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| المملكة العربية السعودية  وزارة التعليم العالي  **جامعة أم القرى**  الكلية الجامعية بالجموم – قسم الحاسب الآلي |  | Kingdom of Saudi Arabia  Ministry of Higher Education  **Umm Al-Qura University**  University College in Al-Jamoum  Computer Dept. |

Course Specification

1. **Course number and name:** (2316316-3) Multimedia Systems
2. **Credits and contact hours:** 3 Credits

(Lecture: 3/week – Practical Session: Non)

1. **Instructor’s or course coordinator’s name:** Dr. Mohamed Othmani
2. **Text books**
3. **Main Text book:** Ze-Nian Li, Mark S. Drew, Fundamentals of Multimedia, Prentice Hall, 2003.
4. **References:**

Tim Morris, Multimedia Systems: Delivering, Generating, and Interacting With Multimedia, Springer, 2000.

Martin Russ, Sound Synthesis and Sampling, 3rd Edition, Focal Press, 2008.

1. **Specific course information**
2. **brief description of the content of the course (Catalog Description):**

This course covers the state-of-the-art technology for multimedia systems including aspects of the different media type images, animation, video, audio, graphics etc., and how they are used to create multimedia contents.

1. **prerequisites or co-requisites:** Web Programming (2316211-3)
2. **indicate whether a required, elective, or selected elective course in the program:** required
3. **Specific goals for the course**

The student will be able to:

1. Describe different realizations of multimedia tools
2. Understand how determine specifics of different multimedia elements and can explain basic techniques for presentation of multimedia.
3. Understand the range of technologies available to multimedia systems designers and integrators.
4. Demonstrate knowledge and skills in the use of compression algorithms for multimedia elements.
5. Design, develop and evaluate multimedia applications and their elements.

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| *Course*  *Goals* | *Program Outcomes* | | | | | | | | | | |
| SOa | SOb | SOc | SOd | SOe | SOf | SOg | SOh | SOi | SOj | SOk |
| 1 |  |  |  |  |  | ✓ |  |  | ✓ | ✓ |  |
| 2 | ✓ |  |  |  |  |  |  |  | ✓ |  |  |
| 3 | ✓ |  |  |  |  | ✓ |  | ✓ |  |  |  |
| 4 | ✓ |  |  |  | ✓ |  |  | ✓ |  | ✓ | ✓ |
| 5 |  |  |  |  |  |  |  | ✓ |  | ✓ | ✓ |

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| **Relationship of Course Goals to the Program Student Outcomes** | |
| **SOa** | An ability to apply knowledge of computing and mathematics appropriate to the discipline   * *Students are required to apply knowledge of mathematics to understand digitizing sound and images, conversion between color models and compression techniques.* |
| **SOd** | An ability to function effectively on teams to accomplish a common goal.   * *Students are required to work in groups in lab problems and group project.* |
| **SOe** | An understanding of professional, ethical, legal, security, and social issues and responsibilities.   * *Students are required to use professional software used for editing multimedia elements.* |
| **SOf** | An ability to communicate effectively with a range of audiences.   * *Group presentation allowed to student to present their ideas and communicate them effectively.* |
| **SOh** | Recognition of the need for, and an ability to engage in, continuing professional development.   * *Students are required to search internet to find suitable authoring tools for their project.* |
| **SOi** | An ability to use current techniques, skills, and tools necessary for computing practices.   * *Students are required to use the latest authoring software for their projects.* |
| **SOj** | An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.   * *Students are required to understand the different compression techniques used in image and video.* |
| **SOk** | An ability to apply design and development principles in the construction of software systems of varying complexity.   * *The students are required to utilize multimedia authoring tools to create an interactive multimedia project.* |

1. **Brief list of topics to be covered**

* Introduction to Multimedia
* Multimedia Data Basics
* Audio Fundamentals
* Image and Video Fundamentals
* Animation
* Compression: Basic Algorithms
* Compression: Images (JPEG)
* Compression: Video (MPEG)