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| Spring 2024 | |
| GENERAL COURSE INFORMATION | |
| Course Code and Title | SWEB300: Software Engineering Fundamentals |
| **Prerequisite** | CSBP 219 |
| **Co-requisite** | None |
| Credit Hours | 3 Hrs |
| Contact Hours | 2 sessions of 75 minute lectures |
| Course Schedule | Lecture, E1 Building, Room 1003: TR:2:00 – 3:45 pm |
| Course Coordinator | Dr. Salah Bouktif, Email: salahb@uaeu.ac.ae |

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| SECTION INFORMATION | |
| Lecture Instructor | Salah Bouktif, Email: salahb@uaeu.ac.ae, Tel: 037135523  Office Location/Hours: MW: 2:00 pm- 3:00 pm  E1 Building, Room 3073, |

**CATALOGUE DESCRIPTION**

SWEB300 covers the basics of software engineering. It introduces the phases of Software Development Life Cycle (SLC), namely, requirements gathering and analysis, design approaches and modeling, and testing. The course discusses also the main software development models and focuses on the object-oriented paradigm, its concepts, its characteristics, and its design principles. The course concludes with a brief introduction to the wide area of Computer Aided Software Engineering (CASE).

**TEXTBOOK & LEARNING RESOURCES**

TEXTBOOK

Bernd Breugge, Allen H Dutoit, *Object-Oriented Software Engineering: using UML, patterns and Java*, 3rd Edition, Pearson, 2014, ISBN 10, 0-13-815221-7,

REFERENCE BOOK

Roger S. Pressman, Bruce R. Maxim, Software Engineering: A Practitioner's Approach, 7th Edition McGraw-Hill, 2015, ISBN 978-0-07-802212-8

OTHERS

Handouts, Videos, Lecture Notes.

**TEACHING & LEARNING METHODOLOGIES**

Lectures, White and Smart Board instructions, discussions, project, teamwork, paper exercises,

**COURSE LEARNING OUTCOMES (CLOs)**

Upon the successful completion of the course, students should be able to:

1. Explain the main concepts of Software Engineering.
2. Outline the fundamentals of software requirements.
3. Identify the software design methodologies.
4. Use different testing methods.
5. Produce a working software prototype.
6. Use CASE tools for design and implementation.

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| **TOPICAL OUTLINE** | |  |  |
| Time Line (Instructional Week) | Topic(s) | **CLOs** | **Course Activities/ Teaching & Learning Methods** |
| Week 1 | Introduction to software engineering (Ch1) | 1,2 | Lecture/Class discussion |
| Week 2 | Software project management and software development models (Ch2) | 1 | Lecture/Class discussion |
| Week 3 | Software Requirements Elicitation (Ch3) | 2 | Lecture/ class discussion |
| Week 4 | Use-Case Modeling and requirement Analysis (Ch4) | 2 | Lecture/Class discussion//exercise session and group work |
| Week 5 | Use-Case Modeling and requirement Analysis (Ch4)/ | 2,5 | Lecture/Class discussion/  teamwork |
| Week 6 | Use-Case Modeling and requirement Analysis Project description | 2,3 | Lecture/Class discussion |
| Week 7 | System Design(Ch5) | 2,3 |  |
| Week 8 | System Design (Ch5) | 3 | Lecture/Class discussion, team work/ exercise session |
| Week 9 | Review and Midterm Exam |  | Lecture/Class discussion, team work |
| Week 10 | Object Oriented Design (Ch6) | 3 | Lecture/Class discussion, team work/ exercise session |
| Week 11 | Object Oriented Design (Ch6) | 5 | Lecture/Class discussion, team work workshop |
| Week 12 | Software Testing (Ch7) | 4 | Lecture/Class discussion, team work/exercise session |
| Week 13 | Software Testing and quality assurance (Ch8) | 4,6 | Lecture/Class discussion, exercise session |
| Week 14 | Case TOOLS (Ch9) | 6 | Lecture/Class discussion, team work CASE tool demonstration |
| Week 15 | Student presentations/ Review before the final exam |  | Student presentation/ discussion/ Lecture |
| Week 16 | Final Exam |  |  |

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| GRADING | | |
| Assessment Methods | Weight | Due Date |
| Quizzes | 25% | One per month |
| Assignments | Completion of requirement analysis, OO design and testing. |
| Term Project | 20% | 15th week |
| Midterm | 20 % | 8/9Th week of instruction. |
| Final | 35 % | 16th week of instruction (As per Banner) |
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| Rubrics | Rubrics will be provided to students for grading their quizzes exams, project deliverables and assignments | |
| Feedback | Feedback on progress in the course will be regularly provided to students to keep them informed and provide them with opportunities to improve their performance. | |

**CLO Assessment Tools**

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|  |  | **Direct** | | | | | **Indirect** |
| **CLO** | **Assignment** | | **Quizzes** | **Project** | **Midterm Exam** | **Final Exam** |  |
| **CLO1** |  | |  |  |  |  |  |
| **CLO2** |  | |  |  |  |  |  |
| **CLO3** |  | |  |  |  |  |  |
| **CLO4** |  | |  |  |  |  |  |
| **CLO5** |  | |  |  |  |  |  |
| **CLO6** |  | |  |  |  |  |  |

**1. Explain the main concepts of Software Engineering.**

**2. Outline the fundamentals of software requirements.**

**3. Identify the software design methodologies.**

**4. Use different testing methods.**

**5. Produce a working software prototype.**

**6. Use CASE tools for design and implementation**

**COURSE POLICIES**

**Attendance**

Students shall be required to attend all classes, practical sessions, seminars and examinations related to the course in which they are registered. A student who misses 15% of the class meetings allotted for a course will receive an “FA” (Fail for Absences) grade in the course. If there is a valid reason for the absence, which has been approved by the Dean in the semester in which the absence occurred, the student will be granted Administrative Withdrawal from the course and will receive a final grade of “AW”. Students are responsible for checking and tracking their attendance records for each course via e-Services. For more details on attendance policies, students ought to consult the university policies at: <http://www.uaeu.ac.ae/en/about/procedures/admissions_and_enrollment/pro-ae_03_en.pdf>.

**Academic Integrity**

Academic integrity is of central importance to education at UAEU. Students have the responsibility to know and observe the requirements of the UAEU Code of Academic Honesty available: <https://www.uaeu.ac.ae/en/catalog/plagiarism_and_academic_integrity.shtml> and the penalties resulting from violation of this code. This code forbids cheating, fabrication or falsification of information, multiple submission of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty. Cheating in any form and on any academic work results in serious penalties that include dismissal from the university.

**Students with Special Needs**

Students with special needs are encouraged to discuss their needs with the course instructor. You need to contact the Special Needs Services Center at +971 3 7134264 or email (disabilityservices@uaeu.ac.ae). All academic accommodations must be arranged through that office: <http://www.uaeu.ac.ae/en/student_services/special_needs/> .

**Student Support Services**

If you need more support, please go to the Student Academic Success Program: http://www.uaeu.ac.ae/en/university\_college/sasp/. This program provides students with academic support services such as Independent Learning Centers (ILCs), Tutorials, Writing & Speaking Centers. All students are encouraged to use these Centers.

**COURSE CONTRIBUTION**

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| **Contribution of CLOs to Programs Learning Outcomes (PLOs)** | | | | | |  |
|  | CLO1 | CLO2 | CLO3 | CLO4 | CLO5 | CLO6 | |
| BSc in CS | PLO11 | PLO2 | PLO3 | PLO3 | PLO11 | PLO9 | |
| BSc in IT | PLO13 | PLO2, PLO3, PLO11 | PLO2,PLO3 | PLO12 | PLO14 | PLO9 | |
| BSc in ISEC |  |  |  |  |  |  | |
| BSc in CE | PLO10 |  | PLO3 |  | PLO11 | PLO11 | |