Object-oriented Programming and Practice

Course Name	Course type (credit/hours)	Required course(4/5)		Course code	F073
	Target students Division/major/grade	Software and Computer Engineering/Sophomore		Opening semester	2019 1ST SEMESTER
	Class time and classroom	Tue 16:30~18:00 (Pal409)Wed 1(Pal328) Wed 2(Pal328)Thu 15:00~16:30 (Pal409)		English Grade	A(100%English)
Reference to this course	Prerequisite courses	C Programming			
	Related basic courses	Data structure			
	Recommended concurrent courses	Algorithm			
	Related advanced courses	Parallel and Distributed Programming			
Instructor	Name (title/division)	Yenewondim Biadgie.S(Assistant Professor, Software and Computer Engineering)			
	Office Room Number	Paldal Hall:1011	Office phone Number	3857	e-mail
	Office hours		Homepage address		
Teaching Assistant	Name (title/division)				
	Office Room Number		Office phone Number		e-mail

1. Introduction

? This course uses java programming language as vehicle to take you to a journey through the world of object-oriented programming paradigm. The course covers fundamental concepts object-oriented programming paradigm, namely, class, object, Interface, data encapsulation, hierarchical class Inheritance, hierarchical class polymorphism and generic programming. The course also coverers standard java Application Programming Interfaces such as Exception Handling API, Graphical User Interface API(GUI), Collection Framework, File Stream API. The course has laboratory session to apply learned theories in practice.

2. Course Objectives

At the end of the course, students will be able to
 ? Know the fundamental concepts and principles of object-oriented programming paradigm
 ? Design and implement java-based software by applying the basic principles of object oriented programming

3. Class types and activities

During lecture time, the fundamental concepts of object-oriented programming paradigm are covered. Students are encouraged to participate actively by asking questions and by answering questions. During practical session, students design and implement software using object-oriented programming style. Students are supposed to spend considerable amount of time by doing programming projects to understand this course.

4. Teaching Method

[V] lecture

[ ] discussion and debate

[ ] team project(presentation and case studies)

[ ] experiments(role-playing,etc)

[ ] designing and production

[ ] on-site learning(on-site training)

[ ] others

5. Support Systems in Use

[V] AjouBb

[ ] automatic recording system

[ ] web-based assignment

[ ] cyber lecture

[ ] online content

[ ] class behavior analyazing system

[ ] others

6. Teaching Tools

[V] PBL(Problem Based Learning)

[ ] CBL(Case Based Learning)

[ ] TBL(Team Based Learning)

[ ] UR(Undergraduate Research)

[ ] FL(Flipped Learning)

[ ] DSAL(Data Science Active Learning)

[ ] others

7. Knowledge and ability required for taking this course

8. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance		5	
midterm exam	1	30	
final exam	1	30	
quiz			
presentation			
discussion			
homework	2	15	Programming Assignment
etc	14	20	Lab Session
study hours			

9. Textbook and supplementary material

Main/Sub	Title (Web-site)	Writer	Publisher	Publication year
Main	Core Java, Volume I,11th ed	Cay S. Horstmann	Prentice Hall	2016
Ref.	Java How to program early objects (10th ed.)	Paul Deitel and Harvey Deitel	Pearson	2015
Ref.	Head First Java, 2nd ed	Kathy Sierra and Bert Bates	Oreiley	2005
Ref.	Java API documentation			

10. Class system and Class shedule

In the beginning of the course, concepts of algorithms, mathematical induction, and asymptotic analysis of an algorithm are taught. Algorithm design techniques follow including dive-and-conquer, dynamic programming, greedy method, and iterative improvements. Then students will learn problems that do not have efficient algorithms (NP-hard problems), and how to cope with such problems.

* language : K-korean, E-English

< Class Schedule >

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
1	Introduction to object-oriented programming paradigm	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
2	Fundamental programming structures of java	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
3	Objects and classes in java	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
4	Objects and classes in java	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
5	Inheritance and polymorphism	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
6	Inheritance and polymorphism	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
7	Interfaces and Lambda Expression	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
8	Midterm Exam	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
9	Inner class	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	

< Class Schedule >

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
10	Exception Handling	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
11	Generic programming	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
12	Collection Framework API	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
13	GUI Application	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
14	GUI API Application	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
15	File Stream	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	
16	Final Exam	E	Yenewondim Biadgie.S	Multimedia based lecture, active participation, and discussion	Programming projects, paper-based mid and final exam	

11. Other items of notification