LIMKOKWING UNIVERSITY OF CREATIVE TECHNOLOGY
SIERRA LEONE

Module Outline

Semester: 07
From Jan 2020 to May 2020

SOFTWARE TESTING & RELIABILITY - DCOMP343

MODULE DETAILS

Course Location	: Freetown, Sierra Leone
Department	: Faculty of Information Communication Technology
Program Name	: B Sc (Hons) in Software Engineering with Multimedia
Semester	: 7
Credits	: 3
Status	: Major
No. of weeks	: 14 teaching weeks + 1 Final examination week + 1 week Midterm Break
Teaching Pattern	: Lecture & Tutorial
Pre-requisite	: None
No. of assignments	: 3
Lecturer Name	: Mr. Donaldson D C Jones
Contact email	: donaldson.jones@limkokwing.edu.sl
Principal Lecturer	: Mr Oluwatosin

Prepared by : Mr Donaldson D C Jones

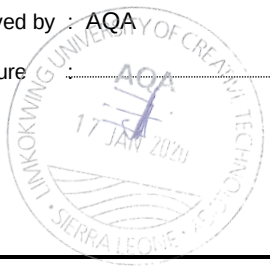
Signature : ..... Date .....

Verified by : Oluwatosin Ayorinde

Signature : ..... Date .....

Approved by : AQA

Signature : ..... Date .....



This document comprises the following:

- Essential Information
- Specific Module Information
- Module Rules & Regulations
- Grades
- Plagiarism
- Module Introduction
- Module Aims & Objectives
- Learning Outcome
- Specific Generic Learning Skills
- Syllabus + Lecture Outline
- References
- Assessment Schedule
- Assessment Criteria
- Specific Criteria

Other documents as follows will be issued to you on an ongoing basis throughout the semester:

- Handouts for Assignments
- Submission Requirements + Guidelines

1.0 ESSENTIAL INFORMATION

- All modules other than electives are **'significant modules'**

- As an indicator of workload one credit carries and additional 2 hours of self study per week. For example, a module worth 3 credits require that the student spends an additional 6 hours per week, either reading, completing the assignment or doing self directed research for that module.

- Submission of ALL assignment work is compulsory in this module, failure to do so a DNS (Did not submit) grade would be awarded. An overall grade of DNC(Did not complete)would be sit for those who fail to submit a major piece of assessment work(major assignment) or sit for either the midterm examination or final examination. A student cannot pass this module without having to submit ALL assignment work by the due date or an approved extension of that date.

- Submission of ALL assignment work is compulsory in this module. A student cannot pass this module without having to submit ALL assignment work by the due date or an approved extension of that date.

- All assignments are to be handed on time on the due date. Students will be penalised 10 percent for the first day and 5 percent per day thereafter for late submission (a weekend or a public holiday counts as one day). Late submission, after the date Board of Studies meeting will not be accepted.

- Due dates, compulsory assignment requirements and submission requirements may only be altered with the consent of the majority of students enrolled in this module at the beginning/early in the program.

- Extensions of time for submission of assignment work may be granted if the application for extension is accompanied by a medical certificate.

- Overseas travel is not an acceptable reason for seeking a change in the examination schedule.

- Only the Head of School can grant approval for extension of submission beyond the assignment deadline.

- Re-submission of work can only receive a 50% maximum pass rate.

- Supplementary exams can only be granted if the level of work is satisfactory **AND** the semester work has been completed.

- Harvard referencing and plagiarism policy will apply on all written assignments.

2.0 SPECIFIC MODULE INFORMATION

- Attendance rate of 80% is mandatory for passing module.

- All grades are subject to attendance and participation.

- Absenteeism at any scheduled presentations will result in zero mark for that presentation.

- Visual presentation work in drawn and model form must be the original work of the student.

- The attached semester program is subject to change at short notice.

3.0 MODULE RULES AND REGULATIONS:

Assessment procedure:

- These rules and regulations are to be read in conjunction with the UNIT AIMS AND OBJECTIVES
- All assignments/projects must be completed and presented for marking by the due date.
- Marks will be deducted for late work and invalid reasons.
- All assignments must be delivered by the student in person to the lecturer concerned. No other lecturer is allowed to accept students' assignments.
- All tests/examinations are compulsory.
- Students must sit the test/examination on the notified date.
- Students are expected to familiarize themselves with the test/examination timetable.
- Students who miss a test/examination will not be allowed to pass.
- Any scheduling of tutorials, both during or after lecture hours, is TOTALLY the responsibility of each student. Appointments are to be proposed, arranged, confirmed, and kept, by each student. Failure to do so in a professional manner may result in penalty of grades. Tutorials WITHOUT appointments will also NOT be entertained.
- Note that every assignment is given an ample time frame for completion. This, together with advanced information pertaining deadlines gives you NO EXCUSE not to submit assignments on time.

4.0 GRADES

All modules and assessable projects will be graded according to the following system. With respect to those units that are designated 'Approved for Pass/Fail' the grade will be either PA or F:

Grade	***Numeric Grade***	***Description***
90 – 100	A+	
85 – 89	A	Pass with Distinction
80 – 84	A-	
75 – 79	B+	
74 – 70	B	Pass with Credit
65 – 69	B-	
60 – 64	C+	
55 – 59	C	Pass
50 – 54	C-, PX, PC	
0 – 49	F	Fail

EXP	Exempted
PC	Pass Conceded
PP	Pass Provisional with extra work needed
PX	Pass after extra work is given and passed
X	Ineligible for assessment due to unsatisfactory attendance
D	Deferred
W	Withdraw
DNA	Did Not Attend Module
DNC	Did Not Complete Module

5.0 PLAGIARISM, COPYRIGHT, PATENTS, OWNERSHIP OF WORK: STUDENT MAJOR PROJECT, THESES & WORKS

See LIMKOKWING, HIGH FLYERS HANDOUT, pg 10.

6.0 MODULE INTRODUCTION

The module aims to provide students with an understanding of software testing and reliability. It covers topics of testing tools, reliability standards, quality assurance to provide students with a background of how software testing and reliability is maintained.

7.0 MODULE AIMS AND OBJECTIVES

- To enable students acquire the necessary knowledge in the area
- To understand that when a piece of software produces results for some input data.
- To taught specific techniques for appropriate data generation
- To learn how to treat a piece of software in order to achieve a high level of reliability.

8.0 LEARNING OUTCOME

Upon completion of the module, student will:

- Understand Concepts and techniques used for testing software
- Understand the techniques for generating and validating test data

9.0 SPECIFIC GENERIC LEARNING SKILLS

Upon completion of the module, student will acquire skills in:

- Quality assurance techniques

10.0 UNIT SYLLABUS + LECTURE OUTLINE:

Week: 1
LECTURE 1: **Overview**

Lecture Synopsis: *Software Qualities*
Dependability Properties
Validation & Verification
Objectives of Software Testing
Testing Terminologies
Classification of Testing Techniques
Testing Tools

Handout: *Module outline, Chapter 1 PowerPoint handouts, Group Project outline. Indicate the date/day and time for the submission of the project.*

Week: 2 - 3
LECTURE 2: **Unit Testing**

Lecture Synopsis: *Fault Model*
Flowgraphs and Path Testing

Handout: *Chapter 2 PowerPoint handouts, Assignment 1 outline*

Week: 4
LECTURE 3: **Category Partition Testing**

Lecture Synopsis: Partition Testing

Handout: *Chapter 3 PowerPoint handouts,*

Week: 5
LECTURE 4: **Data Flow Testing**
Lecture Synopsis: Partition Testing

Handout: *Chapter 4 PowerPoint handouts*

Week: 6
LECTURE 5: **Object Oriented Testing**

Lecture Synopsis: *Terminology*
Encapsulation and Data Abstraction
Inheritance
Polymorphism
Class Testing

Handout: *Chapter 5 PowerPoint handouts*

Week: 7
MID TERM TEST

Week 8

Semester Break

Week: 9
LECTURE 6: **Integration Testing**

Lecture Synopsis:
Integration Testing
Big-bang Testing
Bottom-up Testing
Top-down testing
Sandwich Integration
Coupling Types
System Testing
Acceptance Testing

Handout: *Chapter 5 PowerPoint handouts*

Week: 10
LECTURE 6: **Software Maintenance**

Lecture Synopsis:
Software Maintenance Activities
Regression Testing
Program Slice
Execution Slice
Dynamic Slice
Evaluation Framework

Handout: *Chapter 5 PowerPoint handouts*

Week: 11
LECTURE 6: **Paths and Regular Expressions**

Lecture Synopsis:
Path
Loops
Operation Analysis

Handout: *Chapter 5 PowerPoint handouts*

Week:	12
LECTURE 6:	**Syntax Testing / State Testing**
Lecture Synopsis:	*Validation* *Test Design* *State based Testing*
Handout:	*Chapter 5 PowerPoint handouts*

Week:	13-14
LECTURE 6:	**Testing Web-based and Component – based Software**
Lecture Synopsis:	*Web vs Traditional Client Server System* *User Interface* *Functional Test* *Integration Testing* *Functional Tests* *Database Test* *Performance, Load and stress tests* *Work Load* *Web Security concerns*
Handout:	

Week:	15
REVISION WEEK	

Week:	16
FINAL EXAMINATION WEEK	

11.0 REFERENCES

1. Ron Patton, Software Testing, 2nd Edition, Sams, 2005
2. Rick D Craig, Stefan P Jaskiel, Systematic Software Testing, Artech House Publisher, 2002
3. Marnie L. Hutcheson, Software Testing Fundamentals: Methods & Methods, 1st Edition, Wiley, 2003

12.0 ASSESSMENT SCHEDULE

ASSIGNMENT DESCRIPTION	ISSUE DATE	DUE DATE	%
INDIVIDUAL ASSIGNMENT	WEEK 2	WEEK 4	10%
MAJOR PROJECT	WEEK 2	WEEK 12	25%
MID SEMESTER TEST	WEEK 7	WEEK 7	20%
FINAL EXAMINATION :	WEEK 15	WEEK 15	40%
ATTENDANCE			5%
TOTAL			**100%**

13.0 ASSESSMENT CRITERIA

Process of grading and criteria used to determine the grades, passes and high distinctions.

14.0 SPECIFIC CRITERIA

- Each assignment will be handed out with the project brief and will vary, depending on the teaching and learning objectives of the specific assignment.
- Each student will receive a completed assessment sheet back with their marks, thereby giving student feedback on each set criterion and the project as a whole.
- Marks for each project will be posted on the Bulletin Board with student number within 2 weeks of hand-in date.