

## Subject Description Form

<b>Subject Code</b>	COMP3422
<b>Subject Title</b>	Creative Digital Media Design
<b>Credit Value</b>	3
<b>Level</b>	3
<b>Pre-requisite / Co-requisite / Exclusion</b>	<b>Pre-requisite:</b> COMP2011/COMP2013
<b>Objectives</b>	<p>The objectives of this subject are to:</p> <ol style="list-style-type: none"><li>1. provide the foundation knowledge of multimedia computing, e.g. media characteristics, compression standards, multimedia representation, data formats, multimedia technology development;</li><li>2. provide intuitive experience of multimedia computing, multimedia system design and implementations; and</li><li>3. provide basic idea and training of creative media design and system implementation.</li></ol>
<b>Intended Learning Outcomes</b>	<p>Upon completion of the subject, students will be able to:</p> <p><u>Professional/academic knowledge and skills</u></p> <ol style="list-style-type: none"><li>(a) identify the characteristics of different media; describe the representations of different multimedia data; recognise different data formats; take into considerations of these issues in multimedia system designs;</li><li>(b) identify the characteristics of human information processing, including processing, perception and cognition, and take into considerations of these factors in multimedia techniques design and implementation;</li><li>(c) explain different methods and techniques in storing, processing and analysing multimedia content; and apply appropriate methods and techniques to design and develop multimedia systems according to the requirements of multimedia applications;</li><li>(d) write programs to process multimedia data and design and implement media applications;</li><li>(e) grasp the fundamentals and principles of creative media design and system implementation; and</li></ol> <p><u>Attributes for all-roundedness</u></p> <ol style="list-style-type: none"><li>(f) learn independently and search for the information required in solving problems.</li></ol>

<b>Subject Synopsis/ Indicative Syllabus</b>	<table border="1"> <tr> <td colspan="7" data-bbox="384 129 1455 197"><b>Topic</b></td> </tr> <tr> <td colspan="7" data-bbox="384 197 1455 353"> <b>1. Overview of Multimedia Computing</b>  Definitions, terms, terminologies, characteristics and requirements of different media; components of multimedia systems. </td> </tr> <tr> <td colspan="7" data-bbox="384 353 1455 510"> <b>2. Human Information Processing</b>  Characteristics and limitations of human visual, audio and haptic system, human perception and cognition. </td> </tr> <tr> <td colspan="7" data-bbox="384 510 1455 667"> <b>3. Multimedia Data Representation, Compression and Storage</b>  Representation of sound/audio, image and video; compression principles; entropy and hybrid coding; compression standards. </td> </tr> <tr> <td colspan="7" data-bbox="384 667 1455 824"> <b>4. Multimedia Coding, Analysis and Compression</b>  Coding requirements; speech generation, analysis and software; image analysis, display, and printing. </td> </tr> <tr> <td colspan="7" data-bbox="384 824 1455 992"> <b>5. Developments in Multimedia Technology</b>  Multimedia history, technology development, challenging problems, current research topics, multimedia industry. </td> </tr> </table>							<b>Topic</b>							<b>1. Overview of Multimedia Computing</b> Definitions, terms, terminologies, characteristics and requirements of different media; components of multimedia systems.							<b>2. Human Information Processing</b> Characteristics and limitations of human visual, audio and haptic system, human perception and cognition.							<b>3. Multimedia Data Representation, Compression and Storage</b> Representation of sound/audio, image and video; compression principles; entropy and hybrid coding; compression standards.							<b>4. Multimedia Coding, Analysis and Compression</b> Coding requirements; speech generation, analysis and software; image analysis, display, and printing.							<b>5. Developments in Multimedia Technology</b> Multimedia history, technology development, challenging problems, current research topics, multimedia industry.						
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<b>Teaching/ Learning Methodology</b>	A mix of lectures and lab sessions is used to deliver the various topics in this subject. Lectures are conducted to initiate students with the concepts and techniques of multimedia computing that are reinforced by in-class exercises and quizzes. Lab sessions will be used to illustrate the practical problems and to train multimedia design ability. Students are given the opportunity to gain hands-on experience on designing and implementing a multimedia application.																																																
<b>Assessment Methods in Alignment with Intended Learning Outcomes</b>	<table border="1"> <thead> <tr> <th data-bbox="384 1294 735 1464" rowspan="2">Specific assessment methods/tasks</th> <th data-bbox="735 1294 895 1464" rowspan="2">% weighting</th> <th colspan="6" data-bbox="895 1294 1455 1397">Intended subject learning outcomes to be assessed</th> </tr> <tr> <th data-bbox="895 1397 986 1464">a</th> <th data-bbox="986 1397 1077 1464">b</th> <th data-bbox="1077 1397 1168 1464">c</th> <th data-bbox="1168 1397 1259 1464">d</th> <th data-bbox="1259 1397 1350 1464">e</th> <th data-bbox="1350 1397 1455 1464">f</th> </tr> </thead> <tbody> <tr> <td data-bbox="384 1464 735 1576"><b>Continuous Assessment</b></td> <td data-bbox="735 1464 895 1576"><b>55%</b></td> <td data-bbox="895 1464 986 1576">✓</td> <td data-bbox="986 1464 1077 1576">✓</td> <td data-bbox="1077 1464 1168 1576">✓</td> <td data-bbox="1168 1464 1259 1576">✓</td> <td data-bbox="1259 1464 1350 1576">✓</td> <td data-bbox="1350 1464 1455 1576">✓</td> </tr> <tr> <td data-bbox="384 1576 735 1644"><b>Examination</b></td> <td data-bbox="735 1576 895 1644"><b>45%</b></td> <td data-bbox="895 1576 986 1644">✓</td> <td data-bbox="986 1576 1077 1644">✓</td> <td data-bbox="1077 1576 1168 1644">✓</td> <td data-bbox="1168 1576 1259 1644"></td> <td data-bbox="1259 1576 1350 1644">✓</td> <td data-bbox="1350 1576 1455 1644">✓</td> </tr> <tr> <td data-bbox="384 1644 735 1711">Total</td> <td data-bbox="735 1644 895 1711">100%</td> <td colspan="6" data-bbox="895 1644 1455 1711"></td> </tr> </tbody> </table> <p data-bbox="384 1733 1455 1800">Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p data-bbox="384 1845 1455 2092">Continuous assessments consist of project, quizzes and/or midterms, which are designed to facilitate students to achieve intended learning outcomes. The quizzes are designed to drive students to review how comprehensively and correctly they have understood the knowledge concepts, principles, and theories taught in the subject. The project is designed to enhance students' ability to acquire the understanding and using different multimedia computing principles, techniques, tools to solve a real problem.</p>							Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed						a	b	c	d	e	f	<b>Continuous Assessment</b>	<b>55%</b>	✓	✓	✓	✓	✓	✓	<b>Examination</b>	<b>45%</b>	✓	✓	✓		✓	✓	Total	100%										
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	Examination will evaluate student's understanding and usage of multimedia computing knowledge, e.g. concepts, principles, techniques, and standards.	
<b>Student Study Effort Expected</b>	Class contact:	
	▪ Lecture	26 Hrs.
	▪ Tutorial/Lab	13 Hrs.
	Other student study effort:	
	▪ Prepare for Quizzes and Exam	30 Hrs.
	▪ Project Work	37 Hrs.
	Total student study effort	106 Hrs.
<b>Reading List and References</b>	<ol style="list-style-type: none"> <li>1. Friedland, Gerald and Jain, Ramesh, <i>Multimedia Computing</i>, Cambridge University Press, 2014.</li> <li>2. Guan, L. (Ed.). (2017). <i>Multimedia image and video processing</i>. CRC press.</li> <li>3. Parhi, K. K., &amp; Nishitami, T. (Eds.). (2018). <i>Digital Signal processing for multimedia systems</i>. CRC press.</li> <li>4. Mayer, R. E. (2017). Using multimedia for e-learning. <i>Journal of Computer Assisted Learning</i>, 33(5), 403-423.</li> <li>5. Sayood, K. (2017). <i>Introduction to data compression</i>. Morgan Kaufmann.</li> <li>6. Rao, K. R., &amp; Yip, P. C. (Eds.). (2018). <i>The transform and data compression handbook</i>. CRC press.</li> <li>7. <i>Proceedings of ACM Multimedia (ACMMM)</i>.</li> <li>8. <i>ACM Transactions on Multimedia Computing, Communications and Applications (ACM TOMM)</i>.</li> <li>9. <i>IEEE Transactions on Affective Computing (IEEE TAC)</i>.</li> <li>10. Relevant articles from other conferences and/or journals.</li> </ol>	