جامعة أم القرى

كلية الحاسب الآلي ونظم المعلومات

الدبلوم العالي في تطوير البرمجيات

4. Learning and Teaching

4/1 Learning Outcomes and Graduate Specifications

4/1/1 Main tracks or specializations covered by the program:

(a) Software Development

(b)

(c)

4/1/2 Curriculum Study Plan Table

Level	Course Code	Course Title	Required or Elective	Prerequisite Courses	Credit Hours
Level 1	1401901-3	Computer Systems	Required		3
	1401902-3	Database Systems	Required		3
	1401903-3	Math for CS	Required		3
	1401904-3	Programming Techniques	Required		3
Level 2	1401905-3	IT Service Management and Administration	Required		3
	1401906-3	Mobile Application Development	Required		3
	1401907-3	Network and Internet Technologies	Required		3
	1401908-3	Web Application Development	Required		3
		Total			**24**

4/1/3 Field or Research Components of the Study Plan

4/1/3/1 Summary of Practical or Medical Clinical Fellowship Components Required by the Program (if any):

8. Form Appendices
(Administrative and Regulatory Form Documents)

4/1/4. Course Specification:

COURSE SPECIFICATIONS
Form

Course Title: Computer Systems

Course Code:

Date: 2018 –12 – 07.	**Institution**: Umm Al-Qura University
College: College of Computer and Information Systems **Department**: Department of Computer Science	

A. Course Identification and General Information

1. Course title and code: Computer Systems
2. Credit hours: 3
3. Program(s) in which the course is offered. Postgraduate diploma in Computing

   (If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course Dr. Basem Alkazmi
5. Level/year at which this course is offered: 1
6. Pre-requisites for this course (if any):
7. Co-requisites for this course (if any):
8. Location if not on main campus:
9. Mode of Instruction (mark all that apply):

a. Traditional classroom		percentage?	100
b. Blended (traditional and online)		percentage?	
c. E-learning		percentage?	
d. Correspondence		percentage?	
f. Other		percentage?	

Comments:

B Objectives

1. The main objective of this course

This course should develop students' knowledge of "what is really happening" when a software runs on a computer system— and that question can be answered at several levels of abstraction starting at the hardware architecture level through to machine instructions and assembly language those rely on memory hierarchy (including caches and virtual memory)and operating systems, up to higher-level languages like C and Java. The core elements of the course cover hardware architecture and low-level programming languages (i.e. assembly, C) to manipulate data at the instruction set which impact the overall operation of a computer system, in addition, the role of operating system to abstract the hardware complexity and manage the high-level programing languages. . The goal is to understand how these abstractions interact from the programmer's perspective and how they affect program execution.

2. Describe briefly any plans for developing and improving the course that are being implemented. (e.g. increased use of the IT or online reference material, changes in content as a result of new research in the field)

The contents will be prepared from globally recognized text books, web-based reference materials and latest research in the field. Practical home works and a term project related to latest tools and techniques will also be designed. At the end of the course, a seminar day can be announced in which students can present their course projects and literature review.

C. Course Description (Note: General description in the form used in the program's bulletin or handbook)

Course Description:

The course has three principal themes:

Representation: how different data types (from simple integers to arrays of data structures) are represented in memory, how instructions are encoded, and how memory addresses (pointers) are generated and used to create complex structures

Translation: how high-level languages are translated into the basic instructions executed by hardware with a particular focus on C and Java

Control flow: how computers organize the sequence of their computations, keep track of where they are in large programs, and provide the capability of handling concurrent execution and multi-threading

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours

Overview of internal computer system architecture and data representation in memory	1	3
Number representation for integers and floats	1	3
Machine code and the C programming language	2	6
x86 instruction set and assembly language programming	2	6
Memory types and architecture	1	3
Operating system process model	1	3
Unix file system and command line	3	9
MS Windows Operations	2	6
Virtualization	1	3

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

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other	Total
Contact Hours	Planned	42					42
	Actual	42					42
Credit	Planned	3					3
	Actual	3					3

3. Individual study/learning hours expected for students per week. 9-12

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

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 targeted learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy should fit in together with the rest to form an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Curriculum Map

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	*explain* the role of an operating system;	Lecture, Group discussion	Exams, HWs, Quizzes

1.2	*describe* the multi-step process by which a high-level program becomes a stream of instructions executed by a processor; *use* pointers to manipulate complex data structures;	Lecture, Group discussion	Exam, HWs, Quizzes
1.3	Ability to apply knowledge of operating systems to diagnose and trouble shoot the system level problems	Lecture, Group discussion	Exams, HWs, Quizzes
2.0	**Cognitive Skills**		
2.1	*program* more effectively (e.g. more efficient at finding bugs, improved intuition about system performance).	Lecture, Project	Exam, HWs
2.2	Investigate the real-world problems in the context of operating systems and design efficient solutions	Lecture, Project	Project Report, Project presentation
3.0	**Interpersonal Skills & Responsibility**		
3.1	Demonstrate own learning and professional development	Group discussion, Project	Project Report, Project presentation
3.2	Work effectively in groups to accomplish a common goal and show leadership qualities	Group discussion, Project	Project Report, Project presentation
3.3	Act ethically and responsibly with high moral standards	Lectures, discussion	Anti-plagiarism software, paper review, presentation
4.0	**Communication, Information Technology, Numerical**		
4.1	Ability to communicate clearly in oral and written form with range of audiences	Project	Project Report, Project presentation
4.3	Demonstrate the ability to use mathematical and statistical techniques in the design and analysis of operating systems.	Lecture, Case studies, Project	Exams, Project Report, Project presentation
5.0	**Psychomotor (if any)**		
5.1	Ability to operate various operating systems, e.g., Linux, Windows, Android, etc.	Research activities, Projects	Project, HWs, presentations

5. Assessment Task Schedule for Students During the Semester

	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	HW 1	2	5%
2	Quiz 1	3	5%
3	Midterm Exam	8	20%
4	Project	10	30%
5	Final Exam	15	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic counseling. (include the time teaching staff are expected to be available per week) i. Office Hours for student counseling and support – Three hours/week ii. Availability of teaching Staff on e-learning resources like uqu20/Piazza

E Learning Resources

1. List Required Textbooks i. Computer Systems: A Programmer's Perspective, 3/E, by Randal E. Bryant and David R. O'Hallaron, 2015. ii. Operating System Concepts, by Abraham Silberschatz, Peter Baer Galvin, and Greg Gagne, John Wiley & Sons, 2018 iii. Operating Systems: Internals and Design Principles, by William Stallings, Prentice Hall, 2017. ISBN 978-0-13-230998-1.
2. List Essential References Materials (Journals, Reports, etc.) i. Springer Journal, Distributed Computing ii. Springer Journal, Real-Time Systems
3. List Electronic Materials, Web Sites, Facebook, Twitter, etc. i. https://link.springer.com/journal/11241
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software. i. Virtual machine that runs Linux operating system. ii. Java Development Kit (JDK) and IDE, e.g., NetBeans

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.) i. One classroom (25 seats) ii. One lab (25 PCs)
2. Technology resources (AV, data show, Smart Board, software, etc.) i. Whiteboard ii. Internet connection
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Procedures

1. Strategies for Obtaining Student's Feedback on Effectiveness of Teaching

i. At the end of semester, course evaluation forms will be filled by the students electronically or on paper. The evaluation forms will be anonymous.
2. Other Strategies for Evaluation of Teaching by the Instructor or the Department i. Course file of the course will be maintained and evaluated by some senior faculty member. ii. Instructor evaluation is performed for every semester
3. Procedures for Teaching Development i. Constant reading of new books and research papers, attending related conferences and workshops, participation in the research groups and blogs etc.
4. Procedures for Verifying Standards of Student's Achievement (e.g. check marking by an independent member teaching staff of a sample of student's work, periodic exchange and remarking of tests or a sample of assignments with staff members at another institution) i. A random sample from the marked papers may be evaluated by an independent senior faculty member. ii. Departmental quality assurance committee can review the students grades and course files to make sure that high standard of teaching is maintained.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for developing it. i. Department has curriculum committee that periodically review courses. ii. Faculty council review offer program as per need.

Name of Course Instructor: Dr. Basem Alkazmi

Signature: Dr. Basem Alkazmi **Date Completed:** Feb. 07, 2019

Program Coordinator: _____

Signature: _____ **Date Received:** _____

4/1/4. Course Specification:

COURSE SPECIFICATIONS

Form

Course Title: Database Concepts

Course Code

Date: 2018 –12 – 07.	**Institution**: Umm Al-Qura University
College: College of Computer and Information Systems **Department**: Department of Computer Science	

A. Course Identification and General Information

1. Course title and code: Database Concepts
2. Credit hours: 3
3. Program(s) in which the course is offered. Higher Diploma in Software Development

   (If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course Prof Khalid N ELSayed
5. Level/year at which this course is offered: 1
6. Pre-requisites for this course (if any):
7. Co-requisites for this course (if any):
8. Location if not on main campus:
9. Mode of Instruction (mark all that apply):

a. Traditional classroom		percentage?	100
b. Blended (traditional and online)		percentage?	
c. E-learning		percentage?	
d. Correspondence		percentage?	
f. Other		percentage?	

Comments:

B Objectives

1. The main objective of this course

The aim of this course is to introduce students to the concepts of information management by way of databases, including relational databases, relational algebra, functional dependency theories, and other data management and analytics solutions. The course will provide students with the opportunity to develop skills which will assist them to manage information in the current digital age.

2. Describe briefly any plans for developing and improving the course that are being implemented. (e.g. increased use of the IT or online reference material, changes in content as a result of new research in the field)

The contents will be prepared from globally recognized text books, web-based reference materials and latest research in the field. Practical home works and a term project related to latest tools and techniques will also be designed. At the end of the course, a seminar day can be announced in which students can present their course projects and literature review.

C. Course Description (Note: General description in the form used in the program's bulletin or handbook)

Course Description:

This course aims to introduce topics in databases and database management systems (DBMS) to the students. It covers theoretical as well as practical topics. The theoretical topics will make student aware of data modelling , normalization , DDL, DML, transactions, views and indexing. The practical side the student will be able to apply these skill in a modern database management systems such as Oracle, SQL Server or My SQL.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Advantages of using DBMS, Functions performed by DBMS, History of the relational database and SQL, Comparison with other type of databases	1	3
Data Modeling	1	3
Normalization	1	3
Introduction to Relational Algebra	2	6
SQL : DDL and DML	3	9
Advanced SQL (aggregation, composite SQL,	2	3
Views	1	6
Indexing and optimization	1	3

Introduction to Transactions and Replication	1	3
Introduction to user management, back-up and recovery	1	3

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

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other	Total
Contact Hours	Planned	42					42
	Actual	42					42
Credit	Planned	3					3
	Actual	3					3

3. Individual study/learning hours expected for students per week. 9-12

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

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 targeted learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy should fit in together with the rest to form an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Curriculum Map

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Understand the fundamental principles of relational database.	Lecture, Group discussion	Exams, HWs, Quizzes
1.2	Ability to apply knowledge of relational database to efficiently design and implement databases	Lecture, Group discussion	Exam, HWs, Quizzes
1.3	Ability to apply knowledge of SQL queries to retrieve data and create reports	Lecture, Group discussion	Exams, HWs, Quizzes
2.0	**Cognitive Skills**		
2.1	Apply conceptual understanding of database model to design and build databases	Lecture, Project	Exam, HWs
2.2	Investigate the real-world problems in the context of databases systems and design efficient solutions	Lecture, Project	Project Report, Project presentation
3.0	**Interpersonal Skills & Responsibility**		

3.1	Demonstrate own learning and professional development	Group discussion, Project	Project Report, Project presentation
3.2	Work effectively in groups to accomplish a common goal and show leadership qualities	Group discussion, Project	Project Report, Project presentation
3.3	Act ethically and responsibly with high moral standards	Lectures, discussion	Anti-plagiarism software, paper review, presentation
4.0	**Communication, Information Technology, Numerical**		
4.1	Ability to communicate clearly in oral and written form with range of audiences	Project	Project Report, Project presentation
4.3	Demonstrate the ability to use mathematical and statistical techniques in the design and analysis of operating systems.	Lecture, Case studies, Project	Exams, Project Report, Project presentation
5.0	**Psychomotor (if any)**		
5.1	Ability to operate various operating systems, e.g., Linux, Windows, Android, etc.	Research activities, Projects	Project, HWs, presentations

5. Assessment Task Schedule for Students During the Semester

	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	HW 1	2	5%
2	Quiz 1	3	5%
3	Midterm Exam	8	20%
4	Project	10	30%
5	Final Exam	15	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic counseling. (include the time teaching staff are expected to be available per week) iii. Office Hours for student counseling and support – Three hours/week iv. Availability of teaching Staff on e-learning resources like uqu20/Piazza

E Learning Resources

1. List Required Textbooks iv. Fundamentals Of Database System 7th Edition, by Elmasri Ramez And Navathe Shamkant, 2017, ISBN-10: 9789332582705
2. List Essential References Materials (Journals, Reports, etc.) An Introduction to Database Systems (8th Edition) by C.J. Date, 2003, ISBN-10: 0321197844
3. List Electronic Materials, Web Sites, Facebook, Twitter, etc. ii.
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software. iii. Virtual machine that runs Linux operating system. iv. Java Development Kit (JDK) and IDE, e.g., NetBeans

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.) iii. One classroom (25 seats) iv. One lab (25 PCs)
2. Technology resources (AV, data show, Smart Board, software, etc.) iii. Whiteboard iv. Internet connection
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Procedures

1. Strategies for Obtaining Student's Feedback on Effectiveness of Teaching ii. At the end of semester, course evaluation forms will be filled by the students electronically or on paper. The evaluation forms will be anonymous.
2. Other Strategies for Evaluation of Teaching by the Instructor or the Department

iii. Course file of the course will be maintained and evaluated by some senior faculty member. iv. Instructor evaluation is performed for every semester
3. Procedures for Teaching Development ii. Constant reading of new books and research papers, attending related conferences and workshops, participation in the research groups and blogs etc.
4. Procedures for Verifying Standards of Student's Achievement (e.g. check marking by an independent member teaching staff of a sample of student's work, periodic exchange and remarking of tests or a sample of assignments with staff members at another institution) iii. A random sample from the marked papers may be evaluated by an independent senior faculty member. iv. Departmental quality assurance committee can review the students grades and course files to make sure that high standard of teaching is maintained.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for developing it. iii. Department has curriculum committee that periodically review courses. iv. Faculty council review offer program as per need.

Name of Course Instructor: Prof. Khalid ElSayed

Signature: Prof. Khalid ElSayed **Date Completed:** Feb. 07, 2019

Program Coordinator: _____

Signature: _____ **Date Received:** _____

4/1/4. Course Specification:

COURSE SPECIFICATIONS

Form

Course Title: Math for CS

Course Code:

Date: 2018 –10 – 21.	**Institution**: Umm Al-Qura University
College: College of Computer and Information Systems **Department**: Department of Computer Science	

A. Course Identification and General Information

1. Course title and code: Math for CS
2. Credit hours: 3
3. Program(s) in which the course is offered. Higher Diploma in Software Development

   (If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course Dr. Mohamed K Nour
5. Level/year at which this course is offered: 1
6. Pre-requisites for this course (if any):
7. Co-requisites for this course (if any):
8. Location if not on main campus:
9. Mode of Instruction (mark all that apply):

a. Traditional classroom		percentage?	100
b. Blended (traditional and online)		percentage?	
c. E-learning		percentage?	
d. Correspondence		percentage?	
f. Other		percentage?	

Comments:

B Objectives

1. The main objective of this course

This course is intended to give a background foundation for the mathematics topics needed to study computer science .

2. Describe briefly any plans for developing and improving the course that are being implemented. (e.g. increased use of the IT or online reference material, changes in content as a result of new research in the field)

The contents will be prepared from globally recognized text books, web-based reference materials and latest research in the field. Practical home works and a term project related to latest tools and techniques will also be designed. At the end of the course, a seminar day can be announced in which students can present their course projects and literature review.

C. Course Description (Note: General description in the form used in the program's bulletin or handbook)

Course Description:

The course covers topics in discrete mathematics , linear algebra, calculus and probability example of topics are listed below:
Discrete Mathematics: Propositional and first order logic. Sets, relations, functions
Linear Algebra: Matrices, determinants, system of linear equations, eigenvalues and eigenvectors
Probability: Random variables. Uniform, normal distributions. Mean, median, mode and standard deviation. Conditional probability and Bayes theorem.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Propositional and first order logic. Sets, relations, functions	5	15
Matrices, determinants, system of linear equations, eigenvalues and eigenvectors	5	15
Random variables. Uniform, normal distributions. Mean, median, mode and standard deviation. Conditional probability and Bayes theorem.	4	12

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

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other	Total
Contact Hours	Planned	42					42
	Actual	42					42
Credit	Planned	3					3
	Actual	3					3

3. Individual study/learning hours expected for students per week.	9-12

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

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 targeted learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy should fit in together with the rest to form an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Curriculum Map

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Understand the fundamental principles of Mathematics for computing	Lecture, Group discussion	Exams, HWs, Quizzes
1.2	Ability to apply knowledge of mathematics to efficiently solve real world problems	Lecture, Group discussion	Exam, HWs, Quizzes
2.0	**Cognitive Skills**		
2.1	Apply conceptual understanding of mathematics	Lecture, Project	Exam, HWs
2.2	Acquire problem solving skills	Lecture, Project	Project Report, Project presentation
3.0	**Interpersonal Skills & Responsibility**		
3.1	Demonstrate own learning and professional development	Group discussion, Project	Project Report, Project presentation
3.2	Work effectively in groups to accomplish a common goal and show leadership qualities	Group discussion, Project	Project Report, Project presentation
3.3	Act ethically and responsibly with high moral standards	Lectures, discussion	Anti-plagiarism software, paper review, presentation
4.0	**Communication, Information Technology, Numerical**		
4.1	Ability to communicate clearly in oral and written form with range of audiences	Project	Project Report, Project presentation
4.3	Demonstrate the ability to use mathematical and statistical techniques in the design and analysis of operating systems.	Lecture, Case studies, Project	Exams, Project Report, Project presentation
5.0	**Psychomotor (if any)**		
5.1	Ability to operate various operating systems, e.g., Linux, Windows, Android, etc.	Research activities, Projects	Project, HWs, presentations

5. Assessment Task Schedule for Students During the Semester			
	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	**Week Due**	**Proportion of Total Assessment**
1	HW 1	2	5%
2	Quiz 1	3	5%
3	Midterm Exam	8	20%
4	Project	10	30%
5	Final Exam	15	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic counseling. (include the time teaching staff are expected to be available per week) v. Office Hours for student counseling and support – Three hours/week vi. Availability of teaching Staff on e-learning resources like uqu20/Piazza

E Learning Resources

1. List Required Textbooks v. ** Dean N., *The Essence of Discrete Mathematics*, Prentice Hall, 1997 vi. Strang, Introduction to Linear Algebra, Fifth Edition (2016) vii. Mathematics for Computing , Springer 2018 viii. Wier, Hass and Giordano, *Thomas' Calculus*, 11th, 12th or 13th Edition. Pearson/Addison-Wesley. ix.
2. List Essential References Materials (Journals, Reports, etc.)
3. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software. v. Virtual machine that runs Linux operating system. vi. Java Development Kit (JDK) and IDE, e.g., NetBeans

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.) v. One classroom (25 seats) vi. One lab (25 PCs)
2. Technology resources (AV, data show, Smart Board, software, etc.) v. Whiteboard vi. Internet connection
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Procedures

1. Strategies for Obtaining Student's Feedback on Effectiveness of Teaching

iii. At the end of semester, course evaluation forms will be filled by the students electronically or on paper. The evaluation forms will be anonymous.
2. Other Strategies for Evaluation of Teaching by the Instructor or the Department v. Course file of the course will be maintained and evaluated by some senior faculty member. vi. Instructor evaluation is performed for every semester
3. Procedures for Teaching Development iii. Constant reading of new books and research papers, attending related conferences and workshops, participation in the research groups and blogs etc.
4. Procedures for Verifying Standards of Student's Achievement (e.g. check marking by an independent member teaching staff of a sample of student's work, periodic exchange and remarking of tests or a sample of assignments with staff members at another institution) v. A random sample from the marked papers may be evaluated by an independent senior faculty member. vi. Departmental quality assurance committee can review the students grades and course files to make sure that high standard of teaching is maintained.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for developing it. v. Department has curriculum committee that periodically review courses. vi. Faculty council review offer program as per need.

Name of Course Instructor: Dr. Mohamed K. Nour

Signature: *Mohamed K. Nour* **Date Completed:** Dec. 07, 2018

Program Coordinator: _____

Signature: _____ **Date Received:** _____

Date: 2018 –12 – 07.	**Institution**: Umm Al-Qura University
College: College of Computer and Information Systems **Department**: Department of Computer Science	

A. Course Identification and General Information

1. Course title and code: Programming Techniques
2. Credit hours: 3
3. Program(s) in which the course is offered. Higher Diploma in Software Development

   (If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course Dr. Magdi Amr
5. Level/year at which this course is offered: 1
6. Pre-requisites for this course (if any):
7. Co-requisites for this course (if any):
8. Location if not on main campus:
9. Mode of Instruction (mark all that apply):

a. Traditional classroom		percentage?	100
b. Blended (traditional and online)		percentage?	
c. E-learning		percentage?	
d. Correspondence		percentage?	
f. Other		percentage?	

Comments:

B Objectives

1. The main objective of this course

The course is intended to extend the student's knowledge to encompass a number of important programming techniques necessary for building a modern computing application.

2. Describe briefly any plans for developing and improving the course that are being implemented. (e.g. increased use of the IT or online reference material, changes in content as a result of new research in the field)

The contents will be prepared from globally recognized text books, web-based reference materials and latest research in the field. Practical home works and a term project related to latest tools and techniques will also be designed. At the end of the course, a seminar day can be announced in which students can present their coursework and prototypes.

C. Course Description (Note: General description in the form used in the program's bulletin or handbook)

Course Description:

The course content will include techniques in Java to deal with a range of issues drawn from the following: program design using an object oriented programming model; modelling data using programming language type systems; event and exception programming; providing a graphical user interface; thread programming; persistence; and distributed programming. It will also cover in brief the underlying Java run time system and techniques found in other languages..

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction to programming	1	3
Basic type, arithmetic operators, reading input from the user, displaying messages, control structures (if, else, switch)	1	3
control structures(loops, inner loops, break and continue) creating and calling functions, pass by value	1	3
Introduction to Object Oriented Programming	1	3
Creating class, building an application using classes	1	3
Encapsulation, Introduction to UML's class diagram	1	3
ArrayList and TreeMap	1	3
Aggregation relations between objects	1	3
Aggregation relations between objects(continued)	1	3
Practice examples	1	3
Introduction to inheritance	1	3
Inheritance versus interface	1	3

Introduction to persistence	1	3
Practice examples	1	3

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

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other	Total
Contact Hours	Planned	42					42
	Actual	42					42
Credit	Planned	3					3
	Actual	3					3

3. Individual study/learning hours expected for students per week. 9-12

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

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 targeted learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy should fit in together with the rest to form an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Curriculum Map

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Describe the core concepts and issues involved in programming with polymorphic constructs, graphical user interfaces, multiple threads of execution, and networking mechanisms in a general way;	Lectures	Exam, Quizzes
1.2	Understand object oriented development	Lectures	Exams, Homework, Quizzes
1.3	Understand different types of collections and data structures	Lectures	Exam, Homework, Quizzes
1.4	Identify current tools for software development and debugging	Lectures, Project	Exam, Homework, Project report
2.0	**Cognitive Skills**		
2.1	Realize the application of object oriented development	Lecture, Case studies	Exams, Quizzes, Homework

2.2	Use the programming language concepts such as type checking, scoping, abstraction, data hiding and encapsulation; in an effective way;	Lecture, Case studies,	Exams, Quizzes, Homework
2.3	Design, implement and evaluate real world application	Group discussion, Project	Project Report, Project presentation
3.0	**Interpersonal Skills & Responsibility**		
3.1	Work effectively in groups to accomplish a common goal and show leadership qualities	Small group discussion, research activities, Projects	Project Report, Group presentation
3.2	Act ethically and responsibly with high moral standards	Research activities, Project	Anti-plagiarism Presentation
4.0	**Communication, Information Technology, Numerical**		
4.1	Ability to communicate clearly in oral and written form with range of audiences	Project	Project Report, Project presentation
4.2	Demonstrate the ability to apply recent tools in software engineering application	Project	Project Report, Project presentation
4.3	Demonstrate the ability to use formal and statistical techniques in the design and analysis of software applications	Lecture, Case studies	Exams, homework
5.0	**Psychomotor (if any)**		
5.1	Ability to operate and construct necessary tools required related to the subject	Research activities, Projects	Project, HWs, presentations

5. Assessment Task Schedule for Students During the Semester

	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quiz 1	2	3.3%
2	Homework 1	3	3.3%
3	Quiz 2	4	3.3%
4	Homework 2	5	3.3%
5	Midterm Exam	7	20%
6	Quiz 3	8	3.3%
7	Homework 3	9	3.3%
8	Project Report	11	15%
9	Project Presentations	12	5%
10	Final Exam	14	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic counseling. (include the time teaching staff are expected to be available per week) i. Office Hours for student counseling and support – Three hours/week ii. Availability of teaching Staff on e-learning resources like uqu20/Piazza

E Learning Resources

1. List Required Textbooks Java: How to Program, 10e, (early objects) Dietel and Dietel, Pearson, ISBN-13: 978-0-13-257566-9
2. List Essential References Materials (Journals, Reports, etc.) Horstmann, Big Java: Late Objects. 1st ed. John Wiley, 2013. Savitch. Absolute Java. 5th ed. Pearson. 2013 Goodrich and tamassia Data Structures and Algorithms in Java. 6th ed. John Wiley. 2014. Liang, Introduction to Java Programming (11th Edition) 10th Edition, Pearson 2018. Sommerville, Software Engineering. 10th ed. Pearson. 2015.
3. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software. i. Java or any object oriented programming, UML.

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.) i. One classroom (25 seats) ii. One lab (25 PCs)
2. Technology resources (AV, data show, Smart Board, software, etc.) i. Whiteboard ii. Internet connection iii. Anti-plagiarism software
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Procedures

1. Strategies for Obtaining Student's Feedback on Effectiveness of Teaching

i. At the end of semester, course evaluation forms will be filled by the students electronically or on paper. The evaluation forms will be anonymous.
2. Other Strategies for Evaluation of Teaching by the Instructor or the Department i. Course file of the course will be maintained and evaluated by some senior faculty member. ii. Instructor evaluation is performed for every semester
3. Procedures for Teaching Development i. Constant reading of new books and research papers, attending related conferences and workshops, participation in the research groups and blogs etc.
4. Procedures for Verifying Standards of Student's Achievement (e.g. check marking by an independent member teaching staff of a sample of student's work, periodic exchange and remarking of tests or a sample of assignments with staff members at another institution) i. A random sample from the marked papers may be evaluated by an independent senior faculty member. ii. Departmental quality assurance committee can review the students grades and course files to make sure that high standard of teaching is maintained.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for developing it. i. Department has curriculum committee that periodically review courses. ii. Faculty council review offer program as per need.

Name of Course Instructor: Dr Magdi Amr

Signature: *Magdi Amr* **Date Completed:** Feb. 04, 2019

Program Coordinator: _____

Signature: _____ **Date Received:** _____

4/1/4. Course Specification:

COURSE SPECIFICATIONS

Form

Course Title: IT Service Management and Administration

Course Code:

Date: 2018 –12 – 07.	**Institution**: Umm Al-Qura University
College: College of Computer and Information Systems **Department**: Department of Computer Science	

A. Course Identification and General Information

1. Course title and code: IT Service Management and Administration
2. Credit hours: 3
3. Program(s) in which the course is offered. Higher Diploma in Software Development

   (If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course Dr. Basem Al Kazmi
5. Level/year at which this course is offered: 1
6. Pre-requisites for this course (if any):
7. Co-requisites for this course (if any):
8. Location if not on main campus:
9. Mode of Instruction (mark all that apply):

a. Traditional classroom		percentage?	100
b. Blended (traditional and online)		percentage?	
c. E-learning		percentage?	
d. Correspondence		percentage?	
f. Other		percentage?	

Comments:

B Objectives

1. The main objective of this course

The course aims to help students acquire IT management skills and understand the important principles for managing IT operations and identify vital processes and functions.

2. Describe briefly any plans for developing and improving the course that are being implemented. (e.g. increased use of the IT or online reference material, changes in content as a result of new research in the field)

The contents will be prepared from globally recognized text books, web-based reference materials and latest research in the field. Practical home works and a term project related to latest tools and techniques will also be designed. At the end of the course, a seminar day can be announced in which students can present their course projects and literature review.

C. Course Description (Note: General description in the form used in the program's bulletin or handbook)

Course Description:

This course covers the basics of IT service managements and IT project management.

The practical side of the course will include using IT service management and Project Management software.

The service management part of the course will follow ITIL curriculum focusing on the service desk and IT operations. The project management part will follow the commonly recognized project managment Standards (e.g. PMP,PRINCE2).

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
What is Service Management	1	3
IT Service Management Life Cycle	1	3
The Service Desk – hands on session	1	3
Request Fulfilment	1	3
Incident Management	1	3
IT Operations	1	3
Service Improvement, Measures Metrics and Deming Cycle	1	3
Introduction to Project Management	1	3

project initiation and defining scope	1	3
Project Business Case	1	3
Project Organization	1	3
Project Planning	1	3
Project Risk Management	1	3
Monitoring and Progress	1	3

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

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other	Total
Contact Hours	Planned	42					42
	Actual	42					42
Credit	Planned	3					3
	Actual	3					3

3. Individual study/learning hours expected for students per week. 9-12

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

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 targeted learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy should fit in together with the rest to form an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Curriculum Map

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Understand the fundamental principles of IT Service Management	Lecture, Group discussion	Exams, HWs, Quizzes
1.2	Ability to apply knowledge of IT Service management to efficiently utilize and manage IT resources	Lecture, Group discussion	Exam, HWs, Quizzes
1.3	Ability to apply knowledge of IT Services to organize IT activities and Tasks	Lecture, Group discussion	Exams, HWs, Quizzes
2.0	**Cognitive Skills**		
2.1	Apply conceptual understanding of IT management	Lecture, Project	Exam, HWs

2.2	Investigate the real-world problems in the context of IT management and suggest efficient solutions	Lecture, Project	Project Report, Project presentation
3.0	**Interpersonal Skills & Responsibility**		
3.1	Demonstrate own learning and professional development	Group discussion, Project	Project Report, Project presentation
3.2	Work effectively in groups to accomplish a common goal and show leadership qualities	Group discussion, Project	Project Report, Project presentation
3.3	Act ethically and responsibly with high moral standards	Lectures, discussion	Anti-plagiarism software, paper review, presentation
4.0	**Communication, Information Technology, Numerical**		
4.1	Ability to communicate clearly in oral and written form with range of audiences	Project	Project Report, Project presentation
4.3	Demonstrate the ability to use mathematical and statistical techniques in the design and analysis of operating systems.	Lecture, Case studies, Project	Exams, Project Report, Project presentation
5.0	**Psychomotor (if any)**		
5.1	Ability to operate various operating systems, e.g., Linux, Windows, Android, etc.	Research activities, Projects	Project, HWs, presentations

5. Assessment Task Schedule for Students During the Semester

	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	HW 1	2	5%
2	Quiz 1	3	5%
3	Midterm Exam	8	20%
4	Project	10	30%
5	Final Exam	15	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic counseling. (include the time teaching staff are expected to be available per week) vii. Office Hours for student counseling and support – Three hours/week viii. Availability of teaching Staff on e-learning resources like uqu20/Piazza

E Learning Resources

1. List Required Textbooks i. ITIL IT Service Management Foundation , office of Government Commerce. ii. Prince2 Project Management. office of Government Commerce
2. List Essential References Materials (Journals, Reports, etc.) iii.
3. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software. vii. Special license to run these courses from https://www.axelos.com/

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.) vii. One classroom (25 seats) viii. One lab (25 PCs)
2. Technology resources (AV, data show, Smart Board, software, etc.) vii. Whiteboard viii. Internet connection
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Procedures

1. Strategies for Obtaining Student's Feedback on Effectiveness of Teaching iv. At the end of semester, course evaluation forms will be filled by the students electronically or on paper. The evaluation forms will be anonymous.
2. Other Strategies for Evaluation of Teaching by the Instructor or the Department vii. Course file of the course will be maintained and evaluated by some senior faculty member.

viii. Instructor evaluation is performed for every semester
3. Procedures for Teaching Development iv. Constant reading of new books and research papers, attending related conferences and workshops, participation in the research groups and blogs etc.
4. Procedures for Verifying Standards of Student's Achievement (e.g. check marking by an independent member teaching staff of a sample of student's work, periodic exchange and remarking of tests or a sample of assignments with staff members at another institution) vii. A random sample from the marked papers may be evaluated by an independent senior faculty member. viii. Departmental quality assurance committee can review the students grades and course files to make sure that high standard of teaching is maintained.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for developing it. vii. Department has curriculum committee that periodically review courses. viii. Faculty council review offer program as per need.

Name of Course Instructor: Dr. Basem Al Kazmi

Signature: Dr. Basem Al Kazmi **Date Completed:** Feb. 07, 2019

Program Coordinator: _____

Signature: _____ **Date Received:** _____

Date: 2018 –12 – 07. **Institution**: Umm Al-Qura University
College: College of Computer and Information Systems **Department**: Department of Computer Science

A. Course Identification and General Information

1. Course title and code: Mobile Application Development
2. Credit hours: 3

3. Program(s) in which the course is offered. Higher Diploma in Software Development (If general elective available in many programs indicate this rather than list programs)		
4. Name of faculty member responsible for the course Dr. Magdi Amr		
5. Level/year at which this course is offered: 1		
6. Pre-requisites for this course (if any):		
7. Co-requisites for this course (if any):		
8. Location if not on main campus:		
9. Mode of Instruction (mark all that apply): a. Traditional classroom	percentage?	100
b. Blended (traditional and online)	percentage?	
c. E-learning	percentage?	
d. Correspondence	percentage?	
f. Other	percentage?	
Comments:		

B Objectives

1. The main objective of this course

The aim of this module is to combine the techniques learned in previous software development modules with the unique characteristics and rapidly changing aspects of mobile application production. Students will learn how to develop mobile apps that can take advantage of location-based services, sensor rich development environments and gesture-based interaction features. As the mobile software domain is still fast moving and evolving, we will emphasise techniques and methods that will remain applicable to the latest technology of the day. This course is intended to provide students with a comprehensive understanding of the tasks related to the development of enterprise-level mobile applications.

2. Describe briefly any plans for developing and improving the course that are being implemented. (e.g. increased use of the IT or online reference material, changes in content as a result of new research in the field)

The contents will be prepared from globally recognized text books, web-based reference materials and latest research in the field. Practical home works and a term project related to latest tools and techniques will also be designed. At the end of the course, a seminar day can be announced in which students can present their course projects and literature review.

C. Course Description (Note: General description in the form used in the program's bulletin or handbook)

Course Description:

More and more people are using increasingly powerful mobile devices as their primary means of obtaining information and requesting services over the Internet. The shift from traditional personal computers (desktops and laptops) to mobile devices (Smart phone and tablets), as a means of accessing services, has forced enterprises to adapt mobile channels for their existing applications. At the same time, demand for new kinds of applications that can exploit the unique characteristics of mobile devices is rapidly growing. While there certainly is value in developing a mobile app user interface for an existing business application, the users of mobile applications have come to expect more from their mobile experience. This has manifested in an ever-increasing demand for mobile application development in the market.
The topics to be covered will include the design, interface building, resource management and code elaboration aspects of these applications. The concepts learned by students will be applicable to any mobile operating system, but emphasis and practice on a specific platform will be achieved through the coursework.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction to Android Programming	1	3
Setting up the environment	1	3
Creating a Simple Application	1	3
Building User Interface	2	6

Building multi-screen application	2	6
Handling screen orientation	1	3
Storing user's preferences	1	3
Accessing Web Servers	1	3
Introduction to JSON	1	3
Securing the Application	1	3
Practice example	2	6

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

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other	Total
Contact Hours	Planned	42					42
	Actual	42					42
Credit	Planned	3					3
	Actual	3					3

3. Individual study/learning hours expected for students per week. 9-12

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

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 targeted learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy should fit in together with the rest to form an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Curriculum Map

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Knowledge and understanding of the capabilities and limitations of mobile platforms that affect application development and deployment	Lectures	Exam, Quizzes
1.2	Knowledge and understanding of the technology and business trends	Lectures	Exams, Homework, Quizzes

	impacting mobile application development		
1.3	Knowledge and understanding of the characterisation and architecture of mobile applications	Lectures	Exam, Homework, Quizzes
1.4	Knowledge and understanding of the enterprise-scale requirements of mobile applications	Lectures, Project	Exam, Homework, Project report
2.0	**Cognitive Skills**		
2.1	Evaluate alternative mobile frameworks, and contrast different programming platforms	Lecture, Case studies	Exams, Quizzes, Homework
2.2	Model and manage mobile application development using a range of methods	Lecture, Case studies,	Exams, Quizzes, Homework
2.3	Explain the advantages and limitations of development frameworks	Group discussion, Project	Project Report, Project presentation
3.0	**Interpersonal Skills & Responsibility**		
3.1	Work effectively in groups to accomplish a common goal and show leadership qualities	Small group discussion, research activities, Projects	Project Report, Group presentation
3.2	Act ethically and responsibly with high moral standards	Research activities, Project	Anti-plagiarism Presentation
4.0	**Communication, Information Technology, Numerical**		
4.1	Ability to communicate clearly in oral and written form with range of audiences	Project	Project Report, Project presentation
4.2	Demonstrate the ability to apply recent tools in Data mining application	Project	Project Report, Project presentation
5.0	**Psychomotor (if any)**		
5.1	Ability to operate and construct necessary tools required related to the subject	Research activities, Projects	Project, HWs, presentations

5. Assessment Task Schedule for Students During the Semester

	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quiz 1	2	3.3%
2	Homework 1	3	3.3%
3	Quiz 2	4	3.3%
4	Homework 2	5	3.3%
5	Midterm Exam	7	20%
6	Quiz 3	8	3.3%
7	Homework 3	9	3.3%

8	Project Report	11	15%
9	Project Presentations	12	5%
10	Final Exam	14	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic counseling. (include the time teaching staff are expected to be available per week) iii. Office Hours for student counseling and support – Three hours/week iv. Availability of teaching Staff on e-learning resources like uqu20/Piazza

E Learning Resources

1. List Required Textbooks i. Learn Android Studio 3 - Efficient Android App Development, Ted Hagos, ISBN 978-1-4842-3156-2 ii. Android Apps for Absolute Beginners, Wallace Jackson, 2017, ISBN 978-1-4842-2268-3
2. List Essential References Materials (Journals, Reports, etc.) i. Recent Papers in Software Engineering related journals
3. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software. ii. Java, Javascript or similar 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.) iii. One classroom (25 seats) iv. One lab (25 PCs)
2. Technology resources (AV, data show, Smart Board, software, etc.) iv. Whiteboard v. Internet connection vi. Anti-plagiarism software
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Procedures

1. Strategies for Obtaining Student's Feedback on Effectiveness of Teaching

ii. At the end of semester, course evaluation forms will be filled by the students electronically or on paper. The evaluation forms will be anonymous.
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3. Procedures for Teaching Development ii. Constant reading of new books and research papers, attending related conferences and workshops, participation in the research groups and blogs etc.
4. Procedures for Verifying Standards of Student's Achievement (e.g. check marking by an independent member teaching staff of a sample of student's work, periodic exchange and remarking of tests or a sample of assignments with staff members at another institution) iii. A random sample from the marked papers may be evaluated by an independent senior faculty member. iv. Departmental quality assurance committee can review the students grades and course files to make sure that high standard of teaching is maintained.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for developing it. iii. Department has curriculum committee that periodically review courses. iv. Faculty council review offer program as per need.

Name of Course Instructor: Dr. Magdi Amr

Signature: *Magdi Amr* **Date Completed:** Dec. 07, 2018

Program Coordinator: _____

Signature: _____ **Date Received:** _____

4/1/4. Course Specification:

COURSE SPECIFICATIONS

Form

Course Title: Networks and Internet Technologies

Course Code:

Date: 2018 –12 – 07.	**Institution**: Umm Al-Qura University
College: College of Computer and Information Systems **Department**: Department of Computer Science	

A. Course Identification and General Information

1. Course title and code: Networks and Internet Technologies		
2. Credit hours: 3		
3. Program(s) in which the course is offered. Higher Diploma in Software Development (If general elective available in many programs indicate this rather than list programs)		
4. Name of faculty member responsible for the course Dr. Mohamed K. Nour		
5. Level/year at which this course is offered: 1		
6. Pre-requisites for this course (if any):		
7. Co-requisites for this course (if any):		
8. Location if not on main campus:		
9. Mode of Instruction (mark all that apply): a. Traditional classroom	percentage?	100
b. Blended (traditional and online)	percentage?	
c. E-learning	percentage?	
d. Correspondence	percentage?	
f. Other	percentage?	
Comments:		

B Objectives

1. The main objective of this course

This course is intended to give a broad exposure to networking and Internet technologies.

2. Describe briefly any plans for developing and improving the course that are being implemented. (e.g. increased use of the IT or online reference material, changes in content as a result of new research in the field)

The contents will be prepared from globally recognized text books, web-based reference materials and latest research in the field. Practical home works and a term project related to latest tools and techniques will also be designed. At the end of the course, a seminar day can be announced in which students can present their course projects and literature review.

C. Course Description (Note: General description in the form used in the program's bulletin or handbook)

Course Description:

We will cover the architecture of the Internet from the application layer down to ethernet connections. In the course of doing this, we will delve into network programming, TCP and UDP protocols, reliable message delivery, routing, access protocols, VLANs, and firewalls.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
1- Introduction: History of data networking, evolution of the Internet, terminology, circuit vs. packet switching, delays	1	3
2- Network protocol stack, sockets, network programming, threads & concurrency, mutual exclusion	1	3
Java sockets and multithreading programming walkthrough	1	3
3- Application layer: principles of network applications	1	3
Domain Name System, HTTP, and FTP	1	3
4- Application layer: email protocols: SMTP, POP3, IMAP	1	3
5- Peer-to-peer networking: Napster, Gnutella, Kazaa, BitTorrent	1	3
Peer-to-peer lookup: distributed hash tables	1	3
Transport layer: multiplexing/demultiplexing, UDP, reliable data transfer	1	3
6- Network layer: virtual circuit & datagram networks, forwarding, route aggregation, subnetting, CIDR, fragmentation	1	3
7- Router architecture, IP datagram format, DHCP, ICMP, Ping, Traceroute, NAT/PAT	1	3
8-Routing protocols: shortest path, Dijkstra's algorithm (link state routing), distance vector routing	1	3

9- Internet routing: autonomous systems,RIP, OSPF, BGP	1	3
Broadcast routing, Internet multicast	1	3
10- Datalink layer: link-layer services, error detection and correction, medium access control, ethernet, ARP	1	3
Ethernet switches, VLANs	1	3
11- Wireless networking	1	3
12- Network quality of service	1	3
13- Firewalls, VPNs	1	3
14 Session Initiation Protocol, NAT traversal and Software Defined Networks	1	3

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

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other	Total
Contact Hours	Planned	42					42
	Actual	42					42
Credit	Planned	3					3
	Actual	3					3

3. Individual study/learning hours expected for students per week. 9-12

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

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 targeted learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy should fit in together with the rest to form an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Curriculum Map

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Understand the fundamental principles of networking and internet technologies	Lecture, Group discussion	Exams, HWs, Quizzes
1.2	Ability to apply knowledge of networking to efficiently utilize the system resources	Lecture, Group discussion	Exam, HWs, Quizzes

1.3	Ability to apply knowledge of networking to diagnose and trouble shoot the system level problems	Lecture, Group discussion	Exams, HWs, Quizzes
2.0	**Cognitive Skills**		
2.1	Apply conceptual understanding of networking for systems analysis and design	Lecture, Project	Exam, HWs
2.2	Investigate the real-world problems in the context of networking and design efficient solutions	Lecture, Project	Project Report, Project presentation
3.0	**Interpersonal Skills & Responsibility**		
3.1	Demonstrate own learning and professional development	Group discussion, Project	Project Report, Project presentation
3.2	Work effectively in groups to accomplish a common goal and show leadership qualities	Group discussion, Project	Project Report, Project presentation
3.3	Act ethically and responsibly with high moral standards	Lectures, discussion	Anti-plagiarism software, paper review, presentation
4.0	**Communication, Information Technology, Numerical**		
4.1	Ability to communicate clearly in oral and written form with range of audiences	Project	Project Report, Project presentation
4.3	Demonstrate the ability to use mathematical and statistical techniques in the design and analysis of operating systems.	Lecture, Case studies, Project	Exams, Project Report, Project presentation
5.0	**Psychomotor (if any)**		
5.1	Ability to operate various operating systems, e.g., Linux, Windows, Android, etc.	Research activities, Projects	Project, HWs, presentations

5. Assessment Task Schedule for Students During the Semester

	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	HW 1	2	5%
2	Quiz 1	3	5%
3	Midterm Exam	8	20%
4	Project	10	30%
5	Final Exam	15	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic counseling. (include the time teaching staff are expected to be available per week) ix. Office Hours for student counseling and support – Three hours/week x. Availability of teaching Staff on e-learning resources like uqu20/Piazza

E Learning Resources

1. List Required Textbooks x. Computer Networking: A Top-Down Approach (7th Edition) James F. Kurose and Keith W. Ross, 2017
2. List Essential References Materials (Journals, Reports, etc.)
3. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software. viii. Virtual machine that runs Linux operating system. ix. Java Development Kit (JDK) and IDE, e.g., NetBeans

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.) ix. One classroom (25 seats) x. One lab (25 PCs)
2. Technology resources (AV, data show, Smart Board, software, etc.) ix. Whiteboard x. Internet connection
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Procedures

1. Strategies for Obtaining Student's Feedback on Effectiveness of Teaching v. At the end of semester, course evaluation forms will be filled by the students electronically or on paper. The evaluation forms will be anonymous.
2. Other Strategies for Evaluation of Teaching by the Instructor or the Department

ix. Course file of the course will be maintained and evaluated by some senior faculty member. x. Instructor evaluation is performed for every semester
3. Procedures for Teaching Development v. Constant reading of new books and research papers, attending related conferences and workshops, participation in the research groups and blogs etc.
4. Procedures for Verifying Standards of Student's Achievement (e.g. check marking by an independent member teaching staff of a sample of student's work, periodic exchange and remarking of tests or a sample of assignments with staff members at another institution) ix. A random sample from the marked papers may be evaluated by an independent senior faculty member. x. Departmental quality assurance committee can review the students grades and course files to make sure that high standard of teaching is maintained.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for developing it. ix. Department has curriculum committee that periodically review courses. x. Faculty council review offer program as per need.

Name of Course Instructor: Dr. Khalid Tramissi

Signature: Dr. Khalid Tramissi **Date Completed:** Feb. 07, 2019

Program Coordinator: _____

Signature: _____ **Date Received:** _____

Date: 2018 –12 – 07.	**Institution**: Umm Al-Qura University
College: College of Computer and Information Systems **Department**: Department of Computer Science	

A. Course Identification and General Information

1. Course title and code: Web Application Development		
2. Credit hours: 3		
3. Program(s) in which the course is offered. Higher Diploma in Software Development (If general elective available in many programs indicate this rather than list programs)		
4. Name of faculty member responsible for the course Dr. Mohamed K. Nour		
5. Level/year at which this course is offered: 1		
6. Pre-requisites for this course (if any):		
7. Co-requisites for this course (if any):		
8. Location if not on main campus:		
9. Mode of Instruction (mark all that apply):		
a. Traditional classroom	percentage?	100
b. Blended (traditional and online)	percentage?	
c. E-learning	percentage?	
d. Correspondence	percentage?	
f. Other	percentage?	
Comments:		

B Objectives

1. The main objective of this course

To provide an overview of web development techniques

2. Describe briefly any plans for developing and improving the course that are being implemented. (e.g. increased use of the IT or online reference material, changes in content as a result of new research in the field)

The contents will be prepared from globally recognized text books, web-based reference materials and latest research in the field. Practical home works and a term project related to latest tools and techniques will also be designed. At the end of the course, a seminar day can be announced in which students can present their course projects and literature review.

C. Course Description (Note: General description in the form used in the program's bulletin or handbook)

Course Description:

To provide students with the opportunity to improve their understanding of web development, and their judgement of the effectiveness of different development techniques, both in theory and in practice.

To cover important techniques and issues in designing and building large scale web systems.

To consider development methods and patterns which enhance maintainabilty and testability, such as web components, MVC, ORM, and HTML template engines.

To familiarise students with relevant web development frameworks such as ASP.NET, and compare this with alternatives such as Object-Oriented PHP, Enterprise Java, and server-side JavaScript.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Review of modern web standards such as HTML5 and CSS3 - web templates and template engines - responsive web design	1	3
Web Information Architecture and Content Management Systems - intranet search techniques, use of metadata - examples of CMS/Portals such as Sharepoint and Drupal	2	6

Web Development using ASP.NET - underlying .NET technologies such as C#, ASP, and LINQ - ASP.NET web pages and web forms - ASP.NET Razor and MVC - comparison with other approaches to Web Development - comparison of client-side versus server-side programming	5	15
Patterns and methods to enhance maintainability and testability - dependability injection and inversion of control - Model-View-Controller (MVC) and variants (MV*) - object relational mapping (ORM)	2	6
Business Logic - maintaining web state (page, session, and application lifetime and scope) - persistence using Entity Framework and LINQ - techniques for validating input data in each tier and their benefits	2	6
Testing, deployment and configuration - classification and management of detected errors - range and use of web test automation tools - web site hosting	2	6
Performance modelling and management - partitioning and parallelism, Amdahl's law - performance modelling and benchmarking - graceful degradation (admission control, disabling recommendations)	2	6

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

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other	Total
Contact Hours	Planned	42					42
	Actual	42					42
Credit	Planned	3					3
	Actual	3					3

3. Individual study/learning hours expected for students per week. 9-12

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

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 targeted learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy should fit in together with the rest to form an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Curriculum Map

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Modern web standards, content management systems, and responsive web design	Lectures	Exam, Quizzes
1.2	The ASP.NET web development framework, including web controls, web parts, web forms and MVC	Lectures	Exams, Homework, Quizzes
1.3	Similarities and differences with alternatives such as Enterprise Java, OO PHP, and Python/Django	Lectures	Exam, Homework, Quizzes
1.4	Techniques for deploying and testing web sites, and for enhancing their performance and scalability	Lectures, Project	Exam, Homework, Project report
2.0	**Cognitive Skills**		
2.1	Evaluate alternative server-side frameworks, client-side and server-side web programming	Lecture, Case studies	Exams, Quizzes, Homework

2.2	Model and manage web performance using a range of methods	Lecture, Case studies,	Exams, Quizzes, Homework
2.3	Explain the limitations of partitioning and parallelism in improving web performance	Group discussion, Project	Project Report, Project presentation
3.0	**Interpersonal Skills & Responsibility**		
3.1	Work effectively in groups to accomplish a common goal and show leadership qualities	Small group discussion, research activities, Projects	Project Report, Group presentation
3.2	Act ethically and responsibly with high moral standards	Research activities, Project	Anti-plagiarism Presentation
4.0	**Communication, Information Technology, Numerical**		
4.1	Ability to communicate clearly in oral and written form with range of audiences	Project	Project Report, Project presentation
4.2	Design and build ASP.NET web sites using professional web development tools such as IDEs, HTML template engines, test automation, and Object-Relational Mapping software	Project	Project Report, Project presentation
5.0	**Psychomotor (if any)**		
5.1	Ability to operate and construct necessary tools required related to the subject	Research activities, Projects	Project, HWs, presentations

5. Assessment Task Schedule for Students During the Semester

	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Quiz 1	2	3.3%
2	Homework 1	3	3.3%
3	Quiz 2	4	3.3%
4	Homework 2	5	3.3%
5	Midterm Exam	7	20%
6	Quiz 3	8	3.3%
7	Homework 3	9	3.3%
8	Project Report	11	15%
9	Project Presentations	12	5%
10	Final Exam	14	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic counseling. (include the time teaching staff are expected to be available per week) v. Office Hours for student counseling and support – Three hours/week vi. Availability of teaching Staff on e-learning resources like uqu20/Piazza

E Learning Resources

1. List Required Textbooks i. Adam Freeman (2013). Pro ASP.NET MVC 4. ii. Imar Spaanjaars (2012). Beginning ASP.NET in C# and VB. iii. Cal Henderson (2006). Building Scalable Web Sites.
2. List Essential References Materials (Journals, Reports, etc.)
3. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Visual studio and .Net frameworks

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.) v. One classroom (25 seats) vi. One lab (25 PCs)
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5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for developing it. v. Department has curriculum committee that periodically review courses. vi. Faculty council review offer program as per need.

Name of Course Instructor: Dr. Mohamed K. Nour

Signature: *Mohamed K. Nour* **Date Completed:** Dec. 07, 2018

Program Coordinator: _____

Signature: _____ **Date Received:** _____