



Programme of Integrated course "Advanced Models for Software Engineering"

This course is composed of 2 Modules: 1) Advanced Modelling Techniques, 2) Advanced Verification and Validation

Programme of Module "Advanced Modelling Techniques"

- Code: DT0318
- Type of course unit: Elective (Master Degree in Computer Science curriculum GSEEM), Elective (Master Degree in Computer Science curriculum NEDAS), Elective (Master Degree in Computer Science curriculum SEAS), Elective (Master Degree in Computer Science curriculum UBIDIS)
- Level of course unit: Postgraduate Degrees
- Semester: 2

Number of ects credits: (Master Degree in Computer Science) 3 (workload 75 hours)

Teachers: Alfonso Pierantonio (Alfonso.Pierantonio@univaq.it)

1	<b>Course objectives</b>	
2	<b>Course content and learning outcomes (dublin descriptors)</b>	
3	<b>Course prerequisites</b>	
4	<b>Teaching methods and language</b>	<b>Language:</b> English
5	<b>Assessment methods</b>	

Programme of Module "Advanced Verification and Validation"

- Code: DT0319
- Type of course unit: Elective (Master Degree in Computer Science curriculum GSEEM), Elective (Master Degree in Computer Science curriculum NEDAS), Elective (Master Degree in Computer Science curriculum SEAS), Elective (Master Degree in Computer Science curriculum UBIDIS)
- Level of course unit: Postgraduate Degrees
- Semester: 2

Number of ects credits: (Master Degree in Computer Science) 3 (workload 75 hours)

Teachers: Vittorio Cortellessa (Vittorio.Cortellessa@univaq.it)

1	<b>Course objectives</b>	This course aims to study advanced concepts in the area of software performance and reliability analysis, such as the ones related to the interpretation of analysis results. The main objective is to achieve a deep knowledge of some of the most recent techniques to address advanced problems in this area.
2	<b>Course content and learning outcomes (dublin descriptors)</b>	Topics of the module include: <ul style="list-style-type: none"> <li>• Introduction to advanced problems in performance and reliability analysis</li> <li>• The backward path : Interpretation of results and generation of feedback</li> <li>• Performance Antipatterns</li> </ul>
3	<b>Course prerequisites</b>	This is a very advanced course in the area of reliability and performance analysis of software systems, so it is assumed that students have already taken a course of performance and reliability basics, as well as a course on advanced software engineering.
4	<b>Teaching methods and language</b>	The course language is English. It includes 48 hours of frontal lectures, which are partitioned in theory (about 50%), exercises and homework discussions (about 50%). <b>Language:</b> English
5	<b>Assessment</b>	There is no formal pre-assessment, apart from Course pre-requisites. Fulfilment of such

**methods**

pre-requisites is verified by formative assessment. The formative assessment is performed via interactions between teacher and students during lectures. Students are aware since the beginning of the Course that they will be involved (in turns) in: Questioning and discussion, by means of open oral questions to the class or to single students; Summative Assessment Group project followed by an optional oral exam. The group project is aimed at: (1) verification of theoretical competences, and in particular of knowledge and comprehension of Course contents; (2) verification of skills in understanding and solving significant problems, and in explaining the proposed solutions, (3) capability of collaborative work. This is aimed at verifying the ability of application of techniques learnt during the Course, of analysis of problems and synthesis of suitable solutions, and of evaluation of alternative solutions. Criteria of evaluation will be: the level of knowledge and practical ability; the property of use of a technical/mathematical language; the clarity and completeness of explanations. The oral exam will occur within one week from the project delivery and will typically cover the areas of the project that need clarification. The oral test takes place for all students. Assessment breakdown: 100% end-of-semester summative assessment.