

# The Hong Kong Polytechnic University

## Subject Description Form

<b>Subject Code</b>	APSS1D40														
<b>Subject Title</b>	Innovations in Educational Technology														
<b>Credit Value</b>	3														
<b>Level</b>	1														
<b>GUR Requirements Intended to Fulfill</b>	<p>This subject intends to fulfill the following requirement(s) :</p> <p><input type="checkbox"/> <b>Healthy Lifestyle</b></p> <p><input type="checkbox"/> <b>AI and Data Analytics (AIDA)</b></p> <p><input type="checkbox"/> <b>Innovation and Entrepreneurship (IE)</b></p> <p><input type="checkbox"/> <b>Languages and Communication Requirement (LCR)</b></p> <p><input type="checkbox"/> <b>Leadership Education and Development (LEAD)</b></p> <p><input type="checkbox"/> <b>Service-Learning</b></p> <p><input checked="" type="checkbox"/> <b>Cluster-Area Requirement (CAR)</b></p> <p style="margin-left: 20px;"><input type="checkbox"/> Human Nature, Relations and Development [CAR A]</p> <p style="margin-left: 20px;"><input checked="" type="checkbox"/> Science, Technology and Environment [CAR D]</p> <p style="margin-left: 20px;"><input type="checkbox"/> Chinese History and Culture [CAR M]</p> <p style="margin-left: 20px;"><input type="checkbox"/> Cultures, Organizations, Societies and Globalization [CAR N]</p> <p><input type="checkbox"/> <b>China-Study Requirement</b></p> <p style="margin-left: 20px;"><input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> <b>Writing and Reading Requirements</b></p> <p style="margin-left: 20px;"><input type="checkbox"/> English or <input type="checkbox"/> Chinese</p>														
<b>Pre-requisite / Co-requisite/ Exclusion</b>	NIL														
<b>Assessment Methods</b>	<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 50%;"><b>100% Continuous Assessment</b></th> <th style="width: 25%;">Individual Assessment</th> <th style="width: 25%;">Group Assessment</th> </tr> </thead> <tbody> <tr> <td>1. Group Assignment and Presentation</td> <td></td> <td style="text-align: center;">40%</td> </tr> <tr> <td>2. In-class test</td> <td style="text-align: center;">40%</td> <td></td> </tr> <tr> <td>3. Essay</td> <td style="text-align: center;">20%</td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>The grade is calculated according to the percentage assigned;</li> <li>The completion and submission of all component assignments are required for passing the subject; and</li> <li>Student must pass all component(s) if he/she is to pass the subject.</li> </ul>			<b>100% Continuous Assessment</b>	Individual Assessment	Group Assessment	1. Group Assignment and Presentation		40%	2. In-class test	40%		3. Essay	20%	
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<b>Objectives</b>	<p>This subject introduces students to the latest educational technologies and their applications in teaching and learning to help students understand the impact of technology on education and the role of technology in shaping the future of education, equip students with the skills and knowledge necessary to use educational technology effectively in their academic pursuits, prepare students for life-long learning and adapting to the changing landscape of educational technology, promote ethical and responsible use of technology in education, as well as help students to understand the scientific methods that have been applied in education and their contributions to the rational understanding of the nature of learning.</p>
<b>Intended Learning Outcomes</b>	<p>Upon completion of this module, students will be able to:</p> <ol style="list-style-type: none"> <li>a. Identify and describe the latest educational technologies and their application in teaching and learning.</li> <li>b. Analyse the impact of technology on education and the role technology plays in shaping the future of education.</li> <li>c. Demonstrate proficiency in using educational technology tools and resources for academic pursuits.</li> <li>d. Understand the importance of educational technology in life-long learning.</li> <li>e. Apply critical thinking skills to analyse ethical and responsible use of technology in education.</li> </ol>
<b>Subject Synopsis/ Indicative Syllabus</b>	<ol style="list-style-type: none"> <li>1. Introduction to Educational Technology <ul style="list-style-type: none"> <li>• Definition of educational technology</li> <li>• Historical overview of educational technology</li> <li>• Emerging trends in educational technology</li> </ul> </li> <li>2. Interactive Learning and Immersive Learning <ul style="list-style-type: none"> <li>• Basic concepts of interactive learning and immersive learning</li> <li>• Creating interactive and immersive learning experiences</li> <li>• Metaverse and Edu-Metaverse</li> </ul> </li> <li>3. Gamification and Game-based Learning <ul style="list-style-type: none"> <li>• Definition of gamification and game-based learning</li> <li>• Game design principles and their application in education</li> <li>• Serious games and persuasive games</li> </ul> </li> <li>4. Mobile and Social Media Learning <ul style="list-style-type: none"> <li>• Basic concepts of mobile and social media learning</li> <li>• Mobile and social media learning for language learning and cultural exchange</li> <li>• Collaborative learning via socialisation platforms</li> <li>• Social media analysis in education</li> </ul> </li> </ol>

	<p>5. Massive Open Online Courses (MOOCs) and Open Education Resources (OERs)</p> <ul style="list-style-type: none"> <li>• Introduction to the use of MOOCs and OERs for academic pursuits</li> <li>• The role of MOOCs and OERs in higher education and life-long learning</li> <li>• Benefits and limitations of MOOCs and OERs</li> </ul> <p>6. Artificial Intelligence (AI) for Education</p> <ul style="list-style-type: none"> <li>• Basic concepts of AI and Machine Learning (ML)</li> <li>• Personalised learning and learning analytics</li> <li>• AI's roles in the educational system</li> </ul> <p>7. Ethical and Responsible Use of Educational Technology</p> <ul style="list-style-type: none"> <li>• Data encryption, management, and privacy protection</li> <li>• Ethical considerations related to AI and ML in education</li> <li>• Transparency and interpretability of AI and ML models</li> <li>• Case studies of ethical and responsible use of AI and ML in education</li> </ul>																																								
<p><b>Teaching/Learning Methodology</b></p>	<p>This subject's core content will be taught-in-class with the support of a variety of mediums, including lecture notes, videos, and references available on the learning management system (i.e., Learn@PolyU).</p> <p>Additionally, students will have access to six hours of pre-recorded themed seminars presented by renowned educators and researchers in the relevant areas. These seminars aim to provide students with fresh perspectives on the use of educational technology in teaching and learning, including the associated benefits, limitations, concerns, and considerations, at various education levels.</p> <p>To further complement the in-class learning experience, students are expected to engage in self-directed learning by reading selected materials and references to reinforce the concepts covered in class. This approach is intended to facilitate an in-depth understanding of the subject matter while promoting independent and life-long learning skills.</p>																																								
<p><b>Assessment Methods in Alignment with Intended Learning Outcomes</b></p>	<table border="1" data-bbox="448 1435 1485 1814"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="5">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th>e</th> </tr> </thead> <tbody> <tr> <td>1. Group assignment and presentation</td> <td>40%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>2. In-class test</td> <td>40%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>3. Essay</td> <td>20%</td> <td></td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td><b>Total</b></td> <td><b>100%</b></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>Continuous Assessments include assignment, group presentation, in-class test, and essay writing.</p> <p>The group assignment and presentation, based on a given theme related to the use of educational technology and its potential ethical issues, requires students to collaborate within their groups, identify the pros and cons of educational</p>	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					a	b	c	d	e	1. Group assignment and presentation	40%	✓	✓	✓	✓	✓	2. In-class test	40%	✓	✓	✓	✓	✓	3. Essay	20%		✓	✓	✓		<b>Total</b>	<b>100%</b>					
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	<p>technology in the given context, and apply critical thinking skills to analyse the impact and ethical and responsible use of technology in education. This assessment aims to evaluate students’ ability to work collaboratively and think critically about the ethical implications of educational technology.</p> <p>Towards the end of the semester, students are expected to write an essay of at least 800 words. This essay serves as an assessment of students’ ability to effectively use educational technology tools and understand the importance of educational technology in lifelong learning.</p> <p>Two in-class tests are designed to evaluate students’ performance in the first and second parts of the subject in relation to the intended learning outcomes.</p>	
<b>Student Study Effort Expected</b>	Class contact:	
	<ul style="list-style-type: none"> <li>▪ Lecture</li> </ul>	39 Hrs.
	Other student study effort:	
	<ul style="list-style-type: none"> <li>▪ Themed seminars (online learning)</li> </ul>	6 Hrs.
	<ul style="list-style-type: none"> <li>▪ Self-directed learning</li> </ul>	15 Hrs.
	<ul style="list-style-type: none"> <li>▪ Assignment, group presentation, and essay</li> </ul>	52 Hrs.
	Total student study effort	106 Hrs.
<b>Reading List and References</b>	<p>Bond, M., Buntins, K., Bedenlier, S., Zawacki-Richter, O., &amp; Kerres, M. (2020). Mapping research in student engagement and educational technology in higher education: A systematic evidence map. <i>International journal of educational technology in higher education</i>, 17(1), 1-30.</p> <p>Case studies. (2021). Retrieved from <a href="https://tech.ed.gov/case-studies/">https://tech.ed.gov/case-studies/</a></p> <p>Hew, K. F., Lan, M., Tang, Y., Jia, C., &amp; Lo, C. K. (2019). Where is the “theory” within the field of educational technology research?. <i>British Journal of Educational Technology</i>, 50(3), 956-971.</p> <p>Huang, R., Spector, J. M., Yang, J., Huang, R., Spector, J. M., &amp; Yang, J. (2019). Introduction to educational technology. <i>Educational Technology: A Primer for the 21st Century</i>, 3-31.</p> <p>Januszewski, A., &amp; Molenda, M. (2008). <i>Educational technology : a definition with commentary</i>. Lawrence Erlbaum Associates.</p> <p>Kimmons, R. (2020). Current trends (and missing links) in educational technology research and practice. <i>TechTrends</i>, 64(6), 803-809.</p> <p>Kolb, D. A. (2014). <i>Experiential learning: Experience as the source of learning and development</i>. FT press.</p> <p>Makransky, G., &amp; Petersen, G. B. (2021). The cognitive affective model of immersive learning (CAMIL): A theoretical research-based model of learning in immersive virtual reality. <i>Educational Psychology Review</i>, 33(3), 937-958.</p>	

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Xu, W., & Ouyang, F. (2022). A systematic review of AI role in the educational system based on a proposed conceptual framework. *Education and Information Technologies*, 27(3), 4195-4223.

Zhang, K., & Aslan, A. B. (2021). AI technologies for education: Recent research & future directions. *Computers and Education: Artificial Intelligence*, 2, 100025.

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