<table>
<thead>
<tr>
<th>COURSE TITLE</th>
<th>MULTIMEDIA TECHNOLOGY \n\textit{(Teknologi Multimedia)}</th>
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<tbody>
<tr>
<td>COURSE CODE</td>
<td>TMP1613</td>
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<tr>
<td>CREDIT</td>
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<td>PREREQUISITE/S</td>
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<p>| SYNOPSIS | This course introduces students to techniques and tools related with the creation of interactive multimedia application. It explores current and future issues related to multimedia technology. This course covers both theoretical and practical aspects in designing multimedia systems. For project assessment, students will develop an interactive multimedia application to display their ability to use multimedia tools including multimedia authoring. |
| LEARNING OUTCOMES | By the end of this course, students will be able to: |
|                   | o Analyze and explain various technologies involved to support multimedia application development. (C4) |
|                   | o Build interactive multimedia application such as montage and animation. (P4) |
|                   | o Discuss and comply multimedia design guidelines. (A2) |
|                   | o Solve multimedia project development problems and capable to lead a multimedia development project, also to market their multimedia products. (CT, TS, LS) |</p>
<table>
<thead>
<tr>
<th>STUDENT LEARNING HOURS</th>
<th>Lectures</th>
<th>Laboratories/Practical</th>
<th>Self-Study</th>
<th>Quizzes, Tests, &amp; Examinations</th>
<th>Total</th>
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<tr>
<td></td>
<td>28</td>
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<thead>
<tr>
<th>LEARNING UNITS</th>
<th>Supervised Learning Hours</th>
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<tbody>
<tr>
<td>1. Introduction</td>
<td>2</td>
</tr>
<tr>
<td>- History of Multimedia Systems</td>
<td></td>
</tr>
<tr>
<td>2. Overview of Multimedia Technology</td>
<td>3</td>
</tr>
<tr>
<td>- Multimedia/Hypermedia</td>
<td></td>
</tr>
<tr>
<td>- What is Multimedia?</td>
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</tr>
<tr>
<td>- What is HyperText and HyperMedia?</td>
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<tr>
<td>- Multimedia Systems</td>
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<tr>
<td>- Characteristics of a Multimedia System</td>
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<tr>
<td>- Challenges for Multimedia Systems</td>
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<td>- Desirable Features for a Multimedia System</td>
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<td>- Components of a Multimedia System</td>
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<tr>
<td>- Multimedia and Your Daily Life</td>
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<tr>
<td>- Trends in Multimedia</td>
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<tr>
<td>3. Multimedia Applications, Systems and Technology</td>
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<tr>
<td>- Analog and Digital Data</td>
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<tr>
<td>- Multimedia Applications</td>
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<td>- Properties of Multimedia Systems</td>
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<td>- Multimedia Enabling Technology</td>
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<td>- Hardware requirement</td>
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<td>- Multimedia Software</td>
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<td>- Multimedia Computer Technology</td>
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<td>- Storage Technology</td>
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<td>4. Multimedia Data: Text, Graphics and Audio</td>
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<tr>
<td>- Characteristics of Text</td>
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<tr>
<td>- Graphic/Image File Formats</td>
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<tr>
<td>- Graphic/Image Data Structures</td>
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<tr>
<td>- Standard System Independent Formats: GIF (GIF87a,GIF89a), JPEG ,TIFF, Graphics Animation Files, and Postscript/Encapsulated Postscript</td>
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<td>- System Dependent Formats: Microsoft Windows:</td>
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BMP, Macintosh: PAINT and PICT, and Xwindows: XBM
- Basics of Digital Audio
- Application of Digital Audio
- Digitization of Sound
- Digitizing Audio
- Computer Manipulation of Sound
- Sample Rates and Bit Size
- Nyquist's Sampling Theorem
- Implications of Sample Rate and Bit Size
- Typical Audio Formats
- Delivering Audio over a Network
- Synthetic Sounds

5. Multimedia Data: Animation and Video
- Basics of Colour
- CIE Chromaticity Diagram
- Colour Image and Video Representations
- Creating Animations
- Basics of Video
- Types of Colour Video Signals
- Analog Video
- Digital Video
- Chroma Subsampling

6. Multimedia Project Development
- Issues in Multimedia Applications Design
- Content Design
- Technical Design
- Visual Design
- Considerations
- Development Metaphors
- Multimedia Project Planning
- Storyboarding
- Media Design
- Text Editors
- Image Editors
- Animation Editors
- Sound Editors
- Video Editors
- Development Methodology
- Analysis and Design
- Content Creations
- Maintenance
- Functionality and Navigation
- Usability and Testing
- Marketing Multimedia Product
- Legal Issues

7. Multimedia Authoring, Programming and Scripting
   - Multimedia Authoring: Systems and Applications
   - What is an Authoring System?
   - Why should you use an authoring system?
   - Multimedia Authoring Paradigms
   - Multimedia Programming vs Multimedia Authoring
   - Multimedia Authoring
   - Multimedia Programming and Scripting Technologies
   - Director programming/Lingo Scripting
   - Director Basics
   - Overview and Definitions
   - The Score and the Stage
   - Using The Score
   - The playback head
   - Channels
   - Frames
   - Sprites
   - Cast members
   - Editing Frames
   - Identifying Frames with Lingo
   - Lingo Scripting
   - Types of Scripts
   - Webbased Multimedia

8. WWW and Web-based Multimedia
   - Web Applications Development
   - Multimedia on the Web
   - Why the Web for distributing Multimedia?
   - Standalone vs Webbased
   - Development of Web Applications
- Modern Web-based Multimedia Applications
- Web-based Applications
- E-Learning
- E-Commerce
- E-Government
- E-Entertainment
- Online and Web Issues
- Harmful Information and Communications
- Plagiarism and Copyrights
- Cybercrime and Cybersecurity

9. Multimedia Communications and Data Compressions
   - Multimedia Communications
   - Multimedia Communications Basics
   - Multimedia Networks
   - Technological Advancement and Challenges
   - Issues QoS guarantee provision at the network layer
   - Multimedia Compressions
   - Why Compression?
   - Lossy and Lossless Compression
   - Image and Video Compression

10. Emerging and Advanced Multimedia Applications
    - Human aspect of Computing
    - Animated Agent and Avatar
    - Advanced Multimedia Learning
    - Bioinformatics and Health Computing
    - Massively online Multiplayer Gaming
    - Web 2.0, Mashups and Social Networking
    - Voice and Face Recognition
    - Home and Entertainment Computing
    - Wireless and Mobile Multimedia Communications
    - Advanced Multimedia Applications
    - Virtual and Augmented Reality
    - Applied Artificial Intelligence
    - GIS and geographical data processing
    - Industrial Computing and Human-Robot Interaction
    - Web Data Mining and Knowledge Discovery
- Visualization for Multimedia Information Retrieval
- 3D Graphical Display and Interaction
- 3D modelling and reconstruction

11. Multimedia Future Directions
- Computing without Keyboards
- Web 3.0 and Semantic Web
- Wearable Computing and Future Devices
- Genetic algorithm and Evolutionary computation
- Natural Human Computing
- Personal Area Networks
- IP address and Home Appliances
- RFID and Microwave Communications
- Future Trends

ASSESSMENT

<table>
<thead>
<tr>
<th>Component</th>
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<td>Assignments</td>
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<td>Mid Term Exam</td>
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<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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REFERENCES


19. Recommended Websites
http://www.actionscript.org/
http://www.flashkit.com/
http://www.macromedia.com/software/flash/
http://www.tutorialfind.com/tutorials/macromedia/flash/
http://webforums.macromedia.com/flash/

Last updated: September 12, 2011, Mon, 9:45 AM