# Solent University Module Descriptor

**Module Code: COM417 Module title: Introduction to Databases**

### **Why is this module important?**

Databases are a major component of ICT systems. Mobile apps, social networks, video games and most software systems deploy databases or deal with data somehow. In this module you are introduced to the skills and concepts required to develop and use relational databases. You will learn how to write programs interacting with databases and how to create them. This provides a solid foundation to prepare for modules involving web, internet or software development elsewhere on your course.

**Amongst other things you will learn:**

**Retrieving Data**

Basic concepts of relational model

SQL for queries including joins, grouping and sub-queries

SQL functions for statistical analysis

**Database Design and Implementation**

Normalisation

ER modelling

SQL to create tables including inserting/updating/deleting records

Primary and referential integrity for single column keys

Check constraints

**Monitoring and Administering Databases**

Authenticated access to database tools and applications

Monitoring of database usage

Access control and user permissions

**Programming for databases**

Key programming concepts

Using cursors in programming languages

Writing PLSQL procedures

Creating Triggers and Functions

**Legal Requirements concerning data**

Including GDPR, Computer Misuse Act

**How you will learn**

Preparation for each class involves reference to online digitised chapters, presentations and other resources. Lectures provide you with explanations and demos of the main concepts and techniques relevant to databases and programming. You will learn by doing and practice in workshops which establish key database concepts and design/implementation skills through exercises and activities. Workshops are an opportunity to discuss the key conceptual challenges and to identify data principles in class discussion (using online presentations, models and other resources).

You will work on enterprise-level database software and supporting documentation. The assignment gives you the opportunity to work on a functional database, get hands-on experience, improve it and adapt it to support a software system. The tools and underlying databases are also available off-campus.

**How much time the module requires**

For a 20 credit module, you are expected to study for 200 hours (which equates to 10 hours per credit). This total learning time is made up of contact time, directed learning tasks, independent study and assessment activity. Your tutor will offer you guidance on how you should best manage your study time on this module.

### **How you will be assessed**

#### **Tasks which help you learn and prepare you for summative tasks (formative):**

Weekly exercises with solutions and in class feedback are preparing you for the assignment. You can make a pre-submission of the assignment on which you receive formative feedback from your tutor enabling you to reflect and improve it before the final submission.

#### **Tasks which count towards your degree (summative):**

The assignment consists of a case study of developing a database. An initial database is given on which you perform queries to retrieve data, leading on to normalising the database and extending it to support a software system. You develop an initial version of the model interacting with the database from a programming language. You report on your work with a portfolio including a full discussion on the tasks with supporting software.

**When assessment does not go to plan**

You are referred/deferred in this module and will be able to submit your improved work following supportive feedback and additional sessions at a later date.

### **What you will be able to do after the module:**

1. Explain key issues in the development and administration of relational databases and their role in modern IT systems.
2. Discuss the use of SQL functionality to create information from data.
3. Apply conceptual modelling techniques to the design and implementation of a simple database.
4. Apply enterprise-level database software tools in the development, implementation and testing of SQL-based database solutions.
5. Evaluate data using statistical techniques to provide meaningful information.
6. Describe the appropriate ethical and legal methods for data collection, usage and storage.

### **How this relates to the dimensions of Solent’s Real-world curriculum framework**

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| --- | --- | --- |
| Dimensions | How students learn | How students are assessed |
| Students are challenged to think in critical, creative and applied ways | Being confronted with exercises involves thinking logically. The design of a software model in the assignment requires creativity. | One report which conveys their work through their assignment is graded. |
| Students experience an intellectually stimulating curriculum which inspires them to learn for life | Collecting, retrieving and managing data are essential skills. | The development of a real-world system for the assignment is an experience which forges how students will work in the future. |
| Students reflect and grow inwardly, social and ethically to be able to confront the challenges of the world | Investigation of issues concerning the legal and ethical use of data collection, storage and usage will broaden students understanding | Aspects to be included into the software model and appropriately discussed within the report. |

### **Summative assessment details**

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| AE1 | Weighting: | 100% |
|  | Assessment type: | Portfolio including software artefacts |
|  | Aggregation: |  n/a |
|  | Length/duration: | 2000 words with software artefacts |
|  | Online submission: | Yes |
|  | Grade marking: | Yes |
|  | Anonymous marking: | No |

**Module Author:** Dr. Cédric Mesnage

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| Module Title: Introduction to Databases |
| Credit Points: | 20 | Module Code: | SWD406 |
| FHEQ Level: | 4 | School/Service | SMAT |
| Module Delivery Model: | CD | Max/Min student numbers | Not Applicable |
| Module Leader: | Dr. Cédric Mesnage |

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| HECOS code | 100754 |

### Module change history:

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| --- | --- | --- | --- |
| Module Approved/Year Implemented/Code |  |  |  |
| Module modified/Year Implemented/Code |  |  |  |
| Add extra rows as required |  |  |  |