Course Specifications of:

**Advanced Programming**

Program(s) on which the course is given : Preparatory Courses - Maintenance and Restoration

Compulsory or Elective element of program: Compulsory

Department offering the program: Architecture

Academic year / Level: year/ 2013-2014

Date of specification approval: June 2012

1. Basic Information
2. Title :Advanced Programming Code: Eng 505
3. Credit Hours:3 Lecture:3 practical
4. Semester work:100 Final Exam:200 Practical: Total:300
5. Professional Information

1- Overall aims of course:

By the end of the course the student will be able to

* Know the Problem Solving Strategies.
* Introduce program design and object-oriented programming
* Overview of the Java programming language
* Gain the knowledge required to develop java applications.
* Develop and Test programs to solve real world problems.

2- Intended learning outcomes of course (ILOs):

1. **Knowledge and Understanding:**

1.1 Identify fundamentals knowledge about the Object Oriented Programming.

1.3 Outline the scientific developments in the Object-Oriented Programming Environment.

1. **Intellectual Skills**

2.1 Analyze and assess information of the given problem to solve it.

2.3Link different knowledge sources to solve problems.

1. **Professional and Practical Skills**

3.1 Master basic professional and modern skills in designing programs.

3.2 Write and evaluate object-oriented programs to solve problems.

1. **General and Transferable Skills**

4.2 Use information technology in order to serve the development of professional practice in Computer Programming.

4.5 Set basis and standards to assess the performance of programs.

4.8 Conduct self learning and continuous education practices about the modern methods and developments in computer programming.

3- Contents

|  |  |  |  |
| --- | --- | --- | --- |
| Topic No. | Topic | No. of weeks | Total no. of hours |
| 1 | Introduction to Computers and Java | 1 | 3 |
| 2 | Basic Computation |  | 3 |
| 3 | Flow of Control | 1 | 3 |
| 4 | Flow of Control: Loops and Quizze | 1 | 3 |
| 5 | Defining Classes and Methods | 1 | 3 |
| 6 | More About Objects and Methods | 1 | 3 |
| 7 | Arrays and Quizze | 1 | 3 |
| 8 | Mid-term | 1 | 3 |
| 9 | Arrays | 1 | 3 |
| 10 | Inheritance | 1 | 3 |
| 11 | Polymorphism | 1 | 3 |
| 12 | Interfaces | 1 | 3 |
| 13 | Exception Handling and Quizze | 1 | 3 |
| 14 | Graphics | 1 | 3 |
| 15 | Presentations | 1 | 3 |
| 16 | Final exam | 1 | 3 |
| TOTAL | | 16 | 45 |

4- Course Matrix

|  |  |  |
| --- | --- | --- |
| ILO’s code number | Teaching/learning methods and strategies | Assessment methods and strategies |
| 1.1  1.3 | Acquisition of core knowledge and understanding is achieved mainly through lectures, seminars, tutorials, directed reading, project work and independent study. | Assessment will be through individual coursework assignments, quizzes, oral discussions and reports. In addition final written examinations are given. The grades distribution system is shown in the curriculum table below. |
| 2.1  2.3 | Analysis and problemsolving skills are developed through tutorial/problem sheets and small group exercises.  Research skills are developed through the research project in the course of dissertation or thesis preparation. | Analysis and problem‐solving skills are assessed through oral and written examinations.  Design and research skills are assessed through project write-ups, coursework and project reports, presentations and the final |
| 3.1  3.2 | Projects demonstrations, practical work, projects | Practical skills are assessed through projects write-ups, coursework exercises and reports, project reports and presentations and finally on the methodology demonstrated in the work for the dissertation or thesis. |
| 4.2  4.5  4.8 | Presentations in annual seminars (compulsory to be attended by a panel of departmental staff and other students).  Attendance of workshops or conferences or internal seminars. |  |

5-Assessment schedule

Assessment 1 Quizzes on week 4 , 7 ,13

Assessment 2 Mid-term exam on week 8

Assessment 3 Presentations on week 15

Assessment 4 Final exam on week 16

6- Weighting of assessments

Quizzes 03%

Mid-term examination 15%

Presentations 15%

Final-term examination 67%

Total 100%

7- List of References

6.1 Essential books.

* Course Notes
* Essential Books (Text Books)
* JAVA: An Introduction to problem solving and programming, 6th edition, Walter Savitch.
* Recommended Books
* Computing Concepts with Java 2 essentials , 2nd edition, Cay Horstmann.
* Periodicals Web sites, etc
* http://docs.oracle.com/javase/tutorial/java/concepts/
* http://www.ntu.edu.sg/home/ehchua/programming/java/J3a\_OOPBasics.html

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8- Facilities required for teaching and learning

Lecture room equipped with overhead projector

Presentation board, computer and data show

9- Intended learning outcomes of course (ILOs) Matrixes

**9.1 Matrix 01: Course contents & Quizze & ILO's**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No. of weeks** | **Course Content** | **Total no. of hours** | **a. Knowledge and understanding** | | **b. Intellectual Skills** | | **c. Professional Skills** | | **d. General Skills** | | |
| 1.1 | 1.3 | 2.1 | 2.3 | 3.1 | 3.2 | 4.2 | 4.5 | 4.8 |
| 1 | Introduction to Computers and Java | 3 |  |  |  |  |  |  |  |  |  |
| 2 | Basic Computation | 3 |  |  |  |  |  |  |  |  |  |
| 3 | Flow of Control | 3 |  |  |  |  |  |  |  |  |  |
| 4 | Flow of Control: Loops and Quizze | 3 |  |  |  |  |  |  |  |  |  |
| 5 | Defining Classes and Methods | 3 |  |  |  |  |  |  |  |  |  |
| 6 | More About Objects and Methods | 3 |  |  |  |  |  |  |  |  |  |
| 7 | Arrays and Quizze | 3 |  |  |  |  |  |  |  |  |  |
| 8 | Mid-term | 3 |  |  |  |  |  |  |  |  |  |
| 9 | Arrays | 3 |  |  |  |  |  |  |  |  |  |
| 10 | Inheritance | 3 |  |  |  |  |  |  |  |  |  |
| 11 | Polymorphism | 3 |  |  |  |  |  |  |  |  |  |
| 12 | Interfaces | 3 |  |  |  |  |  |  |  |  |  |
| 13 | Exception Handling and Quizze | 3 |  |  |  |  |  |  |  |  |  |
| 14 | Graphics | 3 |  |  |  |  |  |  |  |  |  |
| 15 | Presentations | 3 |  |  |  |  |  |  |  |  |  |
| 16 | Final exam | 3 |  |  |  |  |  |  |  |  |  |

**9.2 Matrix 02: Aims & ILO's**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Aims**    **ILO's** | **1** | **2** | **3** | **4** | **5** |
| 1.1 |  |  |  |  |  |
| 1.3 |  |  |  |  |  |
| 2.1 |  |  |  |  |  |
| 2.3 |  |  |  |  |  |
| 3.1 |  |  |  |  |  |
| 3.2 |  |  |  |  |  |
| 4.2 |  |  |  |  |  |
| 4.5 |  |  |  |  |  |
| 4.8 |  |  |  |  |  |

Course coordinator:**Associate professor dr./** Abdulwahab Alsammak

Course instructor: **Associate professor dr./**Abdulwahab AlsammakDate

date 25 / 11 / 2014