



## COURSE DESCRIPTION

### 1. Information about the programme

1.1 Institution of higher education	Alexandru Ioan Cuza University of Iasi
1.2 Faculty	Faculty of Economics and Business Administration
1.3 Department	Accounting, Business Informatics and Statistics
1.4 Field of study	Business Administration
1.5 Level	Master
1.6 Study programme/ Qualification	Software Development and Business Information Systems

### 2. Information about the course

2.1 Course name	Software Quality Assurance						
2.2 Course coordinator	Prof. dr. Alexandru TUGUI						
2.3 Seminar coordinator	George CHIRILA						
2.4 Year of study	I	2.5 Semester	II	2.6 Type of assessment	P	2.7 Course status	C

\* C – Compulsory / E – Elective

### 3. Total estimated time (hours allotted to teaching activities per semester)

3.1 Number of hours per week	3	of which: 3.2 lecture	2	3.3 seminar/lab	1
3.4 Number of hours in the curriculum	42	of which: 3.5 lecture	28	3.6 seminar/lab	14
Time distribution					
Study of the textbook, coursebook, bibliography and lecture notes					20
Additional research in the library, online and on the field					15
Preparation of seminars/labs, homework, projects, portfolios and essays					50
Tutorials					15
Assessment					8
Other activities.....					0
3.7 Total number of self-study hours					108
3.8 Total number of hours per semester					150
3.9 Number of credits					6

### 4. Prerequisites (if applicable)

4.1 Curriculum-based	DB Administration
4.2 Competence-based	Basic skills of programming

### 5. Conditions (if applicable)

5.1 For lectures	Lecture room should be provided with video projector
5.2 For seminars / labs	Computer lab with SILK; Web Stress, Load Impact, Test IT



## 6. Specific competencies

<b>Professional competencies</b>	<p>C1.4 Selection of the method, methodology, and tools for system analysis, design and test, according to the human, financial and time organizational resources and in conformity with the economic, functional and technical requirements (3.5 credits)</p> <p>C5.2 Development of an organizational framework for the IT projects and services, according to the needs of stakeholders/customers (0.5 credits)</p> <p>C6.4 Manage business processes and related services in organization for a maximum impact on organizational performance (1.0 credits)</p>
<b>Transversal competencies</b>	<p>CT1 – The ability to communicate and collaborate in teams of different professionals (0.5 credits)</p> <p>CT2 – The ability to coordinate project teams and manage informational projects (0.5 credits)</p>

## 7. Course objectives (provided by the specific competencies grid)

<b>7.1. Main objective</b>	The students will become familiar with the concept of Software Quality Assurance and Software Testing
<b>7.2. Specific objectives</b>	<p>On completion of the course, the students will be able:</p> <ul style="list-style-type: none"> <li>• to test unit and system</li> <li>• using the testing documents</li> <li>• to use black and white testing</li> <li>• to manage the process of testing</li> </ul>

## 8. Content

8.1	Lectures	Teaching methods	Observations (hours & readings)
1.	Challenges in the field of Software Quality (1/DG)	PPT Presentation, Interactive discussions	1
2.	What is Software Quality (2/DG)	PPT Presentation, Interactive discussions	1
3.	The components of the Software Quality Assurance System (4/DG)	PPT Presentation, Interactive discussions	2
4.	Integrating quality activities into the life cycle of a project (7 / DG)	PPT Presentation, Interactive discussions	2



5.	Reviews (8/DG)	PPT Presentation, Interactive discussions	2
6.	Testing Software (9/DG)	PPT Presentation, Interactive discussions	4
7.	Implementation of Testing Software	PPT Presentation, Interactive discussions	6
8	Study case: Documents of testing	Working in group of 3 students	6
9	Final Evaluation	Evaluation on team	4

**Bibliography****Main readings:**

Agarwal, B.B., Tayal, S.P., Gupta M. (2010), Software engineering and testing, Jones and Bartlett Publishers

Boehm, B.W. s.a (1978), Characteristics of Software Quality, North Holland Pub.

Dasso, A., Funes, A. (2006), Verification, Validation and Testing in Software Engineering, Idea Group Publishing

Galin, D. (2004), Software Quality Assurance. From Theory to Implementation, Pearson

Schulmeyer, G. (ed.) (2008), Handbook of Software Quality Assurance, Fourth Edition, Artech House,

Jorgensen, P. (1995), Software Testing: A Craftsman's Approach, CRC Press

Voas, J., Miller, K., (1995), Software testability: The new verification. IEEE Software 12(3), 17-28

Riley, T., Goucher, A. (Edts), (2010), Beautiful Testing, O'Reilly Media.

**Additional readings :**

Ian Millington, John Funge , Artificial Intelligence for Games, 2009

Khosrow-Pour, M. (2006), Advanced Topics in Information Resources Management, Vol. 5, Idea Group Publishing

Offutt, J. Untch, R. (2000), Mutation 2000: Uniting the Orthogonal. In Proceeding of Mutation 2000: Mutation Testing in the Twentieth and the Twenty First Centuries, San Jose, CA, pp. 45-55

Paulk, M.C. (1994), Capability Maturity Model, Addison-Wesley

Reilly, F.R., Schwehs, R.P (1999), Valuing Intangible Assets, McGraw-Hill, NY

Sisco, M., IT Management Development Series, MDE Enterprise, 2001

Vliet, H. (2000), Software Engineering. Principles and Practice, John Wiley & Sons, NY

\*\*\* <http://www.secat.com/download/download.shtml>

\*\*\* ISO Standards, Information technology -- Systems Security Engineering -- Capability Maturity Model (SSE-CMM®), <http://www.iso.org>

8.2	Seminars / Labs	Teaching methods	Observations (hours & readings)
1.	Introduction in Automation Testing	Laboratory	2
2.	Basic Elements of Automation Testing. Practice of Programming	Laboratory	4
3.	UI Testing	Laboratory	4



4.	Individual Project of Testing	Laboratory	4
<b>Bibliography</b> Dasso, A., Funes, A. (2006), Verification, Validation and Testing in Software Engineering, Idea Group Publishing Galin, D. (2004), Software Quality Assurance. From Theory to Implementation, Pearson Schulmeyer, G. (ed.) (2008), Handbook of Software Quality Assurance, Fourth Edition, Artech House, Jorgensen, P. (1995), Software Testing: A Craftsman's Approach, CRC Press Voas, J., Miller, K., (1995), Software testability: The new verification. IEEE Software 12(3), 17-28 Vliet, H. (2000), Software Engineering. Principles and Practice, John Wiley & Sons, NY *** <a href="http://www.secat.com/download/download.shtml">http://www.secat.com/download/download.shtml</a> *** ISO Standards, Information technology -- Systems Security Engineering -- Capability Maturity Model (SSE CMM®), <a href="http://www.iso.org">http://www.iso.org</a>			

**9. Corroboration of the course content with the expectations of community representatives, professional associations and representative employers from the programme's related field**

The content of this discipline has been decided upon by taking into account both the curricula of some prestigious Western Universities and the demands of the economic environment provided by potential employers, either in the public or in the private IT companies.

**10. Assessment**

For Assessment			
Type of activity	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in final grade (%)
10.4 Lectures	Theoretical Test and Project	Test	20%
		Rapid Project of Testing	30%
10.5 Seminars/ Labs	Practical Project	Project of Automation Testing	50%
10.6 Minimum performance standard			
Minim grade is 5(five) for every part of evaluation.			

Date

Course Coordinator

Seminar Coordinator

21.09.2020

Prof. dr. TUGUI Alexandru

CHIRILA George

Date of approval

Head of Department

Prof. dr. DUMITRIU Florin