**Subject Description Form**

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| **Subject Code** | ENG2003 | |
| **Subject Title** | Information Technology | |
| **Credit Value** | 3 | |
| **Level** | 2 | |
| **Pre-requisite /**  **Co-requisite/ Exclusion** | Nil | |
| **Objectives** | To provide the foundation knowledge in internet applications, computer networks, and database management that is essential to modern information system design | |
| **Intended Subject Learning Outcomes** | Upon completion of the subject, students will be able to:  Category A: Professional/academic knowledge and skills  1. Understand the functions and features of modern computing systems.  2. Understand the client-server architecture and be able to set up multiple internet applications.  3. Understand the principles of computer networks and be able to set up simple computer networks.  4. Understand the basic structure of a database system and be able to set up a simple database system.  Category B: Attributes for all-roundedness  1. Solve problems using systematic approaches. | |
| **Subject Synopsis/ Indicative Syllabus** | **Syllabus:**  1. Introduction to computers  Introduction to information technology using Internet of Things and Cyber-physical systems as real life examples. Introduction to modern computing systems.    2. Computer Networks  Introduction to computer networks (Client-Server Architecture). Study different internet applications (HTTP/FTP/DNS). Explain basic concepts on packet routing (Data Encapsulation/IP Addressing/Functions of Routers). Introduction to basic network security measures.  3. Introduction to data processing and information systems  Database systems – architecture, relational database concept, structural query language (SQL), database management systems, Web and database linking, database application development. Introduction to Information systems. Workflow management.  Case study: Database design, implementation and management. | |
| **Teaching/Learning Methodology** | There will be a mix of lectures, tutorials, and laboratory sessions/workshops to facilitate effective learning. Students will be given case studies to understand and practice the usage of modern information systems. | |
| **Assessment Methods in Alignment with Intended Learning Outcomes** | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Specific assessment methods/tasks** | **% weighting** | **Intended subject learning outcomes to be assessed (Please tick as appropriate)** | | | | | | **A1** | **A2** | **A3** | **A4** | **B1** | | 1. Quizzes (in lectures & tutorials) | 20% | √ | √ | √ | √ | √ | | 1. Workshops | 15% | √ | √ | √ | √ | √ | | 1. Mid-term Test | 15% | √ | √ | √ |  | √ | | 1. Examination | 50% | √ | √ | √ | √ | √ | | Total | 100 % |  | | | | |   **Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:**  The assessment methods include an end-of-subject 2-hour written examination (total 50%) and other assessment methods (total 50%), including quizzes, a mid-term test, and workshops, which cover intended subject learning outcomes A1, A2, A3, A4, and B1. | |
| **Student Study Effort Expected** | **Class contact:** |  |
| * Lectures (16), tutorials (8), and workshops (15) | 39 Hours |
| **Other student study effort:** |  |
| * Workshops preparation (6/workshop) | 30 Hours |
| * Self study (3/week) | 39 Hours |
| **Total student study effort** | **108 Hours** |
| **Reading List and References** | 1. B. Williams and S. Sawyer, Using Information Technology: A Practical Introduction to Computers and Communications, 11th ed., McGraw-Hill, 2014. 2. J. F. Kurose and K. W. Ross, Computer Networking: A Top-Down Approach, 9th ed., Pearson, 2025. 3. D. E. Comer, Computer Networks and Internets, 6th ed., Pearson, 2015. 4. B. A. Forouzan, Data Communications and Networking with TCP/IP Protocol Suite, 6th ed., McGraw-Hill, 2022. 5. W. Stalling, Data and Computer Communications, 10th ed., Pearson, 2013. 6. C. Coronel and S. Morris, *Database Systems: Design, Implementation, and Management*, 13th ed., Cengage Learning, 2018. 7. M. Mannino, *Database Design, Query, Formulation, and Administration: Using Oracle and PostgreSQL*, 8th ed.,  SAGE Publications , 2022. 8. A. Silberschatz, H. F. Korth, S. Sudarshan*, Database System Concepts, 7th ed., McGraw-Hill, 2019.* 9. *Rawat, Danda B., Joel JPC Rodrigues, and Ivan Stojmenovic, eds. Cyber-physical systems: from theory to practice. CRC Press, 2015.* | |

(revised) July 2025