Subject Description Form

Subject Code	COMP4121
Subject Title	E-Commerce Technology and Applications
Credit Value	3
Level	4
Pre-requisite / Co-requisite / Exclusion	**Pre-requisite**: COMP2411 or a related subject Knowledge in Web application design/development (e.g., COMP3421) is preferred.
Objectives	To thoroughly understand the information technology for supporting E-commerce; specifically, the students should: • understand the necessary infrastructure and functional components to develop E-commerce systems; • understand applied cryptographic technology and Web security protocols; and • understand the design and application of E-commerce systems.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: *Professional/academic knowledge and skills* (a) acquire a deep understanding of e-commerce, both the technical and business aspects; (b) understand the principles and practices of e-commerce and its related technologies; and (c) design and implement a basic e-commerce application. *Attributes for all-roundedness* (d) follow trends of e-commerce; and (e) build up on team work, presentation and technical writing skills.

Subject Synopsis/ Indicative Syllabus

Topic
1. Introduction to E-commerce E-commerce fundamentals; different types of E-commerce; major components; business models; business issues.
2. Web System Internet basics; Web model; Web system; Hypertext Transfer Protocol (HTTP); Web development/programming (e.g., HTML, CSS, JavaScript, React, Node.js).
3. Cryptography and Internet Security Security requirements; basic cryptography; encryption methods; public key encryption; message digest; message authentication; digital signature; digital certificate; IPSec; firewalls; SSL/TLS.
4. Internet Payment Systems Credit card payment; E-cash; E-check; Internet payment services; mobile payment; blockchain; cryptocurrencies.
5. E-commerce Applications and Advanced Topics Various E-commerce applications; case studies; entrepreneurship and startup; auctions; advanced E-commerce topics (e.g., recommendation algorithms, Web3, NFT, metaverse).

Case Study: E-commerce applications.

Teaching/ Learning Methodology

Teaching is mainly conducted through lectures.

Lectures/learning are supplemented by exercises in workshops.

Students are assessed through assignments, a project, a mid-term test and an examination.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)				
		a	b	c	d	e
Continuous Assessment	**55%**					
1. Assignment(s)		✓	✓		✓	
2. Project		✓	✓	✓	✓	✓
3. Test(s)		✓	✓			
Examination	**45%**	✓	✓		✓	
Total	100%					

<table>
<tr><td></td><td colspan="2">Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The project is used to assess all learning outcomes.

The assignment(s) and test(s) are used as continuous assessment methods to assess students' knowledge and understanding about the subject.

Finally, students are assessed by a formal examination.

For the general departmental policy on the use of generative artificial intelligence (GenAI), please refer to the Programme Requirement Document. For this subject, the test(s) (i.e., in-class assessment without the use of GenAI) account(s) for 20%. For the assignment(s) and project, GenAI can be used provided that the 3R framework is followed (i.e., following an appropriate reporting mechanism as outlined below):

https://merlot.org/merlot/viewMaterial.htm?id=773417470.

Details will be provided in the assignment(s) and project. For the final examination, the use of GenAI is strictly prohibited.</td></tr>
<tr><td rowspan="5">Student Study Effort Expected</td><td colspan="2">Class contact:</td></tr>
<tr><td>▪ Lecture</td><td>39 Hrs.</td></tr>
<tr><td>▪ Lab/Tutorial</td><td>0 Hrs.</td></tr>
<tr><td colspan="2">Other student study effort:</td></tr>
<tr><td>▪ Self-study</td><td>66 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>105 Hrs.</td></tr>
<tr><td>Reading List and References</td><td colspan="2">Reference Books:

1. Chan, H., Lee, R., Dillon, T. and Chang, E., E-Commerce: Fundamentals and Applications, John Wiley & Sons, 2001.

2. Duckett, J., Web Design with HTML, CSS, JavaScript and jQuery Set, Wiley, 2014.

3. DuRocher, D., HTML and CSS QuickStart Guide, ClydeBank Media LLC, 2021.

4. Laudon, K. C. and Traver, C. G., E-Commerce 2021 - 2022, Pearson, 2021.

5. O'Mahony, D., Peirce, M. A. and Tewari, H., Electronic Payment Systems for E-Commerce, Artech House, 2001.

6. Osterwalder, A. and Pigneur, Y., Business Model Generation, John Wiley & Sons, 2010.

7. Peterson, L. L. and Davie, B. S., Computer Networks: A Systems Approach, 6th Edition, Morgan Kaufmann, 2021.</td></tr>
</table>

	8. Ries, E., *The Lean Startup*, Currency, 2011. 9. Stallings, W., *Cryptography and Network Security: Principles and Practice,* 7th Edition, Pearson, 2016. 10. Turban, E., Outland, J., King, D., Lee, J. K., Liang, T.-P. and Turban, D.C., *Electronic Commerce 2018*, Springer International Publishing, 2018.