



Department of ...Computer Science.....

Faculty ofScience

University ofCihan.....

Subject: Multimedia

Course Book – Year 4 (Semester 1)

Lecturer's name Dr. Kusay Faisal Abdulrazak

Academic Year: 2023/2024

Course Book

1. Course name	Multimedia
2. Lecturer in charge	Dr. Kusay Faisal Abdulrazak
3. Department/ College	Computer Science
4. Contact	e-mail: Kusay.faisal@sulicihan.edu.krd Tel:
5. Time (in hours) per week	Theory: 2 hours Practical: 2 hours
6. Office hours	2hr/ week
7. Course code	CSC4102
8. Teacher's academic profile	<p>Dr. Kusay Faisal was born in Sheffield, UK, 1977. Received B.SC in electrical and electronics engineering in year 2000. Received M.Sc. and Ph.D. degrees in telecommunication engineering from University Technology Malaysia (UTM) in 2007 and 2013 respectively.</p> <p>He did researches in Wireless communication, Radar, Satellite, LMDS, HAPS, broadband wireless access, and wireless networking fields. Worked as assistant professor doctor in the faculty of computer science at Cihan University, Sulaimanya, taught the following subjects:</p> <ul style="list-style-type: none"> · Microprocessor structure · Computer Architecture. · MATLAB Programming · Multimedia. · Image processing. · Operation research · English for computer · Computer application · Account software package · Accounting Information System · Computer Skills
9. Keywords	Multimedia, HyperText, HyperMedia, graphics/image data, monochrome, colour image, histogram, image compression, digital audio, MIDI, digital video.
10. Course overview:	<p>This course will include different topics about multimedia; start with an introduction to multimedia shows system properties and characteristics. Then, describe</p>

multimedia fundamental, which includes multimedia hardware and multimedia global structure. **Next**, the course will cover digital multimedia image, which includes multimedia data representation like image type and image representation, followed by image processing which focuses on image histograms, and image compression which will cover different coding and showing compression and decompression system models. **After that**, will study about audio fundamental, which includes basic digital audio such as digitization, conversions, nyquist, coding of audio, sampling, bit rate, channels, bit rate, and music instruction digital interface (MIDI). **Finally**, the fundamental concepts in video will be handled, which cover analogue video, digital video, video special effects, video compression, ends with video advantages and disadvantages.

Farther more, in the LAB will introduce MM in visual basic programming (Audio and Video), and some flash applications. Accessing the websites using VB- programming, Flash fundamentals and some applications.

11. Course objective:

Student will be able to

- Demonstrate knowledge of technology and processes employed in the use and integration of digital multimedia and have knowledge of technical terminology used in the multimedia domain.
- Demonstrate an understanding of the capabilities of current technology and the challenges posed to businesses and society.
- Demonstrate an understanding of managing a small multimedia project using different computer programming languages. And use some of the current multimedia software packages.
- Deploy effectively appropriate theory, practice, and computer tools to solve practical problems related to MM field.

12. Student's obligation

The student should attend lectures, practice in Lab. and completion of all tests, exams, assignments, reports, essays...etc

13. Forms of teaching

The English language will be used in conducting the lectures. The computer and data show will be used for lectures slides presentation, whiteboard and marker will be used for further explanation.

There will be classroom discussions and the lecturer will give enough time to analyze, evaluate, and solve problems sets throughout the semester. As well as there will be practical class using VB- programming to get more clarification about multimedia.

14. Assessment scheme

The 100 mark will be divided as shown in the table below:

Mid-semester theory exam	25 %
Homework, quizzes	5 %
Classroom activities and attendance	5 %
Mid-semester practical exam	15 %
Final theory exam	35 %

Final practical exam	15 %
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15. Student learning outcome:

The student will deal with multimedia application to improve learning skills and promote meaningful engagement with current technology and projects.

16. Course Reading List and References:

1. Prof. M.G.Krishnan, and Prof. Vikram Raj Urs, “**Multimedia and Animation**”, Karnataka State Open University, 2014.
2. Ze-Nian Li and Mark S. Drew, “**Fundamentals of Multimedia**”, School of Computing Science, Simon Fraser University, 3rd Edition, 2021.
3. Lovely personal university, “**Multimedia Systems**”, Rajneesh Agrawal, 2013.
4. K. Andleigh and K. Thakkar, “**Multimedia System Design**”, PHI, PTR, 2000.

17. The Topics

Lecturer's name


- Introduction to multimedia.
- Describe multimedia fundamental.
- Digital multimedia image.
- Audio fundamental.
- Fundamental concepts in video

Week	Topic
1	Introduction to multimedia Introduction to MM, Multimedia definition, components, Characteristics, applications, and usage.
2	Introduction to multimedia (Continue) Multimedia Elements & Classification, HyperText and HyperMedia, Types of Multimedia
3	Describe multimedia fundamental Multimedia hardware, and multimedia global structure.

Dr. Kusay Faisal

(2hr / week)

4	<p align="center">Digital multimedia image</p> <p>Multimedia data representation (image data types, image representation, graphics/image data types, image size and resolution, multimedia presentation, monochrome, colour image data types, image size calculation, popular file formats, graphics animation file).</p>	
5	<p align="center">Digital multimedia image (Continue)</p> <p>Image processing (image formation, image histograms, properties of image histograms, histogram modification, histogram modification examples).</p>	
6	<p align="center">Digital multimedia image (Continue)</p> <p>Image compression (explain and examples, entropy and code length, run-length coding, VLC “Shannon-Fano algorithm”, compression system model, compressor consists, encoding stage, decompressor consists, Huffman Coding, examples).</p>	
7	<p align="center">Examples and exercises on Digital multimedia image</p>	
8	<p align="center">Audio fundamental</p> <p>Basic digital audio (sound, sound wave and sound perception, sound measuring, SNR, digitization, analog to digital conversion, digital to analog conversion, filtering for A/D conversion, sampling for D/A conversion, quantization and PCM coding, Nyquist theorem)</p>	
9	<p align="center">Audio fundamental (Continue)</p> <p>Basic digital audio coding of audio, basic digital audio concepts, bit depth, channels, bit rate, sampling rate and PCM data rate, optimizing for the Web, examples.</p>	
10	<p align="center">Audio fundamental (Continue)</p> <p>Musical Instrument Digital Interface MIDI (definition of MIDI, benefits, configuration, ports, interface, limitations, message types, and MIDI applications).</p>	
11	<p align="center">Examples and exercises on audio fundamental</p>	

12	Fundamental concepts in video Definition digital video, video concepts, analogue video, digital video, file size and formats, video special effects.	
13	Fundamental concepts in video (Continue) ... Video compression, video H/S, video advantages and disadvantages.	
14	General review	
18. Practical Topics (If there is any)		(2hr / week)
<ul style="list-style-type: none"> ➤ Introduction to multimedia Lab and VB- programming. ➤ Load sound: Create windows Media Player with buttons (open, play, pause, stop) ➤ Load image: Design and create picture box, label, and button (load the image convert to grey colour). ➤ Convert the image to Red, Green, and Blue color ➤ Creating combo box in image. ➤ Creating path image. ➤ Creating labels for image. ➤ More exercises and practice 		
<p>19. Examinations:</p> <p>The type of exam the questions usually comes with problems needs to obtain the best solution to these problems, calculator required in the exam. May come one question have some definitions, multiple choice questions or discussions.</p>		
20. Extra notes:		None
<p>21. Peer review</p> <p style="text-align: center;"><i>Lecturer</i></p> <p style="text-align: center;"></p> <p style="text-align: center;"><i>Dr. Kusay Faisal Abdulrazak</i></p> <p><i>Reviewed and signed by:</i></p> <p style="text-align: center;"><i>Coordinator lecturer:</i></p> <p style="text-align: center;"><i>Dr. Lway Faisal Abdulrazak</i></p> <p><i>Head of Department:</i></p>		

