UNIVERSITY OF CYPRUS  
DEPARTMENT OF COMPUTER SCIENCE  

ADVANCED SOFTWARE ENGINEERING  

EPL 441 — 7.5 ECTS  

Academic Year 2019-2020 — Spring Semester  

Instructor: George Angelos Papadopoulos (Professor)  
Prerequisites: EPL 343 (or equivalent)  
Office Hours: Monday & Thursday, 3:00-4:30 p.m., (ΘΕΕ 01-118)  
E-Mail: george@cs.ucy.ac.cy  
URL Μαθήματος: http://www.cs.ucy.ac.cy/courses/EPL441  
Also in Moodle (key epl441)  

Purpose  
The purpose of this course is to examine some advanced concepts, principles and practices in Software Engineering. In the process, students will have the opportunity to use advanced tools for software development. The course is a natural continuation of the introductory course on Software Engineering (EPL343). The course can also play the role of a “road map” for a number of other undergraduate advanced electives as well as for graduate courses related to Software Engineering.  

Teaching Methods and Student Assessment  
The course is taught by means of 2 lectures of 90 minutes each and a lab session of 90 minutes per week. The course material is organized in a number of logical modules that essentially follow the contents of [1] which is the primary textbook of the course. The main exception is the material for HCI which follows the contents of [2] which is the main textbook for this part of the course.  

During the lectures we will be using the official slides of books [1] and [2] which can be found on the web at the official sites of these two books.  

Student assessment will be done by means of a project, a mid-term exam and a final exam. The grade distribution among these three assessment exercises is as follows:  

<table>
<thead>
<tr>
<th>Assessment Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>30%</td>
</tr>
<tr>
<td>Mid-Term Exam</td>
<td>30%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>40%</td>
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</tbody>
</table>

The mid-term exam will take place on Saturday 29 February 2020, 10:00 a.m. – 12:30 p.m. in ΧΩΔ01 101.  

The students are required to enroll immediately in EPL441 on the Moodle platform (http://moodle.cs.ucy.ac.cy), as all communication and distribution of relevant material will be done through Moodle.
Please note carefully: Failure of a student to accumulate at least 35% of the part of the overall grade of this course that is related to the mid-term and final exam, will automatically result in failure of the course, irrespective of the mark that this student will get from the project. In such a case, the final mark will be the one that results from the student’s performance in the mid-term and final exam. As an example, consider the performance of two students A and B. Student A scores 12% in the mid-term exam, 24% in the final exam and 20% in the project. As student A’s performance in the two exams accumulates to 12+24=36% (equal or above 35%), student A’s final grade will be 36+20=56% which rounds up to the final grade of 5.5/10 (pass). Student B scores 18% in the mid-term exam, 15% in the final exam and 25% in the project. As student B’s performance in the two exams accumulates to 18+15=33% (less than 35%), student B’s final grade will be 33% which rounds up to 3.5/10 (fail).

**Bibliography**


**Organization and Topics**

**Advanced Software Engineering**

- Project management
- Software reuse
- Component-based Software Engineering
- Distributed Software Engineering
  - Distributed systems. Client–server computing. Architectural patterns for distributed systems. Software as a service.
- Service-oriented Software Engineering
  - Service-oriented architectures. RESTful services. Service engineering. Service composition.
- Real-time Software Engineering

**Human Computer Interaction for Software Engineering**

- Interaction design basics
  - HCI in the software process
The software life cycle. Usability engineering. Iterative design and prototyping. Design rationale.

**Design rules**

**Implementation support**

**Evaluation techniques**

**Universal design**

**User support**
Requirements of user support. Approaches to user support. Adaptive help systems. Designing user support systems.