“ Programming Fundamentals in practice ”Course Teaching Syllabus

Ⅰ Basic Course Information

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| --- | --- | --- | --- | --- | --- | --- |
| **Course Name（Chinese）** | Programming | | | | | |
| **Course Name（English）** | Programming Fundamentals in Practice | | | | | |
| **Course Type** | Core Course | | **Course Nature** | | Compulsory Course | |
| **Teaching Semester** |  | | **Credit** | |  | |
| **Teaching Periods and Allocation** | **Total Periods** | **Teaching** | | **Practice** | | **Extracurricular** |
| 24 (x2 hours) | 12 | | 12 | |  |
| **Applicable Majors** |  | | | | | |
| [**Prerequisite**](file:///C:/Users/%25E6%259C%25B1%25E6%2596%2587%25E8%258A%25B3/AppData/Local/youdao/dict/Application/8.9.3.0/resultui/html/index.html#/javascript:;)[**Course**](file:///C:/Users/%25E6%259C%25B1%25E6%2596%2587%25E8%258A%25B3/AppData/Local/youdao/dict/Application/8.9.3.0/resultui/html/index.html#/javascript:;)**s** | Programming Fundamentals | | | | | |
| **Follow-up Courses** |  | | | | | |
| [**Course**](file:///C:/Users/%25E6%259C%25B1%25E6%2596%2587%25E8%258A%25B3/AppData/Local/youdao/dict/Application/8.9.3.0/resultui/html/index.html#/javascript:;)[**Introduction**](file:///C:/Users/%25E6%259C%25B1%25E6%2596%2587%25E8%258A%25B3/AppData/Local/youdao/dict/Application/8.9.3.0/resultui/html/index.html#/javascript:;) | **Basic Orientation of Course** This course is a follow on from Programming Fundamentals. In this module, IntelliJ is used as the IDE so the student is introduced to a more mature programming environment. Having been introduced to Object-Oriented basics as implemented in Java, the student is introduced to more advanced features of an Object- Oriented paradigm, including data hiding, inheritance and interfaces.  **Core Learning Outcomes:**  *On successful completion of this module, a student will be able to:*   1. Apply problem-solving strategies to various computing problems of increasing complexity. 2. Plan, code, test and document applications using advanced programming constructs and data structures. 3. Construct applications consistent with UI best practice. 4. Construct persistent applications. 5. Apply maintainability and robustness when designing applications.   **Main Teaching Methods:**   * + This module will be presented by a combination of lectures and computer-based practicals whilst capitalising on a web-enhanced learning environment.   + The lectures will be used to introduce new topics and their related concepts.   + A cooperative learning approach will be adopted during the practical sessions.   + Self-directed learning will be encouraged throughout the duration of the module. | | | | | |

Ⅱ Course Objectives

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| --- | --- |
| **No.** | **Course Objectives** |
| 1. | To build on the programming basics introduced in Programming Fundamentals and introduce the students to more advanced concepts and structures. |
| 2. | To familiarize the students with testing techniques, by both assisting the student in conforming to a specification and designing their own tests. |

Ⅲ Theoretical Teaching Content

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| --- | --- | --- | --- |
| **Topics** | **Teaching Content** | **Teaching Periods** | **Teaching Methods** |
| 1 | Introduction to using IntelliJ | 1 | Lectures and Practicals |
| 2 | Recap on primitive arrays | 1 | Lectures and Practicals |
| 3 | ArrayLists in Java | 1 | Lectures and Practicals |
| 4 | Menu Driven Apps | 1 | Lectures and Practicals |
| 5 | Persistence in Java | 1 | Lectures and Practicals |
| 6 | Test Driven Development in Java using JUnit | 1 | Lectures and Practicals |
| 7 | More collections in Java | 1 | Lectures and Practicals |
| 8 | Inheritance | 1 | Lectures and Practicals |
| 9 | Polymorphism | 1 | Lectures and Practicals |
| 10 | Interfaces | 1 | Lectures and Practicals |
| 11 | Sorting and searching | 1 | Lectures and Practicals |
| 12 | Assignment work | 1 | Practical |

Ⅳ Practical (Experiment or Practice) Teaching

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| --- | --- | --- | --- |
| **No.** | **Name of Experiment or Practice Project** | **Teaching Content** | **Teaching Periods** |
| 1 | Assignment 1 | Topics 1 - 7 | 1 - 7 |
| 2 | Assignment 2 | Topics 1 - 11 | 1 - 12 |

Ⅴ [Course](file:///C:/Users/%25E6%259C%25B1%25E6%2596%2587%25E8%258A%25B3/AppData/Local/youdao/dict/Application/8.9.3.0/resultui/html/index.html#/javascript:;) Assessment

|  |  |  |
| --- | --- | --- |
| [**Course**](file:///C:/Users/%25E6%259C%25B1%25E6%2596%2587%25E8%258A%25B3/AppData/Local/youdao/dict/Application/8.9.3.0/resultui/html/index.html#/javascript:;) **Assessment Method** | **Times** | **Proportion of Each Assessment Method** |
| [**Daily**](file:///C:/Users/%25E6%259C%25B1%25E6%2596%2587%25E8%258A%25B3/AppData/Local/youdao/dict/Application/8.9.3.0/resultui/html/index.html#/javascript:;)[**Performance**](file:///C:/Users/%25E6%259C%25B1%25E6%2596%2587%25E8%258A%25B3/AppData/Local/youdao/dict/Application/8.9.3.0/resultui/html/index.html#/javascript:;) | Attendance Record | % |
| **Assignments** | 2 (50% x 2) | 100% |
| **Mid-term Exam** | 0 | % |
| **Final Exam** | 0 | % |
| … |  |  |
| **Total** | | 100% |

Ⅵ Textbooks and Reference Books

1. Course notes and tutors link

**Designed by：**

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**Reviewed by： Approved by：**

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