

**Kingdom of Saudi Arabia**

**The National Commission for Academic Accreditation &  
Assessment**

**COURSE SPECIFICATION**

# Course Specification

Institution: <a href="#">Umm Al-Qura University</a>
Department: <a href="#">Computer Engineering Department</a>

## A. Course Identification and General Information

1. Course title and code: <a href="#">Computer and Information Security – 14034107-3</a>
2. Credit hours: <a href="#">03</a>
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) <a href="#">Computer Engineering</a>
4. Name of faculty member responsible for the course <a href="#">Dr. Turki F. Al-Somani</a>
5. Level/year at which this course is offered <a href="#">Level 9 or 10 (Elective)</a>
6. Pre-requisites for this course (if any) <a href="#">Professional Skills for Eng. Design, Discrete Structures-II</a>
7. Co-requisites for this course (if any)  <a href="#">N/A</a>
8. Location if not on main campus

## B Objectives

1. Summary of the main learning outcomes for students enrolled in the course.  Introduction to Computer Security, Security Threats and Management as well as Risk and Threat Analysis. Identification & authentication and Access Control. Operating system and software security. Security models and evaluation. Web security. Access Control Paradigms
2. Briefly describe any plans for developing and improving the course that are being implemented. (eg increased use of IT or web based reference material, changes in content as a result of new research in the field)  N/A

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

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
• Introduction to Computer Security	1	3
• Security Threats and Management	2,3	6
• Risk and Threat Analysis	4	3
• Foundations of Computer Security	5	3
• Identification and Authentication	7	3
• Access Control	8	3
• Reference Monitors	9	3
• Operating System Security	10	3
• Software Security	11	3

• Information Security Models (e.g., Bell–LaPadula Model)	12	3		
• Security Models	13	3		
• Security Evaluation	14	3		
• Web Security	15	3		
• New Access Control Paradigms	16	3		
2. Course components (total contact hours per semester):				
Lecture: 48 contact Hrs	Tutorial: N/A	Laboratory: N/A	Practical/Field work/Internship: N/A	Other: N/A

<p>3. Additional private study/learning hours expected for students per week. (This should be an average: for the semester not a specific requirement in each week)</p> <p>An average student is expected to study 6 – 8 hours per week other than the class hours.</p>
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<p>4. Development of Learning Outcomes in Domains of Learning</p> <p>For each of the domains of learning shown below indicate:</p> <ul style="list-style-type: none"> <li>• A brief summary of the knowledge or skill the course is intended to develop;</li> <li>• A description of the teaching strategies to be used in the course to develop that knowledge or skill;</li> <li>• The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.</li> </ul>
<b>a. Knowledge</b>
<p>(i) Description of the knowledge to be acquired</p> <p>1. State the basic concepts in information security, including security policies, security models, and security mechanisms.</p>

<p>2. Explain the requirements for trusted operating systems, and describe the independent evaluation, including evaluation criteria and evaluation process</p>
<p>(ii) Teaching strategies to be used to develop that knowledge</p> <p>Lecture presentation, Study of research papers</p> <p>.</p>
<p>(iii) Methods of assessment of knowledge acquired</p> <p>Quizzes, Home works, Presentation</p>
<p><b>b. Cognitive Skills</b></p>
<p>(i) Description of cognitive skills to be developed</p> <p>This course is an introduction to the broad field of information security. We will cover both <i>computer security</i> (including such topics as security policies, access control, viruses, etc.) and <i>network security</i> (such as protocols for maintaining confidentiality of email or for secure web transactions)</p>
<p>(ii) Teaching strategies to be used to develop these cognitive skills</p> <p>Theoretical and practical lectures and using the latest methods of presentation and teaching.</p> <p>Online discussions of ways to resolve issues with the presentation of illustrative examples.</p>
<p>(iii) Methods of assessment of students cognitive skills</p> <p>Assignments process, Instant launch exercises in the sessions of practice, Homework and oral testing. Some small research projects and individual and collective.</p>
<p><b>c. Interpersonal Skills and Responsibility</b></p>
<p>(i) Description of the interpersonal skills and capacity to carry responsibility to be developed</p> <p>Group projects to develop team work skills.</p>

(ii) Teaching strategies to be used to develop these skills and abilities  Group assignments and projects.
(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility  Project reports and presentations.
<b>d. Communication, Information Technology and Numerical Skills</b>
(i) Description of the skills to be developed in this domain.  To develop skills in this domain technical programming and training is given to the students.
(ii) Teaching strategies to be used to develop these skills  Students' are advised to write assignments and project reports as per standard format to develop  Writing skills and presentations are arranged to give them chance to develop communication skills.
(iii) Methods of assessment of students numerical and communication skills  To assess the students numerical and communication skills tests and conducted and presentations
<b>e. Psychomotor Skills (if applicable)</b>
(i) Description of the psychomotor skills to be developed and the level of performance required
(ii) Teaching strategies to be used to develop these skills
(iii) Methods of assessment of students psychomotor skills

5. Schedule of Assessment Tasks for Students During the Semester			
Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
	Bi-weekly quizzes	Every other	15%

1		week	
2	Mid Term	Mid of the semester	15%
3	Assignments	As and when needed	5%
4	Project	After the Mid term exam	25%
5	Final Exam	End of the classes	40%

## D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

4 hours per week by the course instructor as office hours

## E. Learning Resources

1. Required Text(s)
<ul style="list-style-type: none"> <li>• Dieter Gollmann, <i>Computer Security</i>, 3rd edition, Wiley, 2011</li> </ul>
2. Essential References
N/A
3. Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)
<ul style="list-style-type: none"> <li>• Ross Anderson, <i>Security Engineering: A Guide to Building Dependable Distributed Systems</i>, 2/E, Wiley, 2008. <a href="https://www.cl.cam.ac.uk/~rja14/book.html">https://www.cl.cam.ac.uk/~rja14/book.html</a></li> <li>• Charles P. Pfleeger and Shari Lawrence Pfleeger, <i>Security in Computing</i>, 3<sup>rd</sup> Edition, , Prentice Hall, 2002</li> </ul>
4. Electronic Materials, Web Sites etc
N/A
5. Other learning material such as computer-based programs/CD, professional standards/regulations
N/A

## F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)	
1. Accommodation (Lecture rooms, laboratories, etc.)	Lecture room is required with multimedia projector.
2. Computing resources	N/A
3. Other resources (specify e.g. If specific laboratory equipment is required, list requirements or attach list)	N/A

## **G. Course Evaluation and Improvement Processes**

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching	There is a centralized system at the university level to get such feedbacks
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department	None
3. Processes for Improvement of Teaching	The process for improvement of teaching is based on results of student survey on course learning outcomes and the extent to which student outcomes (SOs) are achieved
4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)	None
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.	The answer has been provided under item no. 3 above.