



Programme of Course "Advanced Service-Oriented Software Engineering"

- Code: DT0289
- 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) 6 (workload 150 hours)

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| 1 | <b>Course objectives</b>   | The students will acquire the knowledge of the main service composition techniques, e.g., orchestration and choreography, and of the development environment available for them. Furthermore, they will learn the main background notions about the development of service transactions.  |
| 2 | <b>Course content and learning outcomes (dublin descriptors)</b> | <p>Topics of the module include:</p> <ul style="list-style-type: none"> <li>• Service composition and business processes</li> <li>• Service orchestration</li> <li>• Service choreography</li> <li>• WS-BPEL: Web service business process execution language</li> <li>• BPMN2 Choreography Diagrams and its constructs and semantics</li> <li>• Service transactions</li> <li>• Distributed transactions</li> <li>• The WS-Coordination model</li> <li>• The CHOReVOLUTION Studio: a development environment to support automated development of service choreographies</li> </ul> <p>On successful completion of this module, the student should :</p> <ul style="list-style-type: none"> <li>• have knowledge about (i) service composition techniques, (ii) orchestration with WS-BPEL; (iii) choreography design and development with BPMN2 Choreography Diagrams; (iv) service transactions; (v) CHOReVOLUTION Studio: an Eclipse-based development environment for choreographies.</li> <li>• be capable of: (i) understanding and representing orchestration and choreographies; (ii) analyzing and implementing service compositions; (iii) analyzing and implementing service transactions; (iv) using the CHOReVOLUTION Studio development environment.</li> <li>• acquire skills to deal with the engineering of real world distributed service-based systems.</li> <li>• explain and illustrate the fundamental notions studied in this course. Demonstrate ability in engineering concrete service compositions.</li> <li>• acquiring competencies and abilities useful in SOA practical contexts.</li> </ul> |
| 3 | <b>Course prerequisites</b>                                      | The students must be well acquired the topics of the course "Service-Oriented Software Engineering"   |
| 4 | <b>Teaching methods and language</b>                             | <p>Face-to-face lectures<br/> <b>Language:</b> English<br/> <b>Reference textbooks</b></p> <ul style="list-style-type: none"> <li>• Michael P. Papazoglou, <i>Web Services &amp; SOA: Principles and Technology (2nd edition)</i>. Pearson. 2012.</li> </ul>  |

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| <b>5</b> | <b>Assessment methods</b> | Practical project/homeworks. |
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