ATTACHMENT 5.

Kingdom of Saudi Arabia
The National Commission for Academic Accreditation & Assessment

T6. Course Specification
Computer Application in Healthcare (CHS 225)

Revised

Second Semester: 2018/2019

Course Specification

Institution: King Saud University (KSU)
College/Department: College of Applied Medical Sciences (CAMS), Department of Community Health

A Course Identification and General Information

1. **Course title and code:** Computer Applications in Healthcare (CHS 225)
2. **Credit hours:** 3 hours (2 theoretical, 1 practical)
3. **Program(s) in which the course is offered:** Health Education program, Bachelor degree

4. **Name of faculty member responsible for the course**
 	
    Mr. Ali Aldughaim (Male section)
 	
    Mrs. Eman AL-sowayigh (Female section)

5. **Level/year at which this course is offered**: Level 4/ year 2
6. **Pre-requisites for this course (if any):** CHS 223
7. **Co-requisites for this course (if any):** None
8. **Location if not on main campus:** Two locations; Al Deriyah; Building NO 24 for male students and Building NO 11 for Female students

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: Blackboard (learning management system) available at: https://lms.ksu.edu.sa/ is used by instructors for presenting the course to students in terms of course syllabus, course content (handouts and power point presentations), assignments and quizzes, and their results. Assignments can be downloaded by students, answered and sent to the instructor.

B Objectives

1. What is the main purpose for this course?
This course presents healthcare computer applications in several areas such as health record systems, medical imaging, disease management, information retrieval systems and many others. The course also develops skills and ability to program and implement web and mobile health applications.

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)
- Review and update the course contents regularly, incorporating new research and findings by experts in the field. - Increase the use of IT such as smart classrooms, relevant web sites, e-books and other web-based reference materials. - Consider the results of students' course evaluations and make the necessary modifications to improve the course. - Consider the results of advisory council, alumni, and employers' program evaluation and its curricular plan to improve the course content. - Prepare a course portfolio to provide information about the course and its development and improvements. - Use peer review to help improve teaching and student learning.

C. Course Description (Note: General description in the form to be used for the Bulletin or Handbook should be attached)

The course focuses on the application of information technology (IT) in healthcare to improve individual and population health, education and research. The goal is to stimulate and educate students about the current knowledge in Health Informatics, which is a rapidly changing field. Topics include HI overview, electronic health records, evidence based medicine, consumer health informatics, HI ethics and more. Lectures are aimed to be supplemented with field trips. This course also covers web/ mobile applications development lifecycle. It provides an overview of web/ mobile technologies and platforms, and then looks at the application development methodologies that are widely used.

1 Topics to be Covered in Theoretical Part		
List of Topics	**No of Weeks**	**Contact hours**
• **Introduction to the Course**	1	2
• **Overview of Health Informatics (Ch.1 Hoyt)**	1	2

• **Electronic Health Record Componenets - CPOE & CDSS & e-Prescribing** (Ch.4 Hoyt)	1	2
• **Consumer Health Informatics (PHR) (Ch.10 Hoyt)**	1	2
• **Medical Imaging Informatics (Ch.19 Hoyt)**	1	2
• **Telemedicine (Ch.18 Hoyt)**	1	2
• **Mobile Technology (Ch.11 Hoyt)**	1	2
• **Online Medical Resources/ Medical Information Retrieval/ Disease Management and Disease Registries (Ch.12, 13, 15 Hoyt)**	1	2
• **Evidence-Based Medicine (Ch.14 Hoyt)**	1	2
• **Health Data Standards (Ch.6 Hoyt)**	1	2
• **Health Informatics Ethics (Ch.9 Hoyt)**	1	2
• **Patient Safety and Health Information Technology (Ch.17 Hoyt)**	1	2
• **Bioinformatics (Ch.20 Hoyt)**	1	2
• **Public Health Informatics (Ch.21 Hoyt)**	1	2

2 Topics to be Covered in Practical Part		
List of Topics	**No of Weeks**	**Contact hours**
• **Introduction to the Course**	1	2
• **Web Programming Module (The basics of the five main technologies in web programming, i.e. HTML5, CSS, JavaScript, PHP, and MySQL, Joomla)**	6	12
• **Mobile Applications Development Module (Overview of Mobile App Development, App Design Issues and Considerations, Developing the Mobile App, Testing and Publishing Apps).The module emphasizes general principles that are common across all mobile platforms**	6	12

		2. Course components (total contact hours and credits per semester): 60 contact and 3 credit hours					
		Lecture	**Tutorial**	**Laboratory/ Studio**	**Practical**	**Other**	**Total**
Contact Hours	**Planned**	30 hours	None	15 hours	None	None	45 hours

	Actual	30 hours	None	30 hours	None	None	60 hours
Credit	Planned	2 hours	None	1 hour	None	None	3 hours
	Actual	2 hours	None	2 hour	None	None	4 hours

3. Additional private study/learning hours expected for students per week.	**One hour weekly**

15 hrs/ semester are used by students for preparation of an assignment either individually or in group depending on the number of students in the course. They are allowed to choose and prepare a research topic related to the study course under the instructor's supervision and present it orally using a PowerPoint presentation.

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

	NQF Learning Domains And Course Learning Outcomes	**Course Teaching Strategies**	**Course Assessment Methods**
1.0	**Knowledge**		
1.1	Outline computer applications dealing with health-related data and information	• Interactive lectures using class discussion and brainstorming. • Reading from scientific journals, textbooks and other sources.	Written exam using MCQs, True/False, fill in the space, matching and/or short essay questions.
1.2	Familiarize with the basics of the main technologies used in web/ mobile programing		
2.0	**Cognitive Skills**		
2.1	Differentiate between the components of information technology that supports healthcare applications.	• Interactive lectures using class discussion, brain storming and case studies • Conducting practical session in the computer laboratory to practice computer applications and skills that have learned.	• Written exam using MCQs, True/False, fill in the space, matching and/or short essay questions. • Practical exam. • Observation of students during their practical work.
2.2	Recognize methods of health information exchange and major types of data standards.		
3.0	**Interpersonal Skills & Responsibility**		
	None	Not applicable	Not applicable
4.0	**Communication, Information Technology, Numerical**		
4.1.		Guiding and assisting students during group practical sessions.	• Assignment assessed using rubrics.

	Work effectively in groups and be able to communicate.		• Using checklists for the observed skills
5.0	**Psychomotor**		
	Apply and integrate the learned technologies to design and build a web/ mobile health application.	Conducting practical sessions in the computer lab to practice computer applications and skills that have learned.	Practical exam.

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.	**Midterm**	7th - 9th week	20 %
2.	**Class discussion and participation**	1st - 15th week	10 %
3.	**Assignments**	4th - 12th week	10 %
4.	**Practical exam**	15th - 16th week	20 %
5.	**End Semester Exam**	16th - 18th week	40 %

D. Student Academic Counselling 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)

- The email of the instructor is given to the students; reply is usually within 24 hours.

- Office hours are allocated to the students for general and specific educational activities.

- General advice and consultation are available any time the instructor is not busy.

- Academic advisors are available for all students within the program from the beginning of their learning experience until their graduation.

E Learning Resources

1. List Required Textbooks

Hoyt, Robert E.; Yoshihashi, Ann K. Health Informatics: Practical Guide for Healthcare and Information Technology Professionals, 6th Edition, 2014.

Michael Mendez (2014). The Missing Link: An Introduction to Web Development and Programming, Open Sunny, ISBN 13: 978-0-9897226-5-0.

Jakob Iversen (2013). Learning Mobile App Development: A Hands-on Guide to Building Apps with iOS and Android.

2. List Essential References Materials (Journals, Reports, etc.)

Jon Ducket, (2011). HTML & CSS, John Wiley & Sons, Inc., ISBN: 978-1-118-00818-8.

Leon Shklar, Richard Rosen (2003). Web Application Architecture, John Wiley & Sons, ISBN 0- 471-48656-6.

FLING, B (2009) MOBILE DESIGN AND DEVELOPMENT: O'REILLY, 1st Ed. - ISBN: 0596155441

Leigh Williamson et. al (2015). Enterprise Class Mobile Application Development: A Complete Lifecycle Approach for Producing Mobile Apps

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

Sachin Date (2015). An Illustrated Guide to Mobile Technology.

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

Free Online Resources are available on the textbook companion website informaticseducation.org

AHIMA: American Health Information Management Association web site-www.ahima.org

SAHI: Saudi Association for Health Informatics- www.sahi.org.sa

https://developer.android.com/?

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 (Lecture rooms, laboratoires, etc.)
- Classrooms with 30 - 40 seats.

• Computer lab with 30 - 40 seats.

2. Computing resources
- Computers.
- Data show projector or E-podium.

3. Other resources (specify --e.g. If specific laboratory equipment is required, list requirements or attach list):
- Educational materials and teaching aids.

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
- Electronic course evaluation available on the University website (Edugate), each student has to fill before getting his/her final result.

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department
- Peer reviewing of teaching

3 Processes for Improvement of Teaching
- Reviewing students' feedbacks to identify strengths and opportunities for improvements to set a suitable action plan in the course report to be followed in the next semesters
- Participation in workshops related to the teaching process

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent faculty member of a sample of student work, periodic exchange and remarking of a sample of assignments with a faculty member in another institution)
- A sample of 10% of students' answer sheets (not less than 5 sheets) of the final exams are peer reviewed within 48 hours of the exam. The peer reviewers are independent faculty members. A peer review report is written and singed from both course instructor and reviewer.

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- Department curricular plans and programs committee review the course contents and specification every five years. The suggested modifications are made as required. The reasons and details of such modifications should be retained in course portfolio.

- Establishment of an advisory board within the program including leading practitioners from the relevant professions to monitor and advice on contents and quality of course.

- Students' achievements are reviewed periodically during the whole semester.

- Students' evaluations of the course and their propositions are put into consideration to improve the effectiveness of the course.

Name of Instructor: Mr. Ali Aldughaim and Mrs. Eman AL-sowayigh

Date Specification Completed: 14/1/2019

Program Coordinator: Dr. Nawal Alissa

Signature: **Date:** 16/1/2019

Date of CHS Dept. approval

Sixth meeting 23/1/2019