

| Course Title:       | Preparation to certification ISTQB                 |
|---------------------|--|
| Course Code:        | CSE551/1   |
| Program:            | Computer science Engineering                       |
| Department:         | Computer Engineering                               |
| Course coordinator: | Dr. Rim Afdhal                                     |
| Institution:        | Private Higher School of Engineers of Gafsa (ESIP) |

# A. Course Identification

| 1. Credit hours: 3 (1.5-1.5-0)                              |  |
|---|--|
| 2. Course type  |  |
| a. College Department Others                                |  |
| b. Fundamental Transversal Optional                         |  |
| <b>3.</b> Level/year at which this course is offered: 3.1/3 |  |
| 4. Pre-requisites for this course (if any):                 |  |

#### 1. Mode of Instruction (mark all that apply)

| No | Mode of Instruction   | Contact<br>Hours | Self-<br>study | Total workload |
|----|-----------------------|------------------|----------------|----------------|
| 1  | Traditional classroom |                  |                |                |
| 2  | Blended               | 30               |                |                |
| 3  | E-learning            |                  | 22             | 52             |
| 4  | Distance learning     |                  |                |                |
| 5  | Other ()              |                  |                |                |

# 2. Contact Hours (based on academic semester)

| No | Activity                      | <b>Contact Hours</b> |
|----|-------------------------------|----------------------|
| 1  | Lecture <b>Frivee de Gais</b> | 15                   |
| 2  | Laboratory/Studio             | 15                   |
| 3  | Tutorial                      | -                    |
| 4  | Others (specify)              | -                    |
|    | Total                         | 30                   |

### **B.** Course Objectives and Learning Outcomes



#### **Course Description**

This course is designed to help students prepare for the ISTQB Foundation Level certification, a globally recognized qualification in software testing. It covers essential testing principles, methodologies, and best practices, ensuring that students develop a strong foundation in software quality assurance.

Throughout the course, students will learn testing techniques, explore different test types and levels, and work with real-world testing tools. The course also includes practice exams, hands-on exercises, and case studies to simulate the ISTQB exam experience and reinforce key concepts. Course Main Objective

By the end of this course, students will be able to:

- ✓ Understand the key concepts of software testing, including verification, validation, test levels, and test types.
- Master the ISTQB-certified testing processes, including planning, execution, defect management, and reporting.
- ✓ Learn different testing techniques, such as white-box, black-box, exploratory, and risk-based testing.
- ✓ Familiarize themselves with static and dynamic testing methods and their applications.
- ✓ Gain hands-on experience with test management and automation tools (Selenium, JUnit, TestNG).
- Prepare for the ISTQB Foundation Level exam through mock tests, sample questions, and real-world case studies.

|     | CLOs  | Aligned PLOs |
|-----|---|--------------|
| 1   | Knowledge and Understanding   |              |
| 1.1 | Aware with basics and principles related to software testing.   | PLO.K2       |
| 2   | Skills  |              |
| 2.1 | Apply the knowledge of software testing to produce solutions and  | PLO.S2       |
|     | designs that meet specified needs with consideration of society.  | niour        |
| 2.3 | Master the types and the levels of testing.   | PLO.S3       |
| 2.4 | Evaluate and analyze the performance and sustainability of designed<br>and/or existing information systems.     | PLO.S4       |
| 2.5 | Identify the test conditions and design the test cases  | PLO.S5       |
| 2.6 | Represent effectively the basics, principles, and theories related to software testing with other disciplines   | PLO.S6       |
| 2.7 | Design, conduct, analyze, and evaluate practices, projects, and experiments related to software testing issues. | PLO.S7       |

#### 1. Course Learning Outcomes



#### **C.** Course Content

| No | List of Topics   | <b>Contact Hours</b> |  |
|----|--|----------------------|--|
| 1  | Fundamentals of Testing: Why are the tests necessary? Issues<br>and quality, test vocabulary (verification, validation, error,<br>defect, failure), the importance of traceability | 2                    |  |
| 2  | Testing and debugging  | 1                    |  |
| 3  | The 7 general principles of Testing  | 1                    |  |
| 4  | Test during the software development lifecycle   | 1                    |  |
| 5  | Test levels, types of testing  | 2                    |  |
| 6  | Static tests   | 2                    |  |
| 7  | Testing Techniques   | 2                    |  |
| 8  | Test management  | 2                    |  |
| 9  | Defect management  | 1                    |  |
| 10 | Test support tools   | 1                    |  |
|    | Total 15   |                      |  |

# **C** . Practical work Content

| No | List of Topics                                 | <b>Contact Hours</b> |
|----|--|----------------------|
| 1  | Testing and debugging                          | 3                    |
| 2  | Test during the software development lifecycle | 3                    |
| 3  | Testing Techniques                             | 3                    |
| 4  | Defect management                              | 3                    |
| 5  | Test support tools                             | 3                    |
|    | Total  | 15                   |

# **D.** Teaching and Assessment

#### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

| Code   | <b>Course Learning Outcomes</b>  | Teaching<br>Strategies | Assessment Methods               |
|--------|--|------------------------|----------------------------------|
| 1.0    | Knowledge and Understanding  |                        |                                  |
| PLO.K2 | Aware with basics and principles related   | Lacturing              | Assignments, Quizzes             |
|        | to software testing.   | Lecturing              | , Exams,                         |
|        | Skills   |                        |                                  |
| PLO.S2 | Apply the knowledge of software testing<br>to produce solutions and designs that<br>meet specified needs with consideration<br>of society. |                        |                                  |
| PLO.S3 | Master the types and the levels of testing.  | Lecturing              | Assignments, Quizzes<br>, Exams, |



| Code   | Course Learning Outcomes                | Teaching<br>Strategies | Assessment Methods   |
|--------|---|------------------------|----------------------|
| PLO.S4 | Evaluate and analyze the performance    |                        |                      |
|        | and sustainability of designed and/or   |                        |                      |
|        | existing information systems.           |                        |                      |
|        | Identify the test conditions and design |                        |                      |
|        | the test cases                          |                        |                      |
| PLO.S5 |   |                        |                      |
|        | Identify the test conditions and design |                        | Assignments, Quizzes |
|        | the test cases                          |                        | , Exams,             |
| PLO.S6 | Represent effectively the basics,       |                        |                      |
|        | principles, and theories related to     |                        |                      |
|        | software testing with other disciplines |                        |                      |
| PLO.S7 | Design, conduct, analyze, and evaluate  |                        |                      |
|        | practices, projects, and experiments    |                        |                      |
|        | related to software testing issues.     |                        |                      |

#### 2. Assessment Tasks for Students

|   | Assessment task*                 | Week Due | Percentage of Total<br>Assessment Score |
|---|----------------------------------|----------|---|
| 1 | Practical Work (written or oral) | Weekly   | 00%                                     |
| 2 | Quizzes, Homework assignments    | Random   | 00%                                     |
| 3 | Final Exam                       | 11       | 100%                                    |

#### E. Student Academic Counselling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

- Office hours
- Blackboard interface
- Apply projects otherwise.

#### F. Learning Resources and Facilities

1. Learning Resources

| <b>Required Textbooks</b> | 1. ISTQB Foundation Level Syllabus (Latest Version) –<br>International Software Testing Qualifications Board<br>(ISTQB). |
|---------------------------|--|
|---------------------------|--|



|                                       | <ol> <li>Rex Black – ISTQB Certified Tester: Foundation Level<br/>Exam Preparation Guide, 3rd Edition, Rocky Nook,<br/>2020.</li> </ol>  |
|---------------------------------------|--|
| <b>Essential References Materials</b> |  |
| Electronic Materials                  | <ol> <li>ISTQB Official Website – Syllabus, study materials, and<br/>sample exam questions (istqb.org)</li> <li>YouTube Channels (Software Testing Mentor, Testing<br/>Academy, Test Guild)</li> </ol> |
| Other Learning Materials              | https://www.istqb.org/certification-path-root/foundation-level/foundation-level-content.html   |

#### 2. Facilities Required

| Item   | Resources                |  |
|--|--------------------------|--|
| Accommodation                                |                          |  |
| (Classrooms, laboratories, demonstration     | classroom board software |  |
| rooms/labs, etc.)                            |                          |  |
| Technology Resources                         | data shawe               |  |
| (AV, data show, Smart Board, software, etc.) | uata snow;               |  |

# G. Course Quality Evaluation

| <b>Evaluation Areas/Issues</b>                   | Evaluators                            | <b>Evaluation Methods</b> |
|--|---------------------------------------|---------------------------|
| Effectiveness of teaching and                    | Students, course coordinator, Alumni, | Direct/Indirect           |
| assessment.                                      | Employers                             | Direct/indirect           |
| Extent of achievement of course                  | Faculty, Program Leaders, quality     | Direct                    |
| learning outcomes.                               | department                            | Direct                    |
| Quality of Learning resources                    | Faculty, Program Leaders,             | Direct, Indirect          |
| Teaching and learning quality and effectiveness. | Students, Faculty Program Leaders,    | Direct, Indirect          |

# H. Specification Approval Data

| Council / Committee | Computer Engineering Council |
|---------------------|------------------------------|
| Date                | 11/09/2023                   |
|                     |                              |

# Privée de Gafsa