Department of Web Engineering
First Semester, 2019/2020

	Course Syllabus
Course Title: Requirement engineering for Web Applications	**Course code: 0780221**
Course Level: 2	**Course prerequisite (s) and/or co-prerequisite (s):** 0780111
Lecture Time: 09.45 -11.00	**Credit hours: 3**

		Academic Staff Specifics		
Name	**Rank**	**Office Number and Location**	**Office Hours**	**E-mail Address**
Dr Maouche Mourad	**Associate Professor**	**Room 603 IT Building**	**STT: 11.00-12.00** **MW: 11.00-12.00**	mmaouch@philadelphia.edu.jo

Course module description:

This course covers the concepts, principles, processes, approaches, techniques, and tools related to the Requirement Engineering discipline in the context of the development of Web applications. Topics include the categorization of the requirements, their elicitation, analysis, modeling,   validation, formulation, and documentation.

Course module objectives:

This course aims to provide students with:
-    A conceptual and practical knowledge on the Requirement engineering discipline.
-    Valuable skills required for the elicitation, the formulation, the analyze, and the validation of web applications requirements.

Course/ module components

Books (title , author (s), publisher, year of publication)

Title: Web Engineering: A practitioner approach
Author: R. S. Pressman, D. Lowe
Editor: Mac Graw-Hill
Year of edition: 2009

Title: Requirements Engineering – From System Goals to UML Models to Software specifications.
Author: Axel van Lamsweerde.
Editor: Wiley
Year of edition: 2009

Title: A Goal-oriented Approach for the Development of Web Applications
Author: J. Alphonso Aguilar Calderon
Editor: Lambert Academic Publishing
Year of edition: 2011

Support material (s) (vcs, acs, etc): Slides

Teaching methods
 Lectures, tutorials, laboratory sessions
   Duration: 16 weeks, 48 hours in total. Lectures (+ Exams): 33 hours, Tutorials + case studies: 12 hours, Lab sessions: 3 hours

Learning outcomes
  A student completing this module unit should be able to:
- **Knowledge and understanding**
1. Situate the requirement engineering in the generic software process framework. (A2)
2. Recognize the importance of the requirement engineering discipline. (A1, A3)
3. Distinguish between problem domain and solution domain (A2, A3)
4. Define the concepts of stakeholders, and application scope. (A2, A3)
5. State the role of stakeholders in the context of the requirement engineering discipline. (A2, A3)
6. List and summarize the set of requirement engineering activities. (A3)
7. Outline usual requirement engineering processes suitable for the development of web applications. (A2, A3)
8. State the importance of prioritizing requirements. (A3)
9. State the importance of a risk analysis study. (A2, A3)
10. Identify the specificities of the web application requirements. (A2, A4)
11. Identify and explain different types of web application requirements.(A2. A3)
12. Distinguish between functional, content, and quality requirements in the context of web applications. (A3, A6)
13. List and outline the characteristics of good requirements.(A2, A3)
14. Outline usual requirements elicitation techniques. (A2, A3)
15. Outline usual requirements validation techniques (A2, A3)
16. Recall the usual ways to formulate web application requirements. (A2, A3)
17. Outline the template and summarize the content SRS documents (A2, A3)
18. Distinguish between stakeholder requirements and software specifications. (A2, A3)
19. Categorize and outline at least three usual Requirements engineering approaches (A2, A3)
20. Explain the concept of Goals in the context of web application requirement engineering (A2, A3)

21. Distinguish between hard and soft goals (A2)
22. Relate Goals to Web Requirements (A2, A3)

- **Cognitive skills (thinking and analysis).**
1. Analyze customer problem statements. (B2)
2. Figure out appropriate stakeholders and their needs. (B2)
3. Select and use appropriate requirements elicitation techniques (B3)
4. Analyze web application requirements. (B2, B3)
5. Negotiate and prioritize requirements. (B2, B3)
6. Build a web UML requirement model for medium-size web applications (B1)
7. Build a goal oriented requirement model for medium-size web applications (B1)

- **Practical skills**

1. Practice web modeling language tools (C2)
2.. Practice requirement management tools (C2)

- **Transferable skills**
1. Interact effectively with non –specialist as well computer scientist (D6)
2. Demonstrate effective Team working skills (D8)
3. Create innovative solutions (D1)
4. Plan, organize, and perform time/resource-constrained tasks to achieve goals (D2)
5. Prepare and write good technical reports (D4)
 6. Define personal professional goals that support lifelong learning, productivity, and satisfaction. (D7)

Learning Outcomes Achievements:
Development
  A1, A2, , A3, A6, B1, B2, B3 are developed through lectures, and tutorials.
  B1, B2, B3, C2, D1, D2, D4, D6, D7, and D8 are developed through projects, and lab sessions
Assessment:
  A1, A2, , A3, A6, B1, B2, B3   are assessed by quizzes and examinations.
  B1, B2, B3, C2, D1, D2, D4, D6, D7, and D8 are assessed by projects

Assessment instruments
  Quizzes.
  Mini-projects
  Final examination: 40 marks

Allocation of Marks	
Assessment Instruments	**Mark**
First examination	**20**
Second examination	**20**
Final examination: 40 marks	**40**
Quizzes, Projects	**20**
Total	**100**

 Documentation and academic honesty

Submit your homework covered with a sheet containing your name, number, course title and number, and type and number of the home work (e.g. tutorial, assignment, and project).

Any completed homework must be handed in to my office (room IT 602) by 15:00 on the due date. After the deadline "zero" will be awarded. You must keep a duplicate copy of your work because it may be needed while the original is being marked.

You should hand in with your assignments:
1- A printed listing of your test programs (if any).
2- A brief report to explain your findings.
3- Your solution of questions.

For the research report, you are required to write a report similar to a research paper. It should include:

o **Abstract**: It describes the main synopsis of your paper.
o **Introduction**: It provides background information necessary to understand the research and getting readers interested in your subject. The introduction is where you put your problem in context and is likely where the bulk of your sources will appear.
o **Methods (Algorithms and Implementation)**: Describe your methods here. Summarize the algorithms generally, highlight features relevant to your project, and refer readers to your references for further details.
o **Results and Discussion (Benchmarking and Analysis)**: This section is the most important part of your paper. It is here that you demonstrate the work you have accomplished on this project and explain its significance. The quality of your analysis will impact your final grade more than any other component on the paper. You should therefore plan to spend the bulk of your project time not just gathering data, but determining what it ultimately means and deciding how best to showcase these findings.
o **Conclusion**: The conclusion should give your reader the points to "take home" from your paper. It should state clearly what your results demonstrate about the problem you were tackling in the paper. It should also generalize your findings, putting them into a useful context that can be built upon. All generalizations should be supported by your data, however; the discussion should prove these points, so that when the reader gets to the conclusion, the statements are logical and seem self-evident.
o **Bibliography:** Refer to any reference that you used in your assignment. Citations in the body of the paper should refer to a bibliography at the end of the paper.

Protection by Copyrights
1. Coursework, laboratory exercises, reports, and essays submitted for assessment must be your own work, unless in the case of group projects a joint effort is expected and is indicated as such.
2. Use of quotations or data from the work of others is entirely acceptable, and is often very valuable provided that the source of the quotation or data is given. Failure to provide a source or put quotation marks around material that is taken from elsewhere gives the appearance that the comments are ostensibly your own. When quoting word-for-word from the work of another person quotation marks or indenting (setting the quotation in from the margin) must be used and the source of the quoted material must be acknowledged.
3. Sources of quotations used should be listed in full in a bibliography at the end of your piece of work.

Avoiding Plagiarism.
1. Unacknowledged direct copying from the work of another person, or the close paraphrasing of somebody else's work, is called plagiarism and is a serious offence, equated with cheating in examinations. This applies to copying both from other students' work and from published sources such as books, reports or journal articles.
2. Paraphrasing, when the original statement is still identifiable and has no acknowledgement, is plagiarism. A close paraphrase of another person's work must have an acknowledgement to the source. It is not acceptable for you to put together unacknowledged passages from the same or from different sources linking these together with a few words or sentences of your own and changing a few words from the original text: this is regarded as over-dependence on other sources, which is a form of plagiarism.
3. Direct quotations from an earlier piece of your own work, if not attributed, suggest that your work is original, when in fact it is not. The direct copying of one's own writings

qualifies as plagiarism if the fact that the work has been or is to be presented elsewhere is not acknowledged.

4. Plagiarism is a serious offence and will always result in imposition of a penalty. In deciding upon the penalty the Department will take into account factors such as the year of study, the extent and proportion of the work that has been plagiarized, and the apparent intent of the student. The penalties that can be imposed range from a minimum of a zero mark for the work (without allowing resubmission) through caution to disciplinary measures (such as suspension or expulsion).

Course/module academic calendar

Week	Basic and support material to be covered	Homeworks
(1)	**Requirement Engineering Discipline:** ▪ Problem ▪ Purpose and Importance ▪ Position in the software development life cycle ▪ RE: an engineering discipline **Requirement Engineering in the context of Web engineering** ▪ Stakeholders specificities ▪ Web application characteristics	**Quiz**
(2)	**Requirements** ▪ Stakeholder needs ▪ Problem domain/ Solution domain ▪ Problem statement ▪ Definition(s) of the concept of requirements ▪ Requirements versus Specifications ▪ Categorizations: Business/Technical; Functional/Quality ▪ Characteristics of Good Requirements	**Quiz**
(3)	**Requirements Engineering Discipline** ▪ Activities ▪ Process	**Quiz**
(4)	**Requirement Engineering Approaches** ▪ Task oriented ▪ Scenario oriented ▪ Goal oriented	
(5)	**Web Specific Functional Requirements** Tutorial	**Quiz**
(6) **First Exam**	**Web Content Requirements** Tutorial *First Exam*	
(7)	**Web Specific Quality Requirements** Tutorial	
(8)	**Requirement Elicitation techniques in the context of the web development** Tutorial	**Quiz**
(9)	**Requirements Analysis** **Requirement Validation** (prototyping) **Requirement Formulation** (user stories, …)	

(10)	**Requirement Modeling in the context of the web development** Tutorial	**Mini-Project**
(11) **Second Exam**	**Documentation Requirements** (SRS)	

(12)	**Goal Oriented Requirement Engineering**
	    ▪ Goal categorization
	    ▪ Goal refinement (And/Or)
	Tutorial	

(13)	**Goal Oriented Requirement Engineering in the context of the web development**	
(14)	**Case study 1**	
(15)	**Case study 2**	
(16)	**Student projects Evluation** **Revision**	

Expected workload

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

Module references

Books

Title: Requirements Engineering for Software and Systems
Author(s)/Editor(s): Phillip A. Laplante
Publisher: Auerbach Publications, 2013

Title: Requirements Engineering
Author(s)/Editor(s): Elizabeth Hull, Ken Jackson and Jeremy Dick.
Publisher: Springer, 2011

Title: Software Requirements- Styles and Techniques
Author(s)/Editor(s): Søren Lauesen.
Publisher: Addison-Wesley, 2002.