# Subject Description Form

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| **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<br><br>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:<br><br>• understand the necessary infrastructure and functional components to develop E-commerce systems;<br><br>• understand applied cryptographic technology and Web security protocols; and<br><br>• understand the design and application of E-commerce systems. |
| **Intended Learning Outcomes** | Upon completion of the subject, students will be able to:<br><br>*Professional/academic knowledge and skills*<br><br>(a) acquire a deep understanding of e-commerce, both the technical and business aspects;<br><br>(b) understand the principles and practices of e-commerce and its related technologies; and<br><br>(c) design and implement a basic e-commerce application.<br><br>*Attributes for all-roundedness*<br><br>(d) follow trends of e-commerce; and<br><br>(e) build up on team work, presentation and technical writing skills. |

**Subject Synopsis/ Indicative Syllabus**

| Topic |
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| **1. Introduction to E-commerce**<br>E-commerce fundamentals; different types of E-commerce; major components; business models; business issues. |
| **2. Web System**<br>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**<br>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**<br>Credit card payment; E-cash; E-check; Internet payment services; mobile payment; blockchain; cryptocurrencies. |
| **5. E-commerce Applications and Advanced Topics**<br>Various E-commerce applications; case studies; entrepreneurship and startup; auctions; advanced E-commerce topics (e.g., recommendation algorithms, Web3, NFT, metaverse). |

**Teaching/ Learning Methodology**

Teaching is mainly conducted through lectures.

Lectures/learning are supplemented by exercises in workshops.

Students are assessed through continuous assessment and 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) | | | | |
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| **Continuous Assessment** | | | | | | |
| 1. Assignment(s) | **30%** | ✓ | ✓ | | ✓ | |
| 2. Group Project | | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3. Other Assessment(s) (e.g., In-class Quizzes) | | | ✓ | | ✓ | |
| **Examination** | **70%** | ✓ | ✓ | | ✓ | |
| Total | 100% | | | | | |

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| | Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:<br><br>The continuous assessment consists of three main components:<br><br>• Individual Assessment: Evaluated through one or more individual assignments.<br><br>• Group Assessment: Assessed via a group project, with consideration given to each student's individual contributions.<br><br>• Other Assessment(s) (e.g., participation): Assessed through in-class quizzes, etc.<br><br>The group project is designed to assess all intended learning outcomes of the subject. The individual assignment(s) evaluate students' knowledge and understanding of the subject matter. Other assessment(s) (e.g., in-class quizzes) are used to assess participation and monitor attendance. Finally, students' overall performance is assessed through a formal examination.<br><br>Note that, in accordance with departmental policy, the examination accounts for 70% of the overall grade. Equally important, active participation in lectures and engagement in learning activities are essential components of the learning process. Therefore, satisfactory completion of continuous assessment is mandatory. If a student fails the continuous assessment, the maximum overall grade attainable is D+, regardless of the examination result.<br><br>For the general departmental policy on the use of generative artificial intelligence (GenAI), please refer to the Programme Requirement Document. GenAI may be used for assignment(s) and project(s), provided that the 3R framework is followed and the appropriate reporting mechanism, as outlined below, is observed:<br><br>https://merlot.org/merlot/viewMaterial.htm?id=773417470<br><br>Specific details and requirements will be provided in the assignment and project instructions. Note that the use of GenAI is strictly prohibited during the final examination. | |
| **Student Study Effort Expected** | Class contact: | |
| | ▪ Lecture | 39 Hrs. |
| | ▪ Lab/Tutorial | 0 Hrs. |
| | Other student study effort: | |
| | ▪ Self-study | 66 Hrs. |
| | Total student study effort | 105 Hrs. |

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| **Reading List and References** | **Reference Books:**<br>1. Chan, H., Lee, R., Dillon, T. and Chang, E., *E-Commerce: Fundamentals and Applications*, John Wiley & Sons, 2001.<br>2. Duckett, J., *Web Design with HTML, CSS, JavaScript and jQuery Set,* Wiley, 2014.<br>3. DuRocher, D., *HTML and CSS QuickStart Guide*, ClydeBank Media LLC, 2021.<br>4. Laudon, K. C. and Traver, C. G., *E-Commerce 2021 - 2022*, Pearson, 2021.<br>5. O'Mahony, D., Peirce, M. A. and Tewari, H., *Electronic Payment Systems for E-Commerce*, Artech House, 2001.<br>6. Osterwalder, A. and Pigneur, Y., *Business Model Generation*, John Wiley & Sons, 2010.<br>7. Peterson, L. L. and Davie, B. S., *Computer Networks: A Systems Approach*, 6th Edition, Morgan Kaufmann, 2021.<br>8. Ries, E., *The Lean Startup*, Currency, 2011.<br>9. Stallings, W., *Cryptography and Network Security: Principles and Practice,* 7th Edition, Pearson, 2016.<br>10. Turban, E., Outland, J., King, D., Lee, J. K., Liang, T.-P. and Turban, D.C., *Electronic Commerce 2018*, Springer International Publishing, 2018. |