Systems Engineering (COMP0016)

Description

Aims:
Go through the experience of Research and Development (R and D) processes by developing a reference Proof of Concept design and prototype implementation for a complex and substantial software application over an extended period of time. Work with an external client to obtain requirements and get feedback for a client-defined problem. Experience of working with team organisation and management. Develop and work to a plan, with weekly lab checks, client reports and deliverable milestones to be met. A practical understanding of how the research experimentation and development of a software system is organised and carried out, both in terms of team working skills and the technical knowledge required. Practice using relevant skills and knowledge in completing tasks and milestones. The development of writing, media production, presentation and communication (technical and customer facing) skills. Learning how to evaluate the work done, and team and individual performance.

Learning outcomes:
On successful completion of the module, a student will be able to:
1. know how to work effectively with an external client and professional behaviour;
2. have a good understanding of a software development process involving research and experimentation in an area of Computer Science;
3. have the ability to organise a team, work effectively in a team. Know how to undertake research to identify and use relevant ideas and technologies when developing software;
4. know how to develop and test good quality software;
5. be introduced to R and D approaches to requirements capture, HCI factors and team-based development relevant to the projects undertaken;
6. have experience of writing documentation and presenting results;
7. have an understanding of technical writing skills and share their awareness of legal issues as they apply to

Key information

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<th>Key information</th>
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<tbody>
<tr>
<td>Year</td>
<td>2019/20</td>
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<tr>
<td>Credit value</td>
<td>30 (300 study hours)</td>
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<td>Delivery</td>
<td>UG L5, Campus-based</td>
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<td>Reading List</td>
<td>View on UCL website</td>
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<tr>
<td>Tutor</td>
<td>Dr Dean Mohamedally</td>
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<td>Term</td>
<td>Terms 1 and 2</td>
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<td>Timetable</td>
<td>View on UCL website</td>
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Assessment

Find out more

For more information about the department, programmes, relevant open days and to browse other modules, visit [ucl.ac.uk](http://ucl.ac.uk)
software development.

**Content:**
The core purpose of the module is for students to undertake a systems engineering project, within the Computer Science Industry Exchange Programme (IXN) structure. The students will work in small teams, where each team works with an external client to develop a cutting-edge solution to a challenging problem defined by the client. The client will typically be from one of the following types of organisation: public sector, SMEs, large companies, charity, healthcare/NHS, external research institution, or UCL research centre. The project will be structured via a series of milestones, where each milestone involves completing a stage of the project: requirements, research into potential solutions, experiments and prototypes, definition of reference design, implementation, testing, and delivery. Each of these stages is to be documented on the projects team website. Each milestone is also a point of assessment. Weekly communications are needed with client, with weekly lab checks and client reports to track the project progress and team working. The final milestone will require teams to deliver a working version of their application, along with a project website documenting the project results. Any publication of results on behalf of the client is seen as an advantage. In addition, each individual will write a technical report assessing the work done, the team members, and reflecting on what they have learnt, in particular the area of technologies they have studied. Each team is allocated a PGTA, who they will meet every teaching week to report on progress and get feedback. In addition, each team has an academic supervisor, who will monitor the overall status of the team, and can provide more specialised support and feedback. The project finishes with delivery of their software to their client in a usable state with a joint code walkthrough, an assessed presentation and demonstration day. Each team will give a presentation of their project to an audience that will include a wide variety of invited guests, including the project client. The taught material will be directly relevant to, and needed for, the project work.

**Requisites:**
In order to be eligible to select this module, a student must be registered on a programme for which it is a formally-approved option or elective choice AND have Object Oriented Programming.