



COURSE SYLLABUS

1. **COURSE TITLE**

Object-Oriented Programming

2. **COURSE CODE**

COMP2013

3. **PRE-REQUISITE**

Nil

4. **CO-REQUISITE**

Nil

5. **NO. OF UNITS**

3

6. **CONTACT HOURS**

42

7. **OFFERING UNIT**

Computer Science and Technology Programme & Data Science Programme, Division of Science and Technology

8. **SYLLABUS PREPARED & REVIEWED BY**

Prepared by: Dr. Louis TANG

Reviewed by: Dr. Weifeng SU

9. **AIMS & OBJECTIVES**

This course introduces object-oriented programming concepts, principles, and techniques, including classes, objects, inheritance, and polymorphism. All concepts are illustrated via a contemporary object-oriented programming language.

10. **COURSE CONTENT**

- 1) Introduction to Java
- 2) Classes



- 3) Interfaces
- 4) Inheritance
- 5) Java Collection Framework
- 6) Object-Oriented Design
- 7) Iterators
- 8) Comparators
- 9) Java Swing
- 10) Exceptions
- 11) Streams
- 12) Threads

11. COURSE INTENDED LEARNING OUTCOMES (CILOS) WITH MATCHING TO PILOS

For CST students:

Programme Intended Learning Outcomes (PILOs)

Programme Title: Bachelor of Science (Honours) in Computer Science and Technology	
PILO	Upon successful completion of the Programme, students should be able to:
PILO 1	analyse the basic principles of computer science and technology;
PILO 2	translate real world problems into IT requirements;
PILO 3	design and develop complex software;
PILO 4	apply up-to-date technology to solve general problems in specific areas;
PILO 5	communicate effectively and collaborate in a team.

CILOs-PILOs Mapping Matrix

Course Code & Title: COMP2013 Object-Oriented Programming		
CILO	Upon successful completion of the course, students should be able to:	PILO(s) to be addressed
CILO 1	Explain the conceptual framework of object-oriented programming	PILO 1
CILO 2	Programme in JAVA to enable the solution of non-elementary programming tasks	PILOs 3,5

For DS students:

Programme Intended Learning Outcomes (PILOs)

Programme Title: Bachelor of Science (Honours) in Data Science

PILO	Upon successful completion of the Programme, students should be able to:
PILO 1	Describe and explain the fundamental knowledge required to support the study and applications of Data Science;
PILO 2	Competently apply a wide range of programming concepts to software development in data collection and analysis;
PILO 3	Formulate novel methods in data information gathering and analysis to solve real world problems;
PILO 4	Collaborate and function effectively in team work with proficient communication and effective interpersonal skills;
PILO 5	Stay abreast of contemporary issues in Data Science and develop life-long effective learning skills to meet the needs of the Data Science discipline.

CILOs-PILOs Mapping Matrix

Course Code & Title: COMP2013 Object-Oriented Programming		
CILO	Upon successful completion of the course, students should be able to:	PILO(s) to be addressed
CILO 1	Explain the conceptual framework of object-oriented programming	PILOs 1,2
CILO 2	Programme in JAVA to enable the solution of non-elementary programming tasks	PILO 2

12. TEACHING & LEARNING ACTIVITIES (TLAS)

CILO No.	TLAs
CILO 1	<ul style="list-style-type: none"> ● Lecture: The instructor will explain the course material in detail. And students will be given extensive well-designed study cases during the class to help them understanding the concepts of OOP. ● Assignment: Student will be given some exercises during the class and after class. As for the class exercise, students will present their solution to the class. And there will be a short discussion after that. As for the exercises after class, students need to submit their answer to lecturer. ● Hands-on practice: The instructor will arrange tutorials in labs where each student can practice OOP programming skill.



CILO No.	TLAs
CILO 2	<ul style="list-style-type: none">● Hands-on practice: Students will be given hand-on experiences on how to implement a medium-sized system on their desktop in the way of OOP. This system is elaborately designed by the instructor, and will be divided into different phases. And students will be supervised to finish the whole project step by step.● Project: Students will be working in teams to implement a free project wherein students need to cooperate with each other to propose a new idea, analysis their problem, design a solution in the way of OOP, and implement their solution in JAVA programming language.

13. ASSESSMENT METHODS (AMS)

Type of Assessment Methods	Weighting	CILOs to be addressed	Description of Assessment Tasks
Programming Exercise	15%	1	Exercise will give students the hand on experience to solve some simple programming task.
Programming Assignment	20%	1	Assignment will give students the hand on experience to implement some medium-sized programming task. Compared with exercise, the knowledge required in the assignment will be more broad and comprehensive.
Project	25%	2	This project aims to assess the major learning outcomes achieved by students upon completion of the course.
Quizzes	10%	1-2	Quizzes will test and reward the students' understanding of concepts on object-oriented programming
Final Examination	30%	1-2	This final examination aims to assess the major learning outcomes achieved by students upon completion of the course.

14. TEXTBOOKS / RECOMMENDED READINGS

TEXTBOOK:

Nil

RECOMMEND READINGS:

- [1] Jeffrey M. Lemm, Sahra Sedigh, Object Oriented Languages, Academic, 1991.
- [2] Peter Coad, Object-Oriented Programming, Prentice Hall, 1993.
- [3] Stephen R. Schach, Object-Oriented Software Engineering, McGraw-Hill Europe, 2007.
- [4] Dale John Skrien, Object-Oriented Design using Java, McGraw-Hill Higher Education, 2008.
- [5] Elliotte Rusty Harold, Java Network Programming, O'Reilly Media, 2004.
- [6] Sarang Poornachandra, Java 7 Programming, Oracle, 2012.
- [7] David A. Turner, Jinseok Chae, Java Web Programming with Eclipse, Createspace, 2010.
- [8] Daniel Selman, Java 3D Programming, Manning, 2002.
- [9] Ken Arnold, James Gosling, David Holmes, The Java Programming Language, Addison Wesley, 2005.
- [10] James Gosling, Bill Joy, Guy L. Stelle Jr., The Java Language Specification, 3rd Edition, Addison-Wesley Professional, 2005.

15. MEDIUM OF INSTRUCTION (MOD)

English

Revised on: <2017-07-03>