102 學年第 2 學期 JAVA 程式設計 JAVA Programming 課程綱要

課程名稱：（中文）JAVA 程式設計 （英文）JAVA Programming				開課單位	電機系
				永久課號	UEE2303
授課教師： 蔡中庸					
學分數	3	必/選修	選修	開課年級	2
先修科目或先備能力： 計算機概論與程式設計 , 物件導向程式設計 進階物件導向程式設計					
課程概述與目標： Student will be well-prepared to create cross-platform Java Application or Java Applet program. 學生能設計出符合現代軟體發展需求、跨平台 (Cross-Platform)、可以在 Local computer or Browser 執行的視窗化軟體程式					
教科書（請註明書名、作者、出版社、出版年等資訊）	1.Java How To Program H.M. Deitel & P.J. Deitel Person Education, 2012, 9/E 2. Teaching resources from http://www.oracle.com/technetwork/java/index.html				

課程大綱		分配時數				備註
單元主題	內容綱要	講授	示範	習作	其他	
Introduction to Java Programming	1. What is Java 2. History of Java 3. Java Platform 4. The Java Programming Language 5. Java Bytecode.(Write once, Run Anywhere) 6. Java API 7. J2SE 6.0 8. Java Virtual Machine 9. Basics of a Typical Java Environment	6				
Introduction to Java Applications	1. A First Program in Java Application Program 2. Compiling the Source File 3. Executing the Bytecode	5				

	4. Displaying Text in a Dialog Box. (Using JOptionPane class)					
Introduction to Java Applets	1. A First Program in Java Applet Program 2. Drawing Strings, Lines and Rectangles. 3. Font Control 4. Color Control 5. Compiling and Executing Applet Program	5				
Methods	1. Math class Methods 2. Java API Packages 3. Using GUI component: class JTextArea 4. Using GUI component : class JLabel 5. Concept of Event Handling 6. Using GUI component: class JButton 7. Example: A Game of Chance	6				
Arrays	1. Declaring and Creating Array 2. Enhanced for statement 3. Passing Arrays to Methods 4. Multidimensional Arrays 5. Variable-Length Argument Lists 6. Introduction to JPanel and JFrame	6				
Classes and Objects	1. Time Class Case Study 2. Using This Reference 3. Composition 4. Enumerations 5. Static Class Members 6. Static Import 7. Final Instance Variables 8. Creating Package 9. Package Access	6				

Inheritance and Polymorphism	1. Super class and Subclass 2. Protected member and Access 3. Constructor in Subclass 4. Object class 5. Polymorphism Examples 6. Demonstrating Polymorphic Behavior 7. Abstract Classes and Methods 8. Final Methods and Classes 9. Creating and Using Interfaces 10. Nested Classes 11. Anonymous Inner Classes	6				
Graphical User Interface (GUI) Components	1. Overview of SWING Components 2. Event handling 3. JLabel, JTextfield, JButton 4. JCheckBox and JRadioButton 5. JComboBox 6. JList, Multiple-Selection Lists 7. Mouse Event Handling 8. Adaptor Classes 9. Key Event Handling 10. Layout Managers: FlowLayout,BorserLayout, GridLayout	6				
Graphics and Java2D	1. The Hierarchy of class Graphics in Java 2. Color, Font Control 3. Drawing Lines, Rectangles ,Ovals and Arcs 4. Drawing Polygons and Polylines 5. Java 2D API: Translate and Rotate	2				
Multithreading	1. Thread States: Life Cycle of a Thread 2. Thread Priorities and Thread Scheduling 3. Interface Runnable and class Thread	6				

	4. Creating and Executing Threads 5. Thread Synchronization 6. Thread Interaction: Wait, Notify, Notifyall 7. Producer/Consumer Relationship: Without/with Synchronization 8. Producer/Consumer Relationship: Circular Buffer 9. Multithreading with GUI					

教學要點概述：

1.學期作業、考試、評量

作業部份：

有 7 個作業 加上期末專題製作

考試部份：

有 2 次筆試

評量部份：

第 1 次筆試 25%

第 2 次筆試 25%

專題製作 30%

作業 20%

2.教學方法及教學相關配合事項(如助教、網站或圖書及資料庫等)

a. 使用學校 e3 網站。

b. 重要單元都有自製講義或者補充重要程式，來說明補充課本的不足。上課仍然發給學生紙本講義，讓學生可以作筆記，這些講義同時都也都放置在 e3 講義區。

	排定時間	地點	連絡方式
師生晤談	每星期兩小時	工五館 762 室	Tel:54367 e-mail:cytsai@mail.nctu.edu.tw

每週進度表

週次	上課日期	課程進度、內容、主題
1		1. What is Java 2. History of Java 3. Java Platform 4. The Java Programming Language

		5. Java Bytecode.(Write once, Run Anywhere)
2		1. Java API 2. J2SE 6.0 3. Java Virtual Machine 4. Basics of a Typical Java Environment
3		1. A First Program in Java Application Program 2. Compiling the Source File 3. Executing the Bytecode 4. Displaying Text in a Dialog Box.(Using JOptionPane class)
4		1. A First Program in Java Applet Program 2. Drawing Strings, Lines and Rectangles. 3. Font Control 4. Color Control 5. Compiling and Executing Applet Program
5		1. Math class Methods 2. Java API Packages 3. Using GUI component: class JTextArea 4. Using GUI component : class JLabel
6		1. Concept of Event Handling 2. Using GUI component: class JButton 3. Example: A Game of Chance
7		1. Declaring and Creating Array 2. Enhanced for statement 3. Passing Arrays to Methods
8		1. Multidimensional Arrays 2. Variable-Length Argument Lists 3. Introduction to JPanel and JFrame
9		1. Time Class Case Study 2. Using This Reference 3. Composition 4. Enumerations 5. Static Class Members

10		1. Static Import 2. Final Instance Variables 3. Creating Package 4. Package Access
11		1. Super class and Subclass 2. Protected member and Access 3. Constructor in Subclass 4. Object class 5. Polymorphism Examples 6. Demonstrating Polymorphic Behavior
12		1. Abstract Classes and Methods 2. Final Methods and Classes 3. Creating and Using Interfaces 4. Nested Classes 5. Anonymous Inner Classes
13		1. Overview of SWING Components 2. Event handling 3. JLabel, JTextfield, JButton 4. JCheckBox and JRadioButton
14		1. JComboBox 2. JList, Multiple-Selection Lists 3. Mouse Event Handling
15		1. Adaptor Classes 2. Key Event Handling 3. Layout Managers: FlowLayout,BorserLayout, GridLayout
16		1. The Hierarchy of class Graphics in Java 2. Color, Font Control 3. Drawing Lines, Rectangles ,Ovals and Arcs 4. Drawing Polygons and Polylines 5. Java 2D API: Translate and Rotate
17		1. Thread States: Life Cycle of a Thread 2. Thread Priorities and Thread Scheduling 3. Interface Runnable and class Thread 4. Creating and Executing Threads 5. Thread Synchronization

		6.Thread Interaction: Wait, Notify, Notifyall
18		1. Producer/Consumer Relationship: Without/with Synchronization 2. Producer/Consumer Relationship: Circular Buffer 3. Multithreading with GUI

※ 請同學遵守智慧財產權觀念及勿使用不法影印教科書。

備註：

1. 其他欄包含參訪、專題演講等活動。
2. 請同學遵守智慧財產權觀念及勿使用不法影印教科書。

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