F-7-16

Unit Code:	BSD 213
Unit Title:	BBIT OBJECT ORIENTED SOFTWARE DESIGN METHODS
Program(s):	Bachelor of Business Information Technology Bachelor of Business Information Technology
Lecturer Name:	MR. SIMON CHEGE
Pre-requisites	BIT 124
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Consultation Hours	Wednesday 3-5 pm & Thursday 2-5pm

UNIT PURPOSE/DESCRIPTION

The object-oriented paradigm assists the programmer to address the complexity of a problem domain by considering the problem not as a set of functions that can be performed but primarily as a set of related, interacting Objects. The modeling task then is specifying, for a specific context, those Objects (or the Class the Objects belongs to), their respective set of Properties and Methods, shared by all Objects members of the Class. For more discussion, see object-oriented analysis and design and object-oriented programming. The description of these objects is a schema. Many notations have been proposed, based on different paradigms, diverged, and converged in a more popular one known as UML. An informal description or a Schema notation is translated by the programmer or a CASE tool in the case of Schema notation (created using a Module specific to the CASE tool application) into a specific programming language that supports object-oriented programming (or a Class Type), a declarative language or into a database schema.

EXPECTED LEARNING OUTCOMES

By the end of the course unit, the learner will be able to:

1. Describe the importance, aims and principles of Object Oriented Modelling.
2. Describe UML and Conceptual model of the UML (Things, Diagrams and Relationships)
3. Describe the classes and relationships, advanced classes, advanced relationships.
4. Describe the notations of UML diagrams (use case, class diagrams, Sequence and collaborations, Activity diagrams, package and deployment diagrams)
5. Discuss how to design models and UML diagrams based on the system and user requirements

COURSE SYLLABUS AND SCHEDULE

Week	Topic	Sub-Topic
1	Student reporting and registration	
2	Introduction to OO systems analysis and design.	• OO Approach (Overview) • System design methodologies • (Overview) • Definitions-Objects & Classes • types of classes (boundary, control and entity classes) • Characteristics of Objects- state, behavior, identity

3	Introduction to OOSAD (hallmarks of OO)	• Inheritance • Data abstraction and encapsulation • Polymorphism • Message passing. • Objects identification using scenarios • OO process- inception, elaboration, construction,
4	UML overview. Use case modeling	• Overview of Modeling –notations and standards • UML (Unified Modeling Language) • Use Cases • Assignment 1
5	CAT	CAT 1
6	Class diagrams	• Concepts and Notation • Class modeling process • Identity relationships inheritance, association, aggregation/composition) • Identity attributes and methods/operations
7	Class Diagrams	• Drawing class diagrams from scenarios/text descriptions/case studies
8	Interaction Diagrams (Sequence diagrams)	• interaction diagrams concepts and Notation • drawing sequence diagrams from scenarios/case studies
	CAT	CAT 2
9	Interaction diagrams (Collaboration diagrams)	• Interaction Diagrams • Drawing State Diagrams from scenarios/case studies
10	Activity diagrams	• Activity diagrams concepts and notation • Activity diagram from scenarios/case studies • Assignment 2
11	Component diagrams and Package diagrams	• Component Diagrams and package diagrams concepts and notation • Drawing component diagrams and package diagrams from scenarios
12	Deployment Diagrams	• Deployment diagram concepts and notation • Drawing deployment diagrams from scenarios/case studies
13	Emerging Trends, Technologies and Applications.	• Trends in object oriented techniques • CASE tools
14		• REVISION

TEACHING/LEARNING METHODOLOGY

1. Lectures demonstration of varied concepts and skills for object oriented techniques
2. Guided group research and practice of the skills
3. Discussion of possible different scenarios and case studies and how draw diagrams
4. Engaging students toward evaluating and developing solutions/diagrams from scenarios/case studies

INSTRUCTIONAL MATERIALS

These will include: Tablet, Smart board, LCD projector & Computers, Flipcharts, televisions, videos

MODE OF DELIVERY

Lectures and tutorials, Group discussion, Demonstration, Individual assignment, Case studies

ASSESSMENT CRITERIA

Assessment Type	*Frequency*	*Percentage*
Assignment/presentation	*2*	*10%*
CATs	*2*	*20%*
Final Examination	*1*	*70%*
Total		*100%*

REFERENCE TEXTBOOKS

Course Textbooks

Bennett, Simon ; Skelton, John; Lunn, Ken, Schuam's Outline of UML. 5TH Edition, New York: McGraw-Hill, 2011.
McLaughlin, B., Pollice, G., & West, D. (2007). Head First Object-Oriented Analysis and Design: A Brain Friendly Guide to OOA&D. " O'Reilly Media, Inc.".

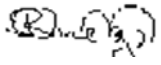
Reference Textbooks

Stevens, Perdita, Using UML: Software Engineering with Objects and Components, 5nd Edition, Harlow, England: Addison-Wesley, 2013.
Satzinger, John & Orvik, Tore U. The Object-Oriented Approach: Concepts, System Development, and Modeling with UML, 2nd Edition, Australia: Course Technology, 2001

Course Journals

- Various applicable manuals and journals;
- Variety of electronic information resources as prescribed by the lecturer.

Approval for circulation by:

Unit lecture name: ……SIMON CHEGE…….. **Signature: ……** 

HOD name: …… **Signature: …….**