**Faculty of Business**

**Bachelor of E-Commerce**

**learning MOdule Outline**

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| --- | --- | --- | --- |
| Academic Year | 2025 / 2026 | Semester | 1 |
| Module Code | COMP3140 - 311 | | |
| Learning Module | Database Management | | |
| Pre-requisite(s) | Nil | | |
| Medium of Instruction | English | | |
| Credits | 3 | Contact Hours | 45 |
| Instructor | Billy Yu | Email | [billyyu@mpu.edu.mo](mailto:billyyu@mpu.edu.mo) |
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**MOdule Description**

This module covers user-focused database and data management systems; MIS and DSS concepts, techniques, applications, and development using packaged database management and file manager software. Primary emphasis is on the ability of the computer user to define information needs in E-Business/E-Commerce context and then select and use a file manager or database management system appropriate to specified requirements. A commercial software product such as Oracle that includes E-Business functions will be used as students’ labs.

**module Intended Learning outcomes (ILOS)**

On completion of this learning module, students will be able to:

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|  | differentiate the kinds of modern databases; |
|  | explain the development process of database systems; |
|  | design relational databases using entity relationship models; |
|  | apply knowledge to the normalization of a database; |
|  | apply business rules to table design. |

These ILOs aims to enable students to attain the following Programme Intended Learning Outcomes (PILOs):

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PILOs** | **M1** | **M2** | **M3** | **M4** | **M5** |
| 1. Demonstrate an understanding of the business processes and operations and the skillful realization of information technologies required to practice electronic commerce; |  |  | 🗸 |  | 🗸 |
| 1. Apply knowledge in business, mathematics, programming, computing, web development, and database to address complex problems in the context of electronic commerce; |  |  | 🗸 | 🗸 |  |
| 1. Analyze critically the effect of web technology use on organizational performance and develop electronic commerce strategies that fit organizational objectives; |  |  |  |  |  |
| 1. Select and apply tools and technologies to effectively implement electronic commerce systems in business intelligence, enterprise resources planning, supply chain management, and customer relationship management; | 🗸 |  |  |  | 🗸 |
| 1. Develop relationships, motivate others, manage conflicts, lead changes, and work across differences in multi-disciplinary electronic commerce projects; |  |  |  |  |  |
| 1. Communicate and work effectively using written and spoken word, non-verbal language, and electronic tools with fellow professionals and different stakeholders in the electronic commerce industry; |  |  |  |  |  |
| 1. Demonstrate a global electronic commerce perspective as evidenced by an understanding of foreign languages and the role of Macau as an interface between the East and the West; |  |  |  |  |  |
| 1. Cope with and manage contemporary advancement related to electronic commerce development and demonstrate lifelong learning attitudes and abilities; |  |  |  |  |  |
| 1. Conduct research and devise innovative electronic commerce models to exploit business opportunities; and |  |  |  |  |  |
| 1. Reflect on professional responsibilities and keep up with the latest electronic commerce issues on legal, environmental, ethical, and societal considerations to benefit society comprehensively. |  |  |  |  |  |

**Module SCHEDULE, Coverage and study load**

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| --- | --- | --- |
| **Week** | **Content Coverage** | **Contact Hours** |
| 1 | Chapter 1 Introduction   * Overview and project briefing | 3 hours |
| 2 | Chapter 2 The Database Approach   * Introducing the database * Eco-system related to database | 3 hours |
| 3 | Chapter 3 Data Models   * Data model basic building blocks | 3 hours |
| 4 | Chapter 3   * Introduction to models   Chapter 4 Relational Database Model   * Introduction to its basic components | 3 hours |
| 5 | Chapter 4   * The data dictionary * Relationships within the relational database | 3 hours |
| 6 | Midterm Exam   * Reviewing midterm exam result and briefing for project presentations | 3 hours |
| 7 | Chapter 5 Entity Relationship (ER) Modeling   * Entity relationship components | 3 hours |
| 8 | Chapter 5   * Developing ER Diagram   Chapter 6 Normalization | 3 hours |
| 9 | Chapter 6   * 1NF, 2NF and 3NF | 3 hours |
| 10 | Project Demo   * Audit and corrections | 3 hours |
| 11 | Chapter 7 Introduction to SQL   * With practice | 3 hours |
| 12 | Chapter 8 Database design   * SDLC & DBLC | 3 hours |
| 13 | Chapter 9 Introduction to Big Data Analytics   * Analytics methods and concepts | 3 hours |
| 14 | Project Presentation | 3 hours |
| 15 | Final examination | 3 hours |

**Teaching and learning activities**

Students are required to prepare for and actively participate in lectures. Other than passive listening, they are expected to practice, take notes and ask questions in class. The projects expect students to be creative. Students should apply the module material as well as knowledge from other subjects for their group project. For the examination preparation, they are encouraged to study in group discussions with all sorts of reference materials, including videos. Students are also strongly encouraged to participate in class learning activities. As mature university students, they should demonstrate the efforts to think and answer questions in classes and show active learning attitude. In this learning module, students will work towards attaining the ILOs through the following teaching and learning activities:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Teaching and Learning Activities** | **M1** | **M2** | **M3** | **M4** | **M5** |
| 1. Lectures: change management theories, concepts, and approaches will be presented using multimedia instructional materials. Q&A: It allows interactions between instructor and students. | 🗸 | 🗸 | 🗸 | 🗸 | 🗸 |
| 1. Project: 4 to 5 students will be required to work as a group to complete a group project. This group project will be designed to promote students intellectual, social and presentation skills and help to prepare them for the real world in which teamwork and collaboration are important |  | 🗸 | 🗸 | 🗸 |  |
| 1. Preparation: Students must read teaching materials before coming to the class. They will be asked to work on problems or respond to key conceptual issues during the class hour.  - Midterm exam will be given to students in order to motivate them to review what they have learned. |  |  | 🗸 | 🗸 | 🗸 |

**Attendance**

Attendance requirements are governed by the Academic Regulations Governing [Doctoral/Master’s/Bachelor’s] Degree Programmes of the Macao Polytechnic University. Students who do not meet the attendance requirements for the learning module shall be awarded an ‘F’ grade.

**Assessment**

In this learning module, students are required to complete the following assessment activities:

|  |  |  |
| --- | --- | --- |
| **Assessment Activities** | **Weighting (%)** | **ILOs to be Assessed** |
| 1. Project | 30 | M2 – M5 |
| 1. Midterm | 20 | M1 – M5 |
| 1. Participation | 10 | M2 – M5 |
| 1. Examination | 40 | M1 - M5 |

The assessment will be conducted following the University’s Assessment Strategy (see [www.mpu.edu.mo/teaching\_learning/en/assessment\_strategy.php](http://www.mpu.edu.mo/teaching_learning/en/assessment_strategy.php)). Passing this learning module indicates that students will have attained the ILOs of this learning module and thus acquired its credits. Project is not assignment. Students are required of their critical thinking, problem solving skills, collaboration, and various forms of communication. To answer a driving question and create high-quality work, students need to do much more than remember information. They need to use higher-order thinking skills and learn to work as a team. (ref. <https://www.pblworks.org/what-is-pbl>)

**Marking scheme**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Assessment Tasks | Criteria | Excellent  (A, A-) | Very Good, Good  (B+, B, B-) | Satisfactory  (C+, C, C-) | Pass  (D+, D) | Fail  (F) |
| 88-100 | 73 - 87 | 58 - 72 | 50 - 57 | 0 – 49 |
| 1. | Group Project | Demonstrate the **understanding** of the subject and the **ability** to solve problems with articulated arguments in well-organized oral presentation and written report | High | Significant | Moderate | Basic | Not even reaching marginal levels |
| 2. | Mid-term test and Final examination | Demonstrate the **ability** to **identify** and **apply** appropriate concepts, methods and techniques | High | Significant | Moderate | Basic | Not even reaching marginal levels |
| 3. | Participation | Demonstrate the **efforts** to think and answer questions to show active learning attitude and **exertions** to manipulate the server database | High | Significant | Moderate | Basic | Not even reaching marginal levels |

**Required readings**

**Textbook(s)**

1. Carlos Coronel & Steven Morris (2022) Database Systems: Design, Implementation, & Management (14th Ed.), Cengage, ISBN 978-0357673034.

**References**

1. Ramez Elmasri & Shamkant B. Navathe (2016) Fundamentals of Database Systems, Pearson, ISBN 978-0-13-397077-7.

**Student Feedback**

At the end of every semester, students are invited to provide feedback on the learning module and the teaching arrangement through questionnaires. Your feedback is valuable for instructors to enhance the module and its delivery for future students. The instructor and programme coordinators will consider all feedback and respond with actions formally in the annual programme review.

**Academic Integrity**

The Macao Polytechnic University requires students to have full commitment to academic integrity when engaging in research and academic activities. Violations of academic integrity, which include but are not limited to plagiarism, collusion, fabrication or falsification, repeated use of assignments and cheating in examinations, are considered as serious academic offenses and may lead to disciplinary actions. Students should read the relevant regulations and guidelines in the Student Handbook which is distributed upon the admission into the University, a copy of which can also be found at [www.mpu.edu.mo/student\_handbook/](http://www.mpu.edu.mo/student_handbook/).

**Note:**

1. The above class schedule is tentative and subject to change depending on the progress of the students.
2. Students are responsible for ALL materials covered in class AND in the textbook.