ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications
(CS)

Course Specifications

Institution	Date of Report
Najran University	
College/Department : Faculty of Art and Science /Computer Science Department	

A. Course Identification and General Information

1. Course title and code:
   Title: Object Oriented using Java Code: 303CS-4 (٤-عال٣٠٣)
2. Credit hours : 4
3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course
   Dr. Ali Hadi Booker + Mr. Ali Alssayari
5. Level/year at which this course is offered: level 4 / second Year
6. Pre-requisites for this course (if any)
   202CS-4
7. Co-requisites for this course (if any)
Non
8. Location if not on main campus
main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	100%
b. Blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	

Comments:

We still teach this course using traditional methods but there is a plan to transform all course into electronic format using E-learning

B Objectives

1. What is the main purpose for this course? a) Describe the importance and power of abstraction in the context of virtual machines and explain the benefits of intermediate languages in the compilation process. b) Justify the philosophy of object-oriented design and the concepts of encapsulation, inheritance and polymorphism. c) Explain how abstraction mechanisms support the creation of reusable software components. d) Acquire basics of how translate solution problem into object oriented form. e) Design and implement simple programs in an object-oriented programming language. f) Design and implement program that use exceptions and multithreads
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This course covers the following topics: introduction to Java programming (Data types, Control Structures, Arrays, and Methods), Basic Concept of OOP(Classes, Objects, Data abstraction, encapsulation, Inheritance, Inheritance Dynamic binding), Creating a new class using inheritance, Creating an overridden method, Constructors, Exception handling, Multithreading.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Introduction to Java : ➢ Java components ➢ versions of the Java language Basics of the language: ➢ Data types ➢ Operations	1	3
Control Structures: Conditional Sentences ➢ Simple if statement ➢ The if…else statement ➢ Nesting of if-else statement ➢ switch statement Control Structures: Iteration Statement ➢ for loop statement ➢ Nested For statement ➢ while loop ➢ do-while loop	1	3

Arrays: ➢ Create a matrix unilateral ➢ Two-dimensional arrays. ➢ Ragged arrays ➢ Multidimensional arrays	1	3
Methods ➢ Create and use static methods. ➢ Return a value from a method. ➢ Explain pass by value. ➢ Describe overloading methods. ➢ Identify the method signature	2	6
Basic Concept of OOP (Object Oriented Programming): ➢ Object ➢ Class ➢ Data abstraction ➢ Data encapsulation ➢ Inheritance ➢ Polymorphism ➢ Dynamic binding	2	6
Classes and Objects ➢ Identify the parts of an object. ➢ Create and use instance members. ➢ Distinguish between instance and class members. ➢ Define abstraction. ➢ Create object references.	2	6
Inheritance: Introduction - the benefits of Inheriting Creating a new class using inheritance. Creating an overridden method.	2	6
Constructors ➢ Use the default constructor. ➢ Create a constructor to initialize instance variables. ➢ Call other constructors from the same class (this). ➢ Call constructors from the parent class (super). ➢ Create a no-arguments constructor. ➢ Discuss String characteristics and define the common methods of the String class	2	6
Exception handling ➢ The exception handling mechanism. ➢ Write try ... catch structures to catch expected exceptions. ➢ Use finally blocks to guarantee execution of code. ➢ Throw/ Throws exceptions.	1	3

Multithreading : ➢ Thread life cycle Advantages of multithreading over multi-tasking: Thread Creation and simple programs: Synchronized threads: Synchronized Methods:	1	3

1. Topics to be Covered in Lab		
List of Topics	**No. of Weeks**	**Contact Hours**
1- Example for Java Program Structure, Data types and Operations. 2- Solve two problems relating to the given example.	1	2
1- Example for Conditional Sentences in Java 2- Example for Iteration Statements in Java 3- Solve two problems relating to the given example.	1	2
1- Example for arrays in Java 2- Solve two problems relating to the given example.	1	2
1. Examples in Java Methods 2. Solve two problems relating to the given example.	2	4
1. Examples in Basic Concept of OOP 2. Solve two problems relating to the given example.	2	4
1. Examples in Classes and objects 2. Solve two problems relating to the given example.	2	4
1. Examples in Inheritance. 2. Solve two problems relating to the given example.	2	4
1. Examples in Constructors 2. Solve two problems relating to the given example.	2	4
1. Examples in Exception handling 2. Solve two problems relating to the given example.	1	2
1. Examples in Multithreading. 2. Solve two problems relating to the given example.	1	2

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	45		30			75
Credit	45		15			60

3. Additional private study/learning hours expected for students per week.	3 hours

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The ***National Qualification Framework*** provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	**Course Teaching Strategies**	**Course Assessment Methods**
1.0	**Knowledge**		
1.1	Memorize principles, concepts and knowledge necessary in programming	Lecture Discussion and dialogue	Written test
1.2	Recall software components and used properly.	Lecture Discussion and dialogue Problem Solving	Written test

		Laboratory method	
1.3	Recall what has been studied in programming to build software solutions to the problems of offset in scientific research after graduation	Lecture Discussion and dialogue Problem Solving Laboratory method	Written test
2.0	**Cognitive Skills**		
2.1	explain logical thinking in analyzing problems	Lecture Discussion and dialogue Problem Solving Laboratory method	Written test Lab problems
2.2	Write the principles of programming during the analysis of the problems and puts the appropriate solutions.	Lecture Discussion and dialogue Problem Solving Laboratory method	Written test Lab problems
2.3	Write programs using the Java language to solve the problems faced by	Lecture Discussion and dialogue Problem Solving Laboratory method	Written test Lab problems
3.0	**Interpersonal Skills & Responsibility**		
3.1			
4.0	**Communication, Information Technology, Numerical**		
4.1	Calculate Using statistical techniques and the basics of mathematics necessary for the program to build adequate for the needs of the client	Lecture Discussion and dialogue Problem Solving Laboratory method	Written test Lab problems
4.2			
5.0	**Psychomotor**		
5.1			

Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

NQF Learning Domains	Suggested Verbs
Knowledge	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
Cognitive Skills	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
Interpersonal Skills & Responsibility	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
Communication, Information	demonstrate, calculate, illustrate, interpret, research, question, operate,

Technology, Numerical	appraise, evaluate, assess, and criticize
Psychomotor	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct

Suggested ***verbs not to use*** when writing measurable and assessable learning outcomes are as follows:

Consider Maximize Continue Review Ensure Enlarge Understand
Maintain Reflect Examine Strengthen Explore Encourage Deepen

Some of these verbs can be used if tied to specific actions or quantification.

Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.
Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	examination (mid-term)	8	25%
2	Home Work	2,4,6,8,10, 12,14	10%
3	oral presentation		10%
4	Observation		5%
5	examination (final term)		50%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

E. Learning Resources

1. List Required Textbooks Basics of Object-oriented programming using Java-2 ISBN :977-5423-53-8 Advanced topics in Object-oriented programming using Java-2 Design of Graphical User Interfaces (GUI) with database
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) • Thinking in Java ISBN: 0-136-59723-8 • The Java Programming Language, 2nd Edition ISBN: 0-201-31006-6 • The Java Handbook ISBN: 0-078-82199-1 • Concurrent Programming in Java: Design Principles and Patterns ISBN: 0-201-69581-2 • The Java Virtual Machine Specification ISBN: 0-201-63452-X • Java in a Nutshell: A Desktop Quick Reference for Java Programmers ISBN: 1-565-92183-6
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Classrooms for 20-30 students with data show Laboratories 20-30 students with java software (Eclipse or Net Beans or JCreator

2. Computing resources (AV, data show, Smart Board, software, etc.) Classrooms Should include data show and also laboratories
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) none

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching: ✓ Distribution of a questionnaire for students to know how to achieve the goals in the theoretical and practical side.
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor: ✓ Discussions with colleagues who specialize in teaching methods and means of learning. ✓ Self-evaluation of the performance of the teacher. ✓ Discussions with other colleagues who taught this course.
3 Processes for Improvement of Teaching ✓ Diagnose weaknesses and turn them into strengths. ✓ Discussions about the decision and methods of teaching ✓ Study the needs of the labor market of college graduates
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Faculty or Teaching Staff: _____ Dr. Ali Hadi Booker + Mr. Ali Alssayari

Signature: _____ Date Report Completed: _____

Received by: _____ Dean/Department Head

Signature: _____ Date: _____