

Module Documentation



INFO07017

Data Modelling

Contents of this document are copyright of Galway Mayo Institute of Technology



INFO07017

Data Modelling

Short Title	Data Modelling
-------------	----------------

Full Title	Data Modelling
------------	----------------

Attendance	N/A	Discipline	482 COMPUTER USE (INFO TECH)
------------	-----	------------	------------------------------

Coordinator	Clare OConnor	Department	Business
-------------	---------------	------------	----------

Official Code	INFO07017	NFQ Level	07	ECTS Credit	05
---------------	-----------	-----------	----	-------------	----

Module Description

This 5-credit module is intended to introduce students to data design and modelling using a database technology in the context of the business environment.

Learning Outcomes

On completion of this module the learner will/should be able to

1. describe the principles of the relational database.
2. illustrate the usefulness of database systems in an SME environment;
3. contribute to the design, implementation and operation of a database management system typical to the business sector.
4. plan and design a database using Entity Relationship Modelling
5. normalise a set of entities
6. discuss data integrity and security concepts

Teaching and Learning Strategies

This module will be taught by a combination of lectures, practicals and self directed learning.

Assessment Strategies

Assessment in this module will be composed of continuous assessment worth 30% and a final, written examination worth 70%

Repeat Assessment Procedures

2 hour written exam

Module Dependencies

Prerequisite Modules

None

Corequisite Modules

None

Incompatible Modules

None

Indicative Syllabus

Introduction

History of databases; file based systems, structure and limitations of file based systems; the database environment, database management systems (DBMS), purpose of DBMS, advantages and comparison with file based systems; technical roles: database developer, database administrator, software developer.

Database Environment

DBMS architecture; ANSI/SPARC architecture, levels of ANSI/SPARC, mappings between levels, data independence, reasons for development of architecture, relevance to commercial DBMS; Functions and services that a DBMS should provide.

Logical Data Modelling

Methodology; conceptual database design, the relational model; data structure, data integrity, data manipulation; relational terminology, components of a relation, views; relational data integrity; primary keys and alternated keys, foreign keys, foreign key rules, nulls; entity-relationship modelling; terminology, entities/entity sets, total and partial participation, existence dependencies; the normalisation process, purpose of normalisation, functional dependencies, insertion, deletion and modification anomalies, non-loss decomposition, normal forms.

Database Development - Practical Sessions Use of a relational database software package. (Microsoft Access or equivalent) Implementation of E-R models using the database software.

Protect and maintain a database

Compact databases, repair databases, back up databases, split databases, encrypt databases with a password, merge databases, recover data from backups

Print and export a database

Print reports, print records, maintain backward compatibility, save databases as templates, save databases to external locations, export to alternate formats

PLEASE NOTE: These topics are inter-related and may be delivered and assessed in an integrated fashion. Furthermore, they may not necessarily be delivered in the order presented above.

CourseWork / Assessment Breakdown

CourseWork / Continuous Assessment	30 %
------------------------------------	------

End of Semester / Year Formal Examination	70 %
---	------

Coursework Assessment Breakdown

Description	Outcome Assessed	% of Total	Assessment Week
Continuous Assessment	3,4,5	30	OnGoing

End Exam Assessment Breakdown

Description	Outcome Assessed	% of Total	Assessment Week
Final Exam	1,2,3,4,5,6	70	End of Term

ACCS Mode Workload

Type	Location	Description	Hours	Frequency	Avg Wkly Wrkld
------	----------	-------------	-------	-----------	----------------

Total Average Weekly Learner Workload 0.00 Hours

Open Learning Mode Workload

Type	Location	Description	Hours	Frequency	Avg Wkly Wrkld
------	----------	-------------	-------	-----------	----------------

Total Average Weekly Learner Workload 0.00 Hours

Distance Learning Mode Workload

Type	Location	Description	Hours	Frequency	Avg Wkly Wrkld
------	----------	-------------	-------	-----------	----------------

Total Average Weekly Learner Workload 0.00 Hours

Part Time Mode Workload

Type	Location	Description	Hours	Frequency	Avg Wkly Wrkld
------	----------	-------------	-------	-----------	----------------

Total Average Weekly Learner Workload 0.00 Hours

Full Time Mode Workload

Type	Location	Description	Hours	Frequency	Avg Wkly Wrkld
Lecture	Lecture Theatre	Lecture	2	Weekly	2.00
Laboratory Practical	Computer Laboratory	Practical	1	Weekly	1.00
Tutorial	Flat Classroom	Tutorial	1	Weekly	1.00

Total Average Weekly Learner Workload 4.00 Hours

Online Learning Mode Workload

Type	Location	Description	Hours	Frequency	Avg Wkly Wrkld
------	----------	-------------	-------	-----------	----------------

Total Average Weekly Learner Workload 0.00 Hours

Module Resources

Module Book Resources

Note: Latest edition of text to be used in each case.

Module Alternate Book Resources

None

Module Other Resources

Module URLs

None

Additional Information

None

ISBN BookList

Book Details

Thomas Connolly 2014 *Database Systems: A Practical Approach to Design, Implementation, and Management (6th Edition)* Addison-Wesley
ISBN-10 0132943263 ISBN-13 9780132943260

Sharon Allen 2005 *Beginning Relational Data Modeling, Second Edition* Apress
ISBN-10 1590594630 ISBN-13 9781590594636

Michael J. Hernandez 2013 *Database Design for Mere Mortals: A Hands-On Guide to Relational Database Design (3rd Edition)* Addison-Wesley Professional
ISBN-10 0321884493 ISBN-13 9780321884497

Jeffrey A. Hoffer 2012 *Modern Database Management (11th Edition)* Prentice Hall
ISBN-10 0132662256 ISBN-13 9780132662253

Joan Lambert 2010 *Microsoft Access 2010 Step by Step* Microsoft Press
ISBN-10 0735626928 ISBN-13 9780735626928

Andy Oppel 2008 *SQL: A BEGINNER'S GUIDE 3/E* McGraw-Hill Osborne Media
 ISBN-10 0071548645 ISBN-13 9780071548649

Approval Information

School Approval by Carmel Brennan on 27-03-2015

Academic Council on 01-04-2015

Programme Membership

Code	Intake Year	Programme Title
GA_BBISG_H08	201500	Bachelor of Science (Honours) in Business Information Systems
GA_BBISG_B07	201500	Bachelor of Science in Business Information Systems