COURSE SYLLABUS

OBJECT-ORIENTED PROGRAMMING

Course code: 220099

1. General information

Course type		*Number of credits*	*Number of learning periods*
General	☐	Theory: 02 Exercise: Practice: 01	Theory: 30 Exercise: Practice: 30
Basic	☑		
Specialized	☐		
Required	☑		
Elective	☐		

***Learners*:**

Level	Bachelor
Discipline	Information Technology

Course requirements:

Prerequisites	Programming Techniques
Parallels	None
Other requirements	None

2. Learning resources

Books	[1] Đoàn Văn Ban (2005). *Lập trình Hướng đối tượng với Java*. NXB Khoa học và Kỹ thuật [2] Wu, C. T. (2006). *An Introduction to object-oriented programming with Java TM*. McGraw-Hill Incorporated.
References	[3] Nguyễn Nhứt Lam (2014*). Lập trình Hướng đối tượng (internal use only)*. Trường Đại Học Trà Vinh [4] Phạm Văn Ất (1999). *C++ và lập trình hướng đối tượng*. NXB Khoa học và Kỹ thuật [5] Holmes, B. J., & Joyce, D. T. (2001). *Object-oriented programming*

	with Java. Jones & Bartlett Learning. [6] Decker, R., & Hirshfield, S. (1999). *Programming Java: An Introduction to Programming Using Java*. Brooks/Cole Publishing Co.
Other learning materials	[7] Websites: 1. https://www.w3schools.com/java/java_oop.asp 2. https://www.javatpoint.com/java-oops-concepts 3. https://www.java.com/ 4. https://www.eclipse.org

3. Course description

The course provides students basic principles of object-oriented programming e.g., classes and objects. The course will help students to understand the structure of a Java program, basic Java statements, exception handling, and concepts of inheritance and polymorphism. Students will be able to design and implement real applications using the object-oriented programming method. Additionally, the course develops students' appropriate awareness of important soft skills, e.g., group working and communication, and attitudes on the role of Information Technology engineers.

4. Course learning outcomes (CLOs)

After finishing the course, students will be able to:

		Satisfy LOs of the program	***Satisfy LOs of the ABET***
❖ **Topic 1: Disciplinary Knowledge and Reasoning**		*1.2.1* *1.2.2*	***B.1.1*** ***B.1.2*** ***B.1.4*** ***B.1.5***
L1.	Present the overview of object-oriented programming		
L2.	Implement exception handling		
L3.	Implement class methods		
L4.	Design programs with the object-oriented paradigm		
L5.	Unitize inheritance and polymorphism		
❖ ***Topic 2: Personal and Professional Skills and Attributes***			
L6.	Thinking Holistically	*2.3.1*	
❖ ***Topic 3: Interpersonal Skills: Teamwork and Communication***			

L7.	Team operation	*3.1.2*	
L8.	Team Leadership	*3.1.4*	
L9.	Technical and Multidisciplinary Teaming	*3.1.5*	
❖ ***Topic 4: Conceiving, Designing, Implementing and Operating Systems in The Enterprise, Societal and Environmental Context – The Innovation Process***			
L10.	Understanding Needs and Setting Goals	*4.2.1*	

5. Course content:

Course content	***CLOs***	***Number of learning periods***		
		Theory	***Practice***	***Others***
Chapter 1. Introduction to object-oriented programming	***L1***	**04**	**0**	
1.1. Programming approaches				
1.2. Basic concepts of object-oriented programming				
1.3. Object oriented programming languages				
☑ ***Personal and Professional Skills and Attributes***	*L6(I)*			
☑ ***Interpersonal Skills: Teamwork and Communication***	*L7(I)*			
☑ ***CDIO in the enterprise, societal and environmental context***	*L10(I)*			
Chapter 2. Statements and exception handling	***L2***	**07**	**05**	
2.1. Selection statements				
2.2. Repetition statements				
2.3. Exception handling				
☑ ***Personal and Professional Skills and Attributes***	*L6(I)*			
☑ ***Interpersonal Skills: Teamwork and Communication***	*L7(T)* *L8(I)*			

Course content	*CLOs*	*Number of learning periods*		
		Theory	*Practice*	*Others*
	L9(I)			
☑ ***CDIO in the enterprise, societal and environmental context***	*L10(T)*			
Chapter 3. Classes and Objects	***L3***	**8**	**10**	
3.1. Implementing classes				
3.1.1. Abstract Data type (ADT)				
3.1.2. Components of a class				
3.1.3. Creating classes				
3.1.4. Declaring classes				
3.1.5. Class access control				
3.2. Implement class methods				
3.2.1. Constructors				
3.2.2. Types of constructors				
☑ ***Personal and Professional Skills and Attributes***	*L6(I)*			
☑ ***Interpersonal Skills: Teamwork and Communication***	*L7(T)* *L8(T)* *L9(T)*			
☑ ***CDIO in the enterprise, societal and environmental context***	*L6(I)*			
Chapter 4. Inheritance and polymorphism	***L4, L5***	**11**	**15**	
4.1. Inheritance				
4.2. Syntax of inheritance				
4.3. Types of inheritance				
4.4. Polymorphism				

Course content	*CLOs*	*Number of learning periods*		
		Theory	*Practice*	*Others*
4.5. Abstract classes				
☑ ***Personal and Professional Skills and Attributes***	*L6(I)*			
☑ ***Interpersonal Skills: Teamwork and Communication***	*L8(O)* *L9(O)*			
☑ ***CDIO in the enterprise, societal and environmental context***	*L6(O)*			
Summary of skills in course level				
☑ ***Personal and Professional Skills and Attributes***	*L6(U)*			
☑ ***Interpersonal Skills: Teamwork and Communication***	*L9(U)*			
☑ ***CDIO in the enterprise, societal and environmental context***	*L10(U)*			

6. Teaching and learning methods

ID	Teaching method/technique		Description
M1.	Lecturing	☑	
M2.	Questions – Answers	☑	
M3.	Group-based Learning	☑	
M4.	Problem-based Learning	☐	
M5.	Project-based Learning	☑	
M6.	Case studies	☐	
M7.	Roleplay	☐	
M8.	Demo	☑	
M9.	Simulations	☐	
M10.	Debate	☐	

ID	Teaching method/technique		Description
M11.	Game	☐	
M12.	Brainstorming	☐	
M13.	Think-Pair-Share	☐	

7. Course assessment

ID	Assessment activity		Quantity	Weight	LOs assessed
T1.	Text-based midterm exam	☑		25%	*L2, L3, L7, L8, L9, L10*
T2.	Text-based final exam	☐			
T3.	Practice midterm exam	☐			
T4.	Practice final exam	☐			
T5.	Report	☐			
T6.	In-class exercises	☑		25%	*L4, L7, L8, L9, L10*
T7.	Homework assignments	☐			
T8.	Question – Answer	☐			
T9.	Term Project	☐			
T10.	Final Exam	☑		50%	*L3, L4, L5, L6, L7, L8, L9, L10*
Formula for Overall score		**T1*0.25+T6*0.25+T10*0.5**			

8. Course requirements and expectations

8.1. Requirements on attendance

- Students are responsible for attending in all classes. In case of absence due to force majeure circumstances, there must be sufficient and reasonable evidence.
- Students who do not attend more than 20% of the class sections, whether for reason or not, are deemed not to have completed the course and must re-enroll in the following semester.

8.2. Requirements and expectations on student behaviors

- Students must show their respects for teachers and other learners.
- Students must be on time. Students who are late more than five minutes will not be allowed to attend the class.
- Students should not make noise and interfere with others in the learning process.
- Students should not eat, chew gum, and use devices such as cell phones, music players during class hours.
- Laptops and tablets can only be used in class for the purpose of learning.
- Students who violate the above principles will be asked to leave the class and considered absent from the class.

8.3. Requirements on learning issues

Issues related to applying for score reservation, scoring complaints, scoring, exam disciplines are done according to the Learning Regulation of Tra Vinh University.

9. Tentative course instructor

Tran Van Nam

DEAN	DEPARTMENT HEAD	LECTURER
		Tran Van Nam