#### **UG Detailed Syllabus Template**

# **Software Testing and Project Management**

Course Code	21CS61	Course type	BSC	Credits L-T-P	3-0-0			
Hours/week: L - T- P	3-0-0			3-0-0			Total credits	3
Total Contact Hours	L = 40 Hrs; T = 0 H Total = 40 Hrs	rs; P = 0 Hrs	CIE Marks	100				
Flipped Classes content	10 Hours	SEE Marks	100					

	Course learning objectives						
1.	To introduce the terminology, testing, test-case, pseudo-codes algorithms /flowcharts of Triangle, Next Date & Commission programs.						
2.	To develop the skill of analyzing the Triangle, Next Date & Commission programs, with the						
	perspective of Boundary Value Analysis, Equivalence Class Testing paradigms.						
3.	Prepare test cards to measure project performance accomplishing specified requirements.						
4.	Evaluate software quality based on industry perspectives and relevant versions.						

Pre-requisites: Software Engineering, Graph Theory, C Programming

Unit – I Contact Hours = 8 Hours

#### A perspective on Testing

Basic definitions, Test cases, Insights from Venn diagram, Identifying Test Cases, Error and fault taxonomy, Levels of Testing.

**Examples:** Generalized pseudocode, The Triangle problem, The Next Date function, The Commission Problem, The SATM (Simple Automatic Teller Machine) system, The currency convertor, Saturn Windshield Wiper Controller.

Unit – II Contact Hours = 8 Hours

#### **Boundary Value Testing**

Boundary Value Analysis, Robustness Testing, Worst Case Testing, Special Value Testing, Examples, Random Testing, Guidelines for Boundary Value Testing.

Case Study: Analysis of Banking application using Boundary Value Analysis

Unit – III Contact Hours = 8 Hours

### **Equivalence Class Testing:**

Equivalence classes, Equivalence Class Test Cases for the Triangle Problem, Equivalence Class Test Cases for the NextDate Function, Equivalence Class Test Cases for the Commission Problem, Guidelines and Observations.

Case Study: Analysis of Amazon E-Commerce application by using Equivalence class testing.

Unit – IV Contact Hours = 8 Hours

**Project management:** Risk management, Managing people, Teamwork

Configuration management: Change management, Version management, System building, Release

management

Case study: GitHub

Unit – V Contact Hours = 8 Hours

**Project Planning**: Software pricing, Plan-driven Development: Project Plans, Planning process, Project scheduling: Schedule Representation, Agile Planning, Estimation techniques: Algorithmic Cost Modeling. The COCOMO II Model. Project Duration and Staffing.

### **Flipped Classroom Details**

Unit No.	I	II	III	IV	V
No. for Flipped	1	2	2	2	1
Classroom Sessions					

	Books							
	Text Books:							
1.	Paul C. Jorgensen: Software Testing, ACraftsman's approach, 3 <sup>rd</sup> Edition, Auerbach Publications, 2008.							
2.	Ian Sommerville: Software Engineering, Pearson Education, 9 <sup>th</sup> Edition onwards.							
	Reference Books:							
1.	Aditya P. Mathur: Foundations of Software Testing, Pearson Education, 2008.							
2.	Srinivasan Desikan, Gopalaswamy Ramesh, : Software Testing Principles and Practices, 2 <sup>nd</sup> Edition, Pearson Education, 2007.							
	E-resources (NPTEL/SWAYAM Any Other)- https://onlinecourses.nptel.ac.in/							
1.	https://onlinecourses.nptel.ac.in/							
2.								

	Course delivery methods	Assessment methods			
1.	Chalk and Talk	1.	IA tests		
2.	PPT and Videos	2.	Online Quizzes (Surprise and Scheduled)		
3.	Flipped Classes	3.	Open Book Tests (OBT)		
4.	Online classes	4.	Course Seminar		
		5.	Semester End Examination		

## Course Outcome (COs)

At the end of the course, the student will be able to (Highlight the **action verb** representing the learning level.)

Lea	rning Levels: Re - Remember; Un - Understand; Ap - Apply;	Learning	PO(s)	PSO(s)	
An -	Analysis; Ev - Evaluate; Cr - Create	Level	PO(S)	F30(S)	
1.	<b>Define</b> the test case, testing and error taxonomy.	Re	1	1	
2.	<b>Illustrate</b> Test Cases for Triangle, Next Date and Commission Problem for Boundary Value Analysis.	Un	2	1	
3.	<b>Design</b> Test Cases for Triangle, Next Date and Commission Problem for Equivalence Class Testing.	Ар	3	2	
4.	<b>Prepare</b> Test cards and Project schedule models for the given scenarios.	Ар	3	2	

Scheme of Continuous Internal Evaluation (CIE):

eme of continuous internal Evaluation (CIE).									
Components	Addition of	Online Quiz	Addition of two	Course	Total				
Components	two IA tests	Offilitie Quiz	OAs/ Course project	Seminar	Marks				
Marks	25+25 = 50	4* 5 marks = 20	10+10 =20	10	100				

## **OBA - Open Book Assignment**

Minimum score to be eligible for SEE: 40 OUT OF 100

Sch	Scheme of Semester End Examination (SEE):							
1.	It will be conducted for 100 marks of 3 hours duration.							
2.	Minimum marks required in SEE to pass: Score should be $\geq$ 35%, however overall score of CIE + SEE should be $\geq$ 40%.							
3.	Question paper contains 3 parts - A,B & C, wherein students have to answer any 5 out of 7 questions in part A, 5 out of 10 questions choosing 1 question from each unit in part B & 1 out of 2 questions in part C.							

Rubrics:Levels	Target
1 (Low)	60% of the students score Less than 50 % of the total marks.
2 (Medium)	60% of the students score 50 – 70 % of the total marks.
3 (High)	60% of the students score More than 70 % of the total marks.

CO-PO Mapping (Planned)										CO-PSO Mapping					
	CO-PO Mapping (Planned)										(	Planned	I)		
-	PO								PSO	PSO	PSO				
СО	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	٧												٧	٧	
2		٧													
3			٧												٧
4				٧											
5															

Name & Signature of Faculty members involved in designing the syllabus

Name & Signature of Faculty members verifying/approving the syllabus