ADVANCED ALGORITHMS COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Baghdad University /Collage of science for women
2. University Department/Centre	Computer Science Department
3. Course title/code	Advanced Algorithms / 303 CAA
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	The presence of an actual study and there was no remote , according to the laws in force

6. Semester/Year	third year /first semester
7. Number of hours tuition (total)	45 hours a theoretical, 60 hours practical
8. Date of production/revision of this specification	20/4/2016

9. Aims of the Course

This course aims to enable the student to absorb the existing algorithms to solve problems in a logical manner and mechanism and how this analysis Algorithms, which means the problems of arrangement and search sorting and searching degrees of complexity and knowledge of each of them, which The algorithm helps to choose the most efficient in terms of speed and storage, and best suited to solve the problem at hand from a range of algorithms.

As well as the identification of modern programming environment and is .net programming and their characteristics and advantages of the former and its programming The language of visual basic .net rich definition and harness its resources to solve the problems presented in the course.

10· Learning Outcomes, Teaching ,Learning and Assessment Methods

BB- Knowledge and Understanding

A1- recognition algorithms that are within the scope of the data sort and understanding.

A2- recognition algorithms contained within the field of search data and understanding.

A3- knowledge and understanding of how the algorithm and the mechanism of action and understanding of the basis of its work

A4- knowledge and understanding of the diversity of existing data and on which vary the composition and work of algorithms

A5- knowledge of existing environments for programming languages and

fundamentals and identify the .net framework environment

A6- identify new programming vb.net and how to apply them and put them in the above problem-solving language

B. Subject-specific skills

B 1 - Choosing the appropriate algorithm for processing certain data , depending on the size and nature of these data

B 2 –Choosing appropriate algorithm to search for specific data within the larger group, depending on their size

B 3 –Choosing most efficient algorithm from a selection algorithms can solve the same problem by analyzing and know the time and necessary to accomplish the work memory size

B4- Choosing of programming most efficient way to solve a particular problem and move away from the use of roads in the lengthy solution

Teaching and Learning Methods

Education: Provide printed lectures, and a variety of modern and rich sources of example.

Learning: asking questions and inquiries and make the student turns to teaching explanation.

Learning: direct questions for students to get them to pay attention and focus.

Assessment methods

Quizzes semi-weekly-

Ask questions sudden and interlaced with an explanation of lectures -

Monthly and quarterly tests-

C. Thinking Skills

C1-ask range solutions to the same problem and discussed both individually and determine the appropriate method of solution

C2- put forward solutions contain inaccuracies and identifying these mistakes After discussion and processed

C 3-ask questions that oral exceptional need exceptional answers as be of a specified weight of evaluation and grading hand, which is a strong incentive for the participation of students and rivalry

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1-distribution specific topics for each group of students to prepare research reports on the World Wide Web, the sources or the library and drafted in accordance with the basis of the approved formulation research

D2-giving leadership debate administration, however, the group discussion and enable them to lead and manage the dialogue

D3-alert on errors in the oral answers students

D4- alert on errors in the answers written by students and pointing to her knowledge by the student.

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3 theoretical with 4 practical	The definition of the algorithm and analysis, and their shape and their form and its divisions Practical: the definition of the language used	Definition and analysis	According to point 10 above and as needed	According to point 10 above and as needed
2	3 theoretical with 4 practical	Phases of programming languages available and the differences between them and the advantages of targeted programming language Practical: writing the first program	Programming models and object oriented programming traits	According to point 10 above and as needed	According to point 10 above and as needed
3	3 theoretical with 4 practical	.net environment, parts and how the work of the translator and what types of data available and how to handle them Practical: command button and message box application	.net programming and integrated development environment (IDE) with Microsoft Intermediate Language (MSIL)	According to point 10 above and as needed	According to point 10 above and as needed
4	3 theoretical with 4 practical	Way encourages waste and the basics of the language vb.net Practical: text box	Garbage collection and fundamentals of vb.net	According to point 10 above and as needed	According to point 10 above and as needed

		application			
5	3 theoretical with 4 practical	Move to .net programming with profound examples and basic formulations of this language Practical: application example	.net programming controls: properties and basic structures	According to point 10 above and as needed	According to point 10 above and as needed
6	3 theoretical with 4 practical	Selection sort: engage in ranking algorithms with the programming of the data and the analysis of how concerned and extraction of complexity Practical: application example	Sorting algorithms: selection sort, application a, analysis and programming.	According to point 10 above and as needed	According to point 10 above and as needed
7	3 theoretical with 4 practical	Insertion sort: explain complex algorithms, programming and learn more about the suggestions programming language. Practical: application example	Insertion sort: analysis and programming with more language keywords.	According to point 10 above and as needed	According to point 10 above and as needed
8	3 theoretical with 4 practical	Bubble and quick sort : the application and programming and analysis. Practical: list box application	Bubble and quick sort, application, analysis and programming.	According to point 10 above and as needed	According to point 10 above and as needed

9	3 theoretical with 4 practical	First exam	First seasonal exam	According to point 10 above and as needed	According to point 10 above and as needed
10	3 theoretical with 4 practical	Shell and heap sort Application, analysis and programming. Practical: radio button and checkbox application	Shell and heap sort: application, analysis and programming.	According to point 10 above and as needed	According to point 10 above and as needed
11	3 theoretical with 4 practical	Analysis, programming Practical: application example of sorting	Radix and merge sort, application, analysis, and programming.	According to point 10 above and as needed	According to point 10 above and as needed
12	3 theoretical with 4 practical	Tree binary sort and types of traverse it Practical: application example of sorting	Binary search tree, traversal.	According to point 10 above and as needed	According to point 10 above and as needed
13	3 theoretical with 4 practical	External sort Practical: application example of sorting	External sort	According to point 10 above and as needed	According to point 10 above and as needed
14	3 theoretical with 4 practical	search methods: sequencing, binary tree Practical: application example of sorting	Search algorithms: sequential, binary tree	According to point 10 above and as needed	According to point 10 above and as needed
15	3 theoretical with 4 practical	Second exam	Second seasonal exam	According to point 10 above and as needed	According to point 10 above and as needed

12. Infrastructure	
Required reading: . Introduction to Algorithms (Third Edition) by Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivert, and Clifford Stein, The MIT Press, 2009. . Algorithms (Fourth Edition) by Robert Sedgewick, and Kevin Wayne, Pearson Education, 2011. . Algorithms and Data Structures, by Alfred Strohmeier, 2000. . Sorting and Searching Techniques, Unit II. . Sorting and Searching Algorithms:A Cookbook, by Thomas Niemann, Portland, Oregon. . The Complete Reference Visual Basic.Net, by Jeffrey R. Shapiro, McGraw−Hill Companies, USA, 2002. . Learn VB.Net, by Chuck Easttom, Wordware Publishing Inc., . Mastering Visual Basic .Net, By EvangelosPetroutsos, SYBEX Inc., 2002, CA, USA. . Introduction to Visual Basic 2010, McGraw−Hill Companies, USA, 2010.	
Special requirements (include for example workshops, periodicals, IT software, websites)	

Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	Data structures course and visual basic.net programming
Minimum number of students	Depending on the size of the hall, according to the division of the classes, 20
Maximum number of students	Depending on the size of the hall, according to the division of the classes, 30