual or in small groups on a product design from start to finish will provide you with invaluable team-work experience.	Presentation Group discussion	Discussion and oral exam

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d2. Communicate effectively in oral and written within working environment when doing HCI project and presentation.	Presentation Group discussion	Discussion and oral exam

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	contact hours
1	Introduction to Human-Computer Interaction	a1, a2	- A broad overview of human-computer interaction from practitioner and research perspectives. - What interaction design is. - Difference between good and poor interaction design.	1	3
2	Design and Usability	a1,a2,b1	- Human error and mistakes - Know your user - Use of persona, scenarios, and storyboards during the design process	2	6
3	The Design Process, Guidelines, Principles, and Theories	a2,b2,c1	- Interaction Design Basics - Design Rules - Principles, standards, and guidelines - Golden rules and heuristics	2	6
4	Human vision and visual displays	c1,c2,d1	- Visual design and info graphics visualization - Guidelines for font and reading, color usage, and display structure and layout	2	6

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			- Some guidelines and grid practices.		
6	Design Evaluation	b1,b2,d2	- Expert analysis and user participation evaluation - Evaluation Approaches: Cognitive walkthroughs, heuristic evaluation, model based. - Lab vs. field studies evaluation - User-based evaluation: Observational, query, and direct recording etc…	2	6
7	Interaction Style and Virtual Environments	a2,c2,d1	- Design process using direct manipulation style - Virtual Reality and Augmented Reality Environments	2	6
8	Interaction Style	a1,b2	- Dialog Boxes, command-line, menus, form-filling and GUIS - Good and bad examples of interaction styles	1	3
9	Interaction Devices	a2,b1,c2	- Types of touch-based interfaces: Force-feedback and haptic devices …etc. - Wearable devices and the miniaturization of computing platforms	1	3
10	Student Presentation	a1,a2,d1,d2		1	3
Number of Weeks /and Units Per Semester				**14**	**42**

B - Practical Aspect: (if any)

Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes

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Number of Weeks /and Units Per Semester			

V. Teaching strategies of the course:

Interactive Lecture

Discussion

Homework

Group discussion

Presentation

Project

Exams

VI. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	- Short reports about the course concepts	a1,d1	6th, 12th	5%
2	- Implement a computer-based prototype	a1,a2,c1,	3rd	5%
3	- Progress report of the individual/team project	a1,a2,d1,d2	4th	5%
4	- Design (Heuristic) Evaluation Assignment	a1,a2,b1,c1,c2	10th -15th	5%

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5	-Final team project	All	13th	20%

VII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment and Presentation	3rd,4th, 6th ,10th-15th	20	20%	a1,a2,b1,b2,c1,c2,d1,d2
2	Mid-Exam	13th	20	20%	a1,a2,b1,b2,c1,c2,d1
3	Final-Exam	16th	60	60%	a1,a2,b1,b2,c1,c2,d2

VIII. Learning Resources:

- *Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).*

1- Required Textbook(s) (maximum two).

1. Sharp, H. Preece, J., and Rogers, Y. (2019). Interaction design: Beyond human computer interaction (5th ed.) John Wiley & Sons Ltd. ISBN 978-1-119-54730-3.
2. Shneiderman, Plaisant, Cohen, and Jacobs. (2010). Designing the User Interface: Strategies for Effective Human-Computer Interaction, 2010, 5th edition. Pearson Addison-Wesley.

2- Essential References.

1. J. Preece, Y. Rogers and H. Sharp. (2015). Interaction design: Beyond Human-Computer Interaction, 4th edition, John Wiley & Sons. ISBN 9781119088790
2. Dix, A., Finlay, J., Abowd, G., & Beale, R.– Human-computer interaction, Prentice Hall

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3. Don Norman, 2013,The design of Everyday things – Basic Books.	
3- Electronic Materials and Web Sites *etc*.	
1. http://www.hcibook.com/e3/plain/about/book/ 2. http://www.id-book.com/index.php. 3. www.baddesign.com	

IX. Course Policies:

Unless otherwise stated, the normal course administration policies and rules of the Faculty of Computer and Information Technology apply. For the policy, see: ----------------------------------

The University Regulations on academic misconduct will be strictly enforced. Please refer to -----------

1	**Class Attendance:** A student should attend not less than 75 % of total hours of the subject; otherwise he will not be able to take the exam and will be considered as exam failure. If the student is absent due to illness, he/she should bring a proof statement from university Clinic
2	**Tardy:** For late in attending the class, the student will be initially notified. If he repeated lateness in attending class, he will be considered as absent.
3	**Exam Attendance/Punctuality:** A student should attend the exam on time. He is Permitted to attend an exam half one hour from exam beginning, after that he/she will not be permitted to take the exam and he/she will be considered as absent in exam.
4	**Assignments & Project** The assignment is given to the students after each chapter; the student has to submit all the assignments for checking on time.
5	**Cheating:** For cheating in exam, a student will be considered as fail. In case the cheating is repeated three times during his/her study the student will be disengaged from the Faculty.
6	**Plagiarism:** Plagiarism is the attending of a student the exam of a course instead of another student. If the examination committee proofed a plagiarism of a student, he will be disengaged from the Faculty. The final disengagement of the student from the Faculty should be confirmed from the Student Council Affair of the university.

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7	**Other policies:** - Mobile phones are not allowed to use during a class lecture. It must be closed, otherwise the student will be asked to leave the lecture room - Mobile phones are not allowed in class during the examination. - Lecture notes and assignments my given directly to students using soft or hard copy

Faculty of Computer & Information Technology

Department of Information Technology

Program of Information Technology

Course syllabus of Human Computer Interaction

Course No (...................)

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2020/2021

I. - Information about Faculty Member Responsible for the Course:								
Name of Faculty Member		**Office Hours**						
Location& Telephone No.		**SAT**	**SUN**	**MON**	**TUE**	**WED**	**THU**	
E-mail								

II. Course Identification and General Information:						
1-	**Course Title:**	Human Computer Interaction				
2-	**Course Number & Code:**	……………..				
3-	**Credit hours:**	**C.H**				**Total**
		Th.	Seminar	Pr.	F. Tr.	
		3	-	-	-	3

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4-	**Study level/year at which this course is offered:**	3rd year / 2nd semester
5-	**Pre –requisite (if any):**	None
6-	**Co –requisite (if any):**	None
7-	**Program (s) in which the course is offered**	IT, IS and CS
8-	**Language of teaching the course:**	English
9-	**System of Study:**	Term Based System
10-	**Mode of delivery:**	Full Time
11-	**Location of teaching the course:**	Faculty of Computer and Information Technology

III. Course Description:

In this course, students are introduced to the fundamental concepts, principles, and theories of Human Computer Interaction (HCI), an interdisciplinary area concerned with the study of the interaction between humans and interactive computing systems. HCI teaches students to design, develop, and evaluate user interfaces based on their capabilities of computer technology and the needs of human factors, with an emphasis on usability, interaction paradigms, computer-mediated human activities, and implications to society.

Students design a user interface for a system and implement a prototype based on principles of and research methods in human computer interaction. The course will thus provide a background for students to practice system design, selection, installation, evaluation, and use with the knowledge of human characteristics, interaction styles, use context, task characteristics, and design processes.

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IV. Intended learning outcomes (ILOs) of the course:

- Brief summary of the knowledge or skill the course is intended to:

a1.	Understanding of HCI principles that influence a system's interface design, with an understanding of user interface design in general, and alternatives to traditional "keyboard and mouse" computing.
a2.	Gain knowledge and skills to consider how to design interfaces for different environments, people, places, and activities.
b1.	Analyze the local and global impact of models from cognitive psychology to predicting user performance in various HCI tasks and recognize the limits of human performance as they apply to computer operation.
b2.	Analyze and identify user models, user support, organizational issues, and stakeholder requirements of HCI systems.
c1.	Apply an interactive design process and universal design principles to designing HCI systems.
c2.	Develop skills to design prototypes and come up with methods and criteria for evaluation of the design.
d1.	Work effectively as individual or in small groups on a product design from start to finish will provide you with invaluable team-work experience.
d2.	Communicate effectively in oral and written within working environment when doing HCI project and presentation.

V. Course Content:

- Distribution of Semester Weekly Plan of Course Topics/Items and Activities.

A – Theoretical Aspect:

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Order	Topics List	Week Due	Contact Hours
1	**Introduction to Human-Computer Interaction** - A broad overview of human-computer interaction from practitioner and research perspectives. - What interaction design is. - Difference between good and poor interaction design.	1st	3
2	**Design and Usability** - Human error and mistakes - Know your user - Use of persona, scenarios, and storyboards during the design process	2nd, 3rd	6
3	**The Design Process, Guidelines, Principles, and Theories** - Interaction Design Basics - Design Rules - Principles, standards, and guidelines - Golden rules and heuristics	4th, 5th	6
4	**Human vision and visual displays** - Visual design and info graphics visualization - Guidelines for font and reading, color usage, and display structure and layout - Some guidelines and grid practices.	6th , 7th	6
5	**Mid-Exam**	8th	3
6	**Design Evaluation** - Expert analysis and user participation evaluation - Evaluation Approaches: Cognitive walkthroughs, heuristic evaluation, model based. - Lab vs. field studies evaluation User-based evaluation: Observational, query, and direct recording etc…	9th , 10th	6
7	**Interaction Style and Virtual Environments**	11th ,12th	6

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	- Design process using direct manipulation style - Virtual Reality and Augmented Reality Environments		
8	**Interaction Style** - Dialog Boxes, command-line, menus, form-filling and GUIS - Good and bad examples of interaction styles	13th	3
9	**Interaction Devices** - Types of touch-based interfaces: Force-feedback and haptic devices …etc. - Wearable devices and the miniaturization of computing platforms	14th	3
10	Student presentation	15th	3
11	Final-Exam	16th	3
Number of Weeks /and Units Per Semester		**16**	**48**

B – Practical Aspect: *(if any)*			
Order	**Topics List**	**Week Due**	**Contact Hours**
Number of Weeks /and Units Per Semester			

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VI. Teaching strategies of the course:

Interactive Lecture

Discussion

Homework

Group discussion

Presentation

Project

Exams

VII. Assignments:

No	Assignments	Week Due	Mark
1	- Short reports about the course concepts	6th, 12th	5%
2	- Implement a computer-based prototype	3rd	5%
3	- Progress report of the individual/team project	4th	5%
4	- Design (Heuristic) Evaluation Assignment	10th -15th	5%
5	- Final team project	13th	20%

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Sana'a University
Faculty of Computer & IT
Quality Assurance Unit

الجمهورية اليمنية
وزارة التعليم العالي والبحث العلمي
جامعة ـ صنعاء
كلية الحاسوب وتكنولوجيا المعلومات
وحدة ضمان الجودة

VIII.   Schedule of Assessment Tasks for Students During the Semester:

Assessment	Type of Assessment Tasks	Week Due	Mark	Proportion of Final Assessment
1	Assignment and Presentation	3rd,4th, 6th ,10th-15th	20	20%
2	Mid-Exam	8th	20	20%
3	Final-Exam	16th	60	60%

IX. Learning Resources:

• Written in the following order: (Author – Year of publication – Title – Edition – Place of publication – Publisher).

1- Required Textbook(s) (maximum two).

1. Sharp, H. Preece, J., and Rogers, Y. (2019). Interaction design: Beyond human computer interaction (5th ed.) John Wiley & Sons Ltd. ISBN 978-1-119-54730-3.
2. Shneiderman, Plaisant, Cohen, and Jacobs. (2010). Designing the User Interface: Strategies for Effective Human-Computer Interaction, 2010, 5th edition. Pearson Addison-Wesley.

2- Essential References.

1. J. Preece, Y. Rogers and H. Sharp. (2015). Interaction design: Beyond Human-Computer Interaction, 4th edition, John Wiley & Sons. ISBN 9781119088790
2. Dix, A., Finlay, J., Abowd, G., & Beale, R.– Human-computer interaction, Prentice Hall
3. Don Norman, 2013,The design of Everyday things – Basic Books.

3- Electronic Materials and Web Sites *etc*.

1. http://www.hcibook.com/e3/plain/about/book/
2. http://www.id-book.com/index.php.
3. www.baddesign.com

Head of Department	Vise Dean for Qulity Assurance	Dean of the Faculty	Dean of Development center and Quality Assurance
Assoc. Prof. Mansour N. Ali	Dr. Anwar Al-Shamiri	Dr. Nagi Al-Shibani	Assoc. Prof. Dr.Huda Al.Emad

Rector of Sana'a University

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X.	**Course Policies:**
	Unless otherwise stated, the normal course administration policies and rules of the Faculty of Computer and Information Technology apply. For the policy, see: ----------------------------------- The University Regulations on academic misconduct will be strictly enforced. Please refer to ----------- ----
1	**Class Attendance:** A student should attend not less than 75 % of total hours of the subject; otherwise he will not be able to take the exam and will be considered as exam failure. If the student is absent due to illness, he/she should bring a proof statement from university Clinic
2	**Tardy:** For late in attending the class, the student will be initially notified. If he repeated lateness in attending class, he will be considered as absent.
3	**Exam Attendance/Punctuality:** A student should attend the exam on time. He is Permitted to attend an exam half one hour from exam beginning, after that he/she will not be permitted to take the exam and he/she will be considered as absent in exam.
4	**Assignments & Project** The assignment is given to the students after each chapter; the student has to submit all the assignments for checking on time.
5	**Cheating:** For cheating in exam, a student will be considered as fail. In case the cheating is repeated three times during his/her study the student will be disengaged from the Faculty.
6	**Plagiarism:** Plagiarism is the attending of a student the exam of a course instead of another student. If the examination committee proofed a plagiarism of a student, he will be disengaged from the Faculty. The final disengagement of the student from the Faculty should be confirmed from the Student Council Affair of the university.
7	**Other policies:** - Mobile phones are not allowed to use during a class lecture. It must be closed, otherwise the student will be asked to leave the lecture room - Mobile phones are not allowed in class during the examination.

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	- Lecture notes and assignments my given directly to students using soft or hard copy

اللجنة الإشرافية

م.	الاســـم	الصـــــفة	التوقيع
١	أ.م.د. عبد الماجد الخليدي	نائب عميد الكلية للشؤون الأكاديمية	
٢	أ.م.د. احمد مجاهد	نائب عميد مركز التطوير الأكاديمي وضمان الجودة	
٣	د. حسين الأشول	ممثل المركز في الكلية	
٤	أ.د. إبراهيم المطاع	نائب رئيس الجامعة للشؤون الأكاديمية	

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