



PRIFYSGOL CYMRU  
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UNIVERSITY OF WALES: TRINITY SAINT DAVID  
PRIFYSGOL CYMRU: Y DRINDOD DEWI SANT

**School of Applied Computing**

**Database Management Systems ACCC5001**  
**Level 5**

|                     |                                    |
|---------------------|------------------------------------|
| <b>MODULE CODE:</b> | <b>ACCC5001</b>                    |
| <b>TITLE:</b>       | <b>Database Management Systems</b> |
| <b>LEVEL:</b>       | <b>5</b>                           |
| <b>CREDITS:</b>     | <b>20</b>                          |
| <b>JACS CODE:</b>   | <b>I 240</b>                       |

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### AIM(S)

- To provide the student with the essential concepts involved in the design, implementation, and testing of multi-user database applications. It will also expose students to some of the more advanced concepts that underpin multi-user access and more sophisticated database applications.

### LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to demonstrate the ability to:

1. Apply well-established data analysis and design techniques to produce requirements and specifications for a database application showing a requisite understanding of the need for quality and data security.
2. Demonstrate a sound understanding of the knowledge and skills required to design, implement and manage multi-user database applications.

### INDICATIVE CONTENT

- Data analysis and database design, e.g. entity relationship modelling, normalisation.
- Structured Query Language: data definition, data manipulation and data control languages.
- Triggers.
- Security measures to typically include: database security threats and counter measures, views, authorisation, backup and recovery, roles, constraints, and encryption.
- Multi-user concepts to typically include: transactions and transaction management, concurrency control, granting and revoking privileges, two phase commit, lost updates and inconsistent analysis.
- Object relational concepts to typically include: object creation, object querying and inheritance.

### LEARNING AND TEACHING STRATEGY

Essentially this module will have a vocational focus that will give the students an appreciation of the theoretical concepts and principles for the design, development, security and quality assurance of multi-user database systems. The theoretical material will be delivered formally in lectures. Tutorials will be used to support the theory with practical laboratory based exercises to provide practical hands-on experience.

The allocation of teaching to deliver the module is:

| Activity type        | Hours      | Percentage  |
|----------------------|------------|-------------|
| Scheduled learning   | 60         | 30%         |
| Independent learning | 140        | 70%         |
| Placement learning   | 0          |             |
| <b>TOTAL</b>         | <b>200</b> | <b>100%</b> |

## ASSESSMENT

Description of each assessment component and its weighting, together with an example for new forms of assessment:

### Assessment Component 1 – Coursework - 50%

Software development portfolio. Analyse and document database security threats. Design appropriate database server measures to counteract the threats. Suggest coping strategies to avoid loss of database integrity

### Assessment Component 2 – Exams (2 Hours) - 50%

#### Assessment Summary

| Activity type | Percentage  |
|---------------|-------------|
| Coursework    | 50%         |
| Exam          | 50%         |
| Practical     | 0%          |
| <b>TOTAL</b>  | <b>100%</b> |

## BIBLIOGRAPHY

### Essential

Connolly, T., Begg, C., (2014), *Database Systems: A Practical Approach to Design, Implementation and Management*, Addison Wesley

Hernandez, M., (2013), *Database Design for Mere Mortals: A Hands-on Guide to Relational Database Design 3rd Edition*, Addison Wesley

### Background

Silberschatz, A., Korth, H., Sudarshan, S., (2010), *Database Systems Concepts 6th Edition*, McGraw Hill

Elmasri, R., Navathe, S., (2013), *Fundamentals of Database Systems*, Pearson

Greenwald, R., Stackowiak, R., Stern, J., (2013) *Oracle Essentials: Oracle Database 12c*, O'Reilly

Faroult, S., (2013), *SQL Success: Database Programming Proficiency*, Roughsea

Rankins, R., Bertucci, P., Gallelli, C., Silverstein, A., (2013), *Microsoft SQL Server 2012 Unleashed*, Sams

### Websites

Oracle SQL Developer

<http://www.oracle.com/technetwork/developer-tools/sql-developer/overview/index.html>

SQL Plus User Guide and Reference

<http://docs.oracle.com>

w3Schools.com

[w3Schools.com/sql](http://w3schools.com/sql)

Microsoft Developer Network

[msdn.microsoft.com](http://msdn.microsoft.com)

