New York City College of Technology/CUNY
Computer Systems Technology Department
CST3606- OBJECT-ORIENTED SYSTEMS ANALYSIS AND DESIGN
(2 class hours, 2 lab hours, 3 credits)

Course Description:

In this course the students will learn the object-oriented tools and techniques used by modern day system analysts to perform systems development. It will cover: (1) the differences between object-oriented and structured methods, (2) the principles of objects and object-oriented concepts, (3) an incremental and iterative (agile) approach to systems development and the UML(Unified Modeling Language) notation, (4) object-oriented modeling diagrams, (5) object-oriented methodologies, (6) and managing an object-oriented project. Practical examples will be used to demonstrate object-oriented concepts and methods. Hands on experience in solving a business problem using object-oriented techniques will be provided by working on projects in a team environment.

Course Objectives:

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

1. Discuss, in intelligent conversation, the object-oriented techniques and tools used for system analysis and design.
2. Apply the OO systems development methodology to real life business problems.
3. Apply the UML to solving an information systems problem.
4. Be able to read and understand the OO information models and what they represent.
5. Apply techniques for client communication to gather requirements for system development.
6. Apply computer-aided systems engineering (CASE) technology for information modeling.
7. Be able to read, understand, and construct the various diagrams prescribed by the UML.

Prerequisite – CST3513 Object-Oriented Programming.

Required Textbook

Ambler, Scott W, - **The Object Primer: Agile model-driven development with UML 2.0.,** 3rd Edition. Cambridge University Press, 2004. ISBN 13 978-0521-54018-6

Attendance Policy:
Attendance is expected at every class meeting. College policy sets that a student may be absent without penalty for 10% of the number of scheduled class meetings during the semester as follows:

Class meets	**Allowable Absence**
1 time/week	2 classes
2 times/week	3 classes
3 times/week	4 classes

Academic Integrity Policy:
Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.

Grading Procedure:

	Value
Final	40%
Tests	30%
Projects	30%
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Total	100%

Letter Grade	A	A-	B+	B	B-	C+	C	D	F
Numerical Grade	93-100	90-92.9	87-89.9	83-86.9	80-82.9	77-79.9	70-76.9	60-69.9	<=59.9

COURSE OUTLINE

Meeting	Topic to be Covered	Reading
1	A basic Overview of modern development technologies	Chapter 1
2	Object-Oriented Concepts	Chapter 2
3	Continued	Chapter 2
4	Full Lifecycle Object-Oriented Testing(FLOOT).	Chapter 3
5	Continued	Chapter 3
6	Agile Modeling Driven Development (AMDD).	Chapter 4
7	Usage Modeling. An overview of usage modeling techniques.	Chapter 5
8	Continued Project on FLOOT and AMDD	Chapter 5
9	**TEST 1**	
10	User Interface Development (UID).	Chapter 6
11	Continued	Chapter 6
12	Supplementary Requirements (SR).	Chapter 7
13	Continued	Chapter 7
14	Conceptual Domain Modeling (CDM).	Chapter 8
15	Continued Project on UID, SR and CDM.	Chapter 8
16	**TEST2**	
17	Process Modeling (PM).	Chapter 9
18	Continued	Chapter 9
19	Agile Architecture (AA).	Chapter 10
20	Continued	Chapter 10
21	Dynamic Object Modeling (DOM).	Chapter 11
22	Continued Project on PM, AA, and DOM.	Chapter 11
23	**TEST3**	
24	Structural Design Modeling (SDM).	Chapter 12
25	Continued	Chapter 12
26	Agile Object Programming Techniques (AOPT).	Chapter 13
27	Continued	Chapter 13
28	Agile Database Development Techniques (ADDT).	Chapter 14
29	Continued Project on SDM, AOPT, and ADDT.	Chapter 14
30	**Final**	

Projects and Lab work

The projects will be hands on assignments analyzing typical business cases where the goal is to develop information systems requirements to meet business needs. VISIO and System Architect both general purpose modeling and graphics tools will be used to draw process models, structural design models and dynamic object models.

Assessment Criteria:

For the successful completion of this course a student should be able to:	Evaluation methods and criteria
1. Demonstrate an understanding of systems analysis and design concepts that exceeds rote memorization and mechanical application.	1. Examinations will be used to assess this level of learning
2. Demonstrate the application of information modeling tools, techniques, and technology.	2. Assignments problems will be used to assess this level of learning
3. Apply concepts and techniques to the solution of unstructured business problems	3. Projects will be used to assess this level of learning

Bibliography

1. Hoffer, Jeffrey A., George, Joey F., Valacich, Joseph S. Modern Systems Analysis and Design, 6th Edition. Prentice Hall, 2011, ISBN-13: 978-0-13-608821-9

2. Whitten, Jeff, Bentley, Lonnie. Systems Analysis and Design Methods, 7th Edition. McGraw-Hill 2007, ISBN-13: 978-0-07-305233-5

3. Larman, Craig, Applying UML and Patterns, 2nd Edition. Prentice Hall, 2002. ISBN#0-13-748880-7

4. Dennis, Alan, Wixom, Barbara Haley, Tegarden, David. Systems Analysis & Design An Object-Oriented Approach with UML, John Wiley & Sons, 2002. ISBN# 0-471-41387-9

5. Ambler, Scott W. The Object Primer, Cambridge U. Press. 2001. ISBN# 0-521785-19-7