**Wollo University (KIoT)**
**Department of Software Engineering**

| COURSE Guide Book | | | | | |
|---|---|---|---|---|---|
| **Program** | Regular | | | | |
| **Course Information** | | | | | |
| **Module Name** | Software Management | | | | |
| **Module Number** | 06 | | | | |
| **Course Title** | Software Engineering Tools and Practices | | | | |
| **Course Code** | SEng2052 | | | | |
| **ECTS credit (CP)** | 5 | | | | |
| **Contact Hours** | **Lecture** | **Lab/Practical** | **Tutorial & seminars** | **Home Study** | **Total** |
| | **2** | **3** | **0** | **6** | **11** |
| **Status of the course** | Core | | | | |
| **Pre-requisites** | Object Oriented Programming, Object Oriented SAD | | | | |
| **Academic Year** | 2012 | | | | |
| **Semester** | II | | | | |
| **Target Group** | 2nd year Software Engineering students | | | | |
| **Class Room** | Unspecified | | | | |
| **Instructor Information** | | | | | |
| **Name** | H.Ayenew | | | | |
| **Office** | College of informatics, software engineering office No-204 | | | | |
| **Office [consultation] Hours** | All Wednesday –Friday in working hours | | | | |
| **Address** | E-mail: halimaayenew06@gmail.com | | | | |

**Course Description:**

This course provides an introduction to the software engineering tools and practices - a look at typical approach software engineers use to create applications in practice. Topics include requirements analysis, high-level design, detail-level design, UML modeling, code generation, application building, and revision

management. Laboratory assignments provide an opportunity for students to develop an understanding of these tools and how they are used in actual practice.

**Course Objectives:**

Upon successful completion of this course, the student will be able to:

- Transform requirements documented as use cases into UML design models
- Generate source code from UML design models, and synchronize subsequent changes
- Create user interfaces using a visual design tool
- Maintain source code and related design documents in a revision control system
- Create a deployable software package using an automated build tool
- Track software defects using a change management system
- Be able to create an installable software package using an automated build tool

## Course Contents and Schedule

| Week | Topics | Learning Outcomes Of Each Chapters |
|---|---|---|
| 1 | **1. Chapter 1:Introduction**<br>1.1. Introduction to software engineering<br>1.1.1 What is software<br>1.1.2 Tools in software development<br>1.1.3 Problems in software development<br>1.2. UML and software modeling tools<br>1.2.1 Introduction to UML<br>1.2.2 UML modeling tools<br>1.2.3 Choosing UML case tools | At the completion of this chapter, the student will be able to:<br>• Describe basic concept of software engineering practice<br>• Explain the purpose of software tools in software development<br>• Effectively utilize UML and software modeling tools. |
| 2 | **2. Chapter 2: Code Engineering**<br>2.1. Introduction to code engineering<br>2.2. Reverse engineering<br>2.2.1. Import source code<br>2.2.2. Import source directory<br>2.2.3. Import binary module<br>2.3. Synchronization | At the completion of this chapter, the student will be able to:<br>• Transform UML class diagram to source code<br>• Transform source code to UML class diagram<br>• Synchronized detailed object-oriented design models with changed source code generate java code from an Enterprise Architect class model |
| | **3. Chapter 3: Version Control**<br>3.1. What version is and why we care | At the completion of this chapter, the student will be able to: |

| | | |
|---|---|---|
| 3 | 3.2. Repositories and archives<br>3.3. Checking in and check out archives<br>3.4. Reporting on archives<br>3.5. Branching and merging archives<br>3.6. Security<br>3.7. Writing and Executing Unit Tests using Framework | • Explain why revision control systems are critical to software development<br>• Describe Git's distributed approach for managing conflict<br>• Use Junit to run test class method |
| 4 | **4. Chapter 4: Use Cases And Software Package Creation**<br>4.1. Reading Use Case Scenarios and Use Case Textual Analysis<br>4.2. Software Package creation using Automated tools | At the completion of this chapter, the student will be able to:<br>• Explain the purpose of automated build tools |
| 5 | **5. Chapter 5: High Level And Detailed Design**<br>5.1. High level design<br>5.1.1. requirements coverage<br>5.1.2. communication diagrams<br>5.2. Detailed design<br>5.2.1. Class diagrams<br>5.2.2. Communication diagrams<br>5.2.3. Activity diagrams<br>5.2.4. State diagrams<br>5.2.5. sequence diagrams | At the completion of this chapter, the student will be able to:<br>• identify actors, boundary, entity, and control object<br>• define boundary, entity and control object and draw its symbol |

**Software and hardware requirement.**

**Software:** we will use best software tools for:

- software requirement
- software design
- software construction and
- software testing

**Hardware:** Desktop/laptop

**Course Assessment Methods**

| Continuous Assessment Method | Assessment Date | Weight |
|---|---|---|
| Assignment/test | ---------- | 10% |
| Project | ---------- | 25% |

| | | |
|---|---|---|
| Mid exam | ---------- | 25% |
| Final exam | Final exam schedule | 40% |

**Summary of Teaching Learning Methods**

The teaching-learning methodology will be student-centered with appropriate guidance of instructor/s during the students' activities .There will be Lecture, Demonstrations and Group Discussions

**Course Polices**

All the students are expected to abide by the Wollo University code of conduct of students and senate legislation of the university throughout the course that will be offered.

- **Class Attendance Policy:** A student is required to attend all lecture, laboratory and practical sessions. A minimum of 85 % attendance during lecture sessions is required to sit in exam.
- **Missing Assessment and Late work Policy*:*** So, the students will be sure to pay close attention to deadlines and they aware like there will be no makeup assignments or quizzes, or late work accepted without a serious and compelling reason and instructor approval.

**Prepare by**

Name: H.Ayenew

Signature: _____

**Approved by**

**QA Focal person**

Name::_____

Signature: _____

**Department Head**

Name:_____

Signature: _____