**UNIVERSITY OF THE CORDILLERAS**

**College of Information Technology and Computer Science**

**Course Syllabus in ITE16 – Multimedia Systems**

1. **Course Code:** ITE16 – Multimedia Systems

3 units

Lecture: two times a week – 3.33 hours x 10 weeks

Laboratory: three times a week – 5 hours x 10 weeks

1. **Course Description:**

This course studies the theories and principles behind multimedia, published content, the elements of multimedia, and their representations in computer systems. It is focused on the concepts behind the integration of text, audio, pictures, animations, and interactivity as a form of more effective information delivery as well as a form of content generation. Content creation during the course involves various software tools concerned with the creation of specific and integrated media elements to effectively emphasize quality and presentation of information.

1. **Prerequisites:**

None

1. **Course Outcomes:**

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| **ATTRIBUTES OF GRADUATES OF UC-CITCS** | | |
| **Attributes** | **Code** | **Description** |
| Analytical Skills | AG1 | ITE Knowledge and Skills |
| Flexible | AG2 | Adapt to changes |
| Innovative | AG3 | Creative |
| Team Work | AG4 | Work productively in teams and leadership skills |
| Ethical Behavior & Practices | AG5 | Ethical behaviour |

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| **PROGRAM EDUCATIONAL OUTCOMES/OBJECTIVES** | | | |
| **Graduate Attribute** | **Graduate Outcomes Code** | **Graduate Outcomes** | **Attributes of Graduates of UC-CITCS** |
| Knowledge for Solving Computing Problems | IT1 | Apply knowledge of computing, science, and mathematics appropriate to the discipline. | AG1 |
| IT2 | Understanding best practices and standards and their applications. | AG1 |
| Problem Analysis | IT3 | Analyze complex problems, and identify and define the computing requirements appropriate to its solution. | AG1, AG2 |
| IT4 | Identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems. | AG1, AG2, AG3 |
| Design/Development of Solutions | IT5 | Design, implement, and evaluate computer-based systems, processes, components, or programs to meet desired needs and requirements under various constraints. | AG1, AG2 |
| IT6 | Integrate IT-based solutions into the user environment effectively. | AG1, AG2 |
| Modern Tool Usage | IT7 | Apply knowledge through the use of current techniques, skills, tools, and practices necessary for the IT profession. | AG1, AG2 |
| Individual and Team Work | IT8 | Function effectively as a member or leader of a development team recognizing the different roles within a team to accomplish a common goal. | AG3 |
| IT9 | Assist in the creation of an effective IT project plan. | AG1, AG2, AG3 |
| Communication | IT10 | Communicate effectively with the computing community and with society at large about complex computing activities through logical writing, presentations, and clear instructions. | AG1, AG2, AG3 |
| Computing Professionalism and Social Responsibility | IT11 | Analyze the logical and global impact of computing information technology on individuals, organizations, and society. | AG1, AG2, AG3, AG4 |
| IT12 | Understand professional, ethical, security and social issues, and responsibilities in the utilization of information technology. | AG1, AG4 |
| Life-Long Learning | IT13 | Recognize the need for and engage in planning self-learning and improving performance as a foundation for continuing professional development. | AG3, AG5 |

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| **COURSE LEARNING OUTCOMES** | | | | | | | | | | | | | | |
| **Course Outcomes** | **Course Outcomes Code** | **Program Educational Outcomes** | | | | | | | | | | | | |
| **IT1** | **IT2** | **IT3** | **IT4** | **IT5** | **IT6** | **IT7** | **IT8** | **IT9** | **IT10** | **IT11** | **IT12** | **IT13** |
| Define the various forms and elements of multimedia, the use of multimedia systems its purpose in dissemination of information, and the implications and standards of multimedia on computer systems. | CO1 | I | I | I | I | I | I | I | I | I | I | I | I | I |
| Have an in-depth knowledge and understanding of the elements of multimedia, the flow and seamless integration of various forms of media, the theories behind effective information delivery, and the software and hardware systems governing multimedia and translate various forms of information in media, relationships between elements of multimedia, and information produced by multimedia software. | CO2 | I | I | I | I | I | I | I | I | I | I | I | I | I |
| Synthesize analog and digital data for use in multimedia, and information for effective presentation of data. | CO3 | I | I | I | I | I | I | I |  | I | I |  | I | I |
| State the differences between the elements of multimedia, and information and presentation. | CO4 |  | E | E | D |  |  |  |  | D | D |  |  |  |
| Determine, through design and methodology the creation of information presented via multimedia, the advantages and disadvantages of producing and using multimedia, and the implications of multimedia towards information dissemination. | CO5 | E | E | E | D | D |  | D | D | D | D |  |  |  |
| Respond to the requirement of presenting information to effectively deliver detail, changes and trends in the way information is accessed and presented, and the applications of multimedia in the global scale. | CO6 |  | E | E | D | D | E | D | D | D | D |  |  |  |
| Effectively create multimedia content considering integration and interactivity of media elements, good design for information presentation, storage and maintenance of information over computer systems, and standards for publishing media. | CO7 | I | I | I | I | I | I | I | I | I | I | I | I | I |
| Make use of media creation software including graphics editing, video editing and recording, sound editing and recording, and multimedia presentation software. | CO8 | D | D | D | D | D | D | D | D | D | D | D | D | D |
| Design and display media content through slideshow presentations, informative and entertainment videos, and indirect applications of multimedia such as in mass media and advertising. | CO9 | E | E | E | E | E | E | E | E | E | E | E | E | E |
| **Legend: I – Introduction E – Enabling D - Demonstration** | | | | | | | | | | | | | | |

1. **Bases of Evaluation:**
2. Course requirements that are evaluated based on the rubrics.
3. Online courses from EDX.org.
4. Prelim, midterm and final major examinations.
5. The standard grading system of the University.
6. Rubrics:
   1. Rubric for Diagrams (RFD)
   2. Rubric for Game Package (RFGP)
   3. Rubric for Research Paper (RFRP)
   4. Rubric for Presentations (RFP)

**VI. Grading System:**

1. Prelim Score = 33% Prelim Class Standing + 33% Prelim Laboratory + 34% Prelim Exam
2. Midterm Score = 50% Prelim Score + 50% Tentative Midterm Score
   1. Tentative Midterm Score = 33% Midterm Class Standing + 33% Midterm Laboratory + 34% Midterm Exam
3. Final Score = 50% Midterm Score + 50% Tentative Final Score
   1. Tentative Final Score = 33% Final Class Standing + 33% Final Laboratory + 34% Final Exam

**Note:** 1. CS is composed of the course requirements and the required online courses.

2. Scores are transmuted to an equivalent grade where a score of 50% is needed to get a passing grade of 75.

**VII. Course Content:**

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| **TOPICS** | **RESOURCES** | **TIME FRAME (HOURS, WEEK AND GRADING PERIOD)** | **INSTRUCTIONAL MODE** | **ACTIVITIES AND RUBRICS** | **LEARNING OUTCOMES** |
| **Unit 1. What is Multimedia**   1. Introduction to Multimedia 2. Uses of Multimedia 3. Delivering Multimedia | B5, W1 | **Hours:**  5 hours  **Week:**  Week 1 | 1. Lecture – Discussion 2. Recitation 3. Group Activity 4. Online Quiz 5. Audio Visual Presentations | **Act01.** Interview: Multimedia Development Company.  **Act02.** Outline detailing the benefits and drawbacks of using a CD-ROM presentation, a multimedia web site, or a television advertisement.  **Lab01.** Research: History and Future of Multimedia  **Lab02.** Website Evaluation.  **Lab03.** Educational Multimedia Evaluation. | CO1  CO2 |
| **Unit 2. Text**   1. Fonts and Faces 2. Text in Multimedia 3. Computers and Text 4. Font Editing and Design Tools 5. Hypermedia and Hypertext | B5, W1 | **Hours:**   * 1. hours   **Week:**  Week 1 and Week 2 | 1. Lecture – Discussion 2. Recitation 3. Group Activity 4. Online Quiz 5. Audio Visual Presentations | **Act03.** Describe what characteristics a block of text might have. Describe what characteristics a typeface might have.  **Act04.** Discuss the differences among multimedia, interactive multimedia, hypertext, and hypermedia.  **Lab04.** Font Design  **Lab05.** Photoshop: Typography  **Lab06.** Photoshop: Text Art | CO1  CO2  CO3  CO7  CO8 |
| **Unit 3. Images**   1. Bitmap 2. Vector 3. Vector Drawn Objects vs. Bitmap 4. 3D Drawing and Rendering 5. Natural Light and Colour 6. Computerized Colour 7. Colour Palettes 8. Image File Formats | B1,B4, W1 W2, W8 | **Hours:**  8.33 hours  **Week:**  Week 2 and 3 | 1. Lecture – Discussion 2. Recitation 3. Group Activity 4. Online Quiz | **Act05.** Discuss the difference between bitmap and vector graphics.  **Act06.** Exploring Geometric Primitives  **Lab07.** Photoshop: Basic Photo Correction  **Lab08.** Photoshop: Selections  Layers  **Lab09.** Photoshop: Correcting and Enhancing Digital Photographs  **Lab10.** Photoshop: Masks and Channels  **Lab11.** Photoshop: Typographic Design  **Lab12.** Photoshop: Vector Drawing Techniques | CO1  CO2  CO3  CO4  CO7  CO8 |
| **PRELIM EXAMINATION** | | | | | |
| **Unit 4. Sound**   1. Digital Audio 2. Midi 3. Midi vs. Digital Audio 4. Multimedia System Sounds 5. Audio File Formats 6. Adding Sound to Multimedia Project | B1, B3, W5 | **Hours:**  16.66 hours  **Week:**  Week 4, 5, 6 | 1. Lecture – Discussion 2. Recitation 3. Group Activity 4. Online Quiz | **Act07.** Discuss the implications of using audio in a production, focusing on the purpose of the audio, how to  Manage audio files, and copyright issues.  **Act08.** List the four main sampling rates and the two sampling depths. Briefly describe what each is most useful for. How does mono versus stereo come into the equation?  **Act09.** Describe what MIDI is, what its benefits are, and how it is best used in a multimedia project.  Act10. List the steps you would go through to record, edit, and process a set of sound files for inclusion on a website. How would you digitally process the files to ensure they are consistent, have minimum file size, and sound their best?  **Lab13.** Audacity: Editing an Existing Audio Track  **Lab14.** Audacity: Looping Audio  **Lab15.** Audacity: Drumbeats  **Lab16.** Audacity: Pitch | CO1  CO2  CO3  CO4  CO7  CO8 |
| **Unit 5. Animation**   1. Principles of Animation 2. Animation by Computer 3. Making Animations | B1, B2, W6 | **Hours:**  16.67 hours  **Week:**  Week 7 and week 8 | 1. Lecture – Discussion 2. Recitation 3. Group Activity 4. Online Quiz | **Act10.** Discuss the physical and psychological principles as to why animation works, as well as how it is usually presented.  **Act11.** Discuss the origins of cel animation and the concepts that go into creating these animations.  **Act12.** Discuss where and how you might use animation in one of the following projects.  **Lab17.** Simple Animation using Fireworks  **Lab18.** Creating your own Animation using Fireworks  **Lab19.** Simple Animation using PowToons | CO4  CO7  CO8  CO9 |
| **Midterm Examination** | | | | | |
| **Unit 6. Video**   1. Analog and Digital Video 2. Digital Video Containers 3. Obtaining Video Clips   Shooting and Editing Video | B2, B5, W4, W7, W8 | **Hours:**  13.33 hours  **Week:**  Week 8 and week 9 | 1. Lecture – Discussion 2. Recitation 3. Group Activity 4. Online Quiz | **Act13.** Discuss how the computer monitor image differs from a television image. List the limitations in creating images on the computer destined for a television screen.  **Act14.** Discuss several considerations in shooting and editing video for multimedia. What techniques would you use to produce the best possible video, at a reasonable cost? Which of these techniques apply to all video, and which apply specifically to multimedia?  **Lab20.** Video Project | CO4  CO7  CO8  CO9 |
| **Unit 7. Making Multimedia**   1. Stages of Multimedia Project 2. Hardware 3. Software   Authoring Systems | B2, B5, W4, W7, W8 | Hours:  13.67 hours  Week:  Week 9 and week 10 | 1. Lecture – Discussion 2. Recitation 3. Group Activity 4. Online Quiz | **Act15.** List the various methods of connecting a computer with the “world,” and discuss the benefits and drawbacks of each.  **Act16.** Describe the problems you are likely to encounter in creating a cross-platform program, and list several ways to deal with these problems.  **Lab21.** Create the credits for an imaginary multimedia production. Include several outside organizations, such as video production companies and audio mixing/post-production facilities. Don’t forget to include copywriters and other content providers. It may be helpful to look at the credits for an actual production. | CO4  CO7  CO8  CO9 |
| **FINAL EXAMINATION** | | | | | |

**VIII. References:**

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| **RESOURCE TYPE** | **RESOURCE CODE** | **RESOURCES** |
| Books | B1 | Babbage, Jim (2012). Adobe Fireworks CS6 : Classroom in a Book |
| B2 | Gerabtabee, Fred. (2012). Introduction to Adobe Flash Professional CS6 |
| B3 | Qing Li (2010). Ubiquitous Multimedia Computing |
| B4 | Gonzalez, Rafael (2010). Digital Image Processing |
| B5 | Chapman, N P. (2009). Digital Multimedia |
| Websites | W1 | http://highered.mheducation.com/sites/0071748466/student\_view0/index.html |
| W2 | http://www.photoshoptutorials.ws/ |
| W3 | http://powtoons.com |
| W4 | http://www.deviantart.com/ |
| W5 | http://www.audacity.org |
| W6 | http://help.adobe.com/en\_US/fireworks/cs/using/WS3f28b00cc50711d9747916a4133a3945f80-8000.html |
| W7 | http://www.premiumbeat.com/blog/15-premiere-pro-tutorials-every-video-editor-watch/ |
| W8 | http://ptgmedia.pearsoncmg.com/imprint\_downloads/peachpit/peachpit/academic/PSCS5CIB\_Instructor\_Notes.pdf |

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| Prepared by  Leonard Prim Francis G. Reyes, MIT  Instructor | Evaluated by  Josephine Dela Cruz, DIT  Dept. Head | Approved by  Jeffrey S. Ingosan, MIT  Dean, CITCS |