DIGITAL IMAGE PROCESSING 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	University of Baghdad/ College of Science for Women
2. University Department/Centre	Computer Science Department
3. Course title/code	Digital Image Processing / 308 CDI
4. Programme(s) to which it contributes	Computer Science
5. Modes of Attendance offered	Physical Attendance
6. Semester/Year	Third Year/ Second Semester

7. Number of hours tuition (total)	75 total (45 theoretical, 30 practical)
8. Date of production/revision of this specification	16/6/2016

9. Aims of the Course

To enable the student to get enough idea about the building block of the image as well as their variety of format representations, besides, the process of passing the image through various media starting from the moment of the creation ending with the viewing image on screen, special and frequency domain are employed as well in this article and their different kind of operations.

10· Learning Outcomes, Teaching ,Learning and Assessment Methode

II- Knowledge and Understanding

A1- recognize the image and understanding of the content and the relationship between the location and color value and sorts images according to these color values from black and white images and ending with natural colors.

A2-identify the source of the image and representation and formats stages before finishing out as a file in storage unit

A3- understand the relationship between image points and how to configure entity within the image and demonstrate chromatography interdependence and on-site

A4-discussed ways to enlarge and reduce the image and aplication of a set of algorithms necessary

A5- touched on the various filters that manipulate the values of the points and leave the various changes to the image

A6- addressed to the frequency domain and the spatial domain and how to apply filters

A7- operations of the histogram, edge, segmentation, restoration, erosion and dolation, and others.

B. Subject-specific skills

B1.Identify appropriate filter to apply a specific process on the image and choose the appropriate size for this filter

B2.Identify the total file size and space of colors, as well as the values of the

points

B3.writing down special programs to address the image or part of them and enable them to manipulate color values

B4.convert the image to another from the scope of spatial and frequency and reduce the image size

Teaching and Learning Methods

• Education: provide lectures and printed sources from the modern, diverse and rich sources including examples

• Education: Harnessing smart blackboard to the goal of teaching students and explain the steps the solution and extraction results

• Education: resolving some questions, with intent to contain mistakes and make the students extracted error

• Learning: asking questions and inquiries and making the student turn into a teaching explanation and solution on the blackboard at that point, brainstorming method

• Learning: questions directly and consequently all students to learn the extent of interaction and the rest to be paid attention to

• Learning: Each specific group and explain its interaction between students with questions and answers and provide an environment that enables the student to lecture management or debate

Assessment methods

• Quizzes (quiz) semi-weekly

• Reporting and in the form of aggregates by a report for each set and

presented over students

• Questions sudden and overlapping put up with to explain Article

• laboratory tests on the computer and is written to enable the student to the solution without a computer

• monthly and quarterly tests

C. Thinking Skills

C1-providing range solutions to the same problem and discussed both individually and determine the appropriate method of solution to the problem at hand with a stand on the disadvantages of the rest of the solutions

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

C3-oral exceptional questions that need exceptional answers where heavyweight grades are assigned and some tipoff grades also provides

C4- choose the most appropriate algorithm used to manipulate the image checking out the image descriptions

Teaching and Learning Methods

Discussions that arise during the time of lecture, and an attempt to involve the largest possible number of students in the conversations and discussion, and direct the discussions to be objectively purpose.

Assessment methods

• Oral evaluated by involving students in discussions

• Quizzes (quiz)

• laboratory tests on the computer and is written

• exams monthly and quarterly

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

D1- distribution of specific topics for each group of students to prepare research reports from the 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 drive and manage the dialogue

D3- alert on errors in the answers to the oral and discuss them to learn their mistake

D4- alert on errors in the answers of students in the written exams to clarify to the student

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	loading an image and understanding the related instructions	Definition, pixel element, fundamental steps in digital image processing	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand
2	4	stretching an image application	Image types and their storage, wavelength of light	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand
3	4	working with open dialog control	Neighbors, adjacency, connectivity,	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand
4	4	enlarging the physical image	regions, boundaries, distance measure	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand
5	4	applica	Spatial geometry	According to	According to point

		tion of masks	and segment geometry	point 10 hereinabove and on demand	10 hereinabove and on demand
6	4	Application example	Algorithms for Enlargement, reduction in size	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand
7	4	Application example	Arithmetic and logic operation on images	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand
8	4	Application example	Spatial filters, understanding and analysis	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand
9	4		First seasonal exam	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand
10	4	Application example	Quantizing, histogram	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand

11	4	Application example	Fourier transform	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand
12	4	Application example	Restoration	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand
13	4	Application example	edge detection, Dilation and erosion	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand
14	4	Application example	Segmentation	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand
15	4		Frequency domain manipulation of images	According to point 10 hereinabove and on demand	According to point 10 hereinabove and on demand
16	4		Final seasonal exam	According to point 10 hereinabove and on	According to point 10 hereinabove and on demand

				demand	

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	1- main: Digital Image Processing, by Rafael C. Gonzalez and Richard E. Woods, Third Edition, 2009. 2- Digital Image Processing, by William K. Pratt, Fourth Edition, 2007. 3- Image Processing, ITT Visual Information Solutions, 2009. 4- Image Segmentation, by Pei-Gee Peter Ho, 2011. 5- Fundamentals of Digital Image Processing, by S. Annadurai; R. Shanmugalakshmi, Pearson Education, India, 2006. 6- Digital Image Processing And Analysis: Human and Computer Vision Applications with CVIProtocols, Scott E Umbaugh, Second Edition, published by Taylor and Frances, 2011. 6- The Complete Reference Visual Basic.Net, by Jeffrey R. Shapiro, McGraw–Hill Companies, USA, 2002. 7- Learn VB.Net, by Chuck Easttom, Wordware Publishing Inc., 8- Mastering Visual Basic .Net, By EvangelosPetroutsos, SYBEX Inc., 2002, CA, USA. 9- Introduction to Visual Basic 2010, McGraw–Hill Companies, USA, 2010.
Special requirements (include for example workshops, periodicals, IT software, websites)	Software of vb .net new version or even 2010 but not less.

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

13. Admissions	
Pre-requisites	207 CCG، 303 CAA.
Minimum number of students	Subject to classroom size, 20 student as minimum
Maximum number of students	Subject to classroom size, maximum 30 students