Liverpool John Moores University

Title:	SYSTEM ANALYSIS AND SYSTEM BUILDING
Status:	Definitive
Code:	**3001BELCM** (101117)
Version Start Date:	01-08-2011
Owning School/Faculty:	Arts, Professional and Social Studies
Teaching School/Faculty:	Bellerby's College - Brighton

Team	Leader
Jarmila Hickman	Y

Academic Level:	FHEQ3	**Credit Value:**	12.00	**Total Delivered Hours:**	68.00
Total Learning Hours:	120	**Private Study:**	52		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	66.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Technology	AS1	Assessed practical project	50.0	
Exam	AS2	Exam on System Analysis principles and concepts	50.0	2.00

Aims

1. Develop an understanding of the range of problems that database applications can help to solve
2. Develop an understanding of the main principles of problem-solving using relational databases
3. Acquire skills necessary to apply this understanding to the development of database solutions
4. Develop ability to use effectively
(a) the basic principles of system analysis and design,

(b) simple methods of problem formulation and planning of databases solutions
(c) systematic methods of implementing, testing and documenting database solutions
5. Develop capacity to evaluate solutions (both actual and proposed) and develop basic project management skills
6. Develop project management and time management skills in students

Learning Outcomes

After completing the module the student should be able to:

1	Understand the System Life Cycle, correctly select and carry out the range of appropriate activities within each stage.
2	Analyse a problem and identify the parts of it that are appropriate for a database solution.
3	Select and apply appropriate database application facilities and coding techniques to develop information systems that solve problems.
4	Select and apply appropriate coding techniques to develop a range of additional functionality for database systems.
5	Analyse, design, implement, test, evaluate, and document an effective relational database solution to a specified problem.
6	Manage small scale projects.
7	Offer basic evaluations of students own and other peoples solutions/work.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

TECHNOLOGY	1	2	3	4	5	6
EXAM	1	2	5	7		

Outline Syllabus

1. Analysis and Design
(a) Problem identification and analysis
(b) System objectives/deliverables
(c) Overall System Design (top down, structure diagrams)
(d) Entities, attributes, relationships; Entity Relationship diagrams
(e) Normalisation (to Third Normal Form)
(f) Planning and Design: Data Dictionaries; System Design, System Flow, and Data Flow diagrams
2. Data Capture
(a) Data Capture methods, appropriate context for use of different methods
(b) Need for and methods of data encoding
(c) Data verification and validation; types and sources of error; procedures for minimising errors
(d) Data input devices: their use and limitations
3. System Building

(a) Understanding and use of a range of database functions to ensure efficient data capture and data integrity maintenance
(b) Construction of relationships in relational databases using Primary and Foreign Key Fields
(c) Indexing and Secondary fields.
(d) Function and effect of range of queries: Select, Update, Append, Make Table, sorting and calculations in queries
(e) Introduction to SQL
(f) Outputting information from databases: grouping and summarising information, calculation fields in reports
(g) Range of output devices: use and limitations
4. Developing System Functionality (with additional coding)
(a) User Interface design and constriction
(b) Creating and coding controls to:
(i) find records, filter data, allow editing of records, display messages to user, automate reports, update data, select and export data, replace standard error messages
(c) Understanding Events,
(i) actions as user moves in a form,
(ii) actions as user changes data,
(iii) responding to keyboard events,
(d) Coding Event Procedures to constrain user actions
(e) Understanding & coding Public & Private Routines in Modules
(f) Using de-bugging facilities and coding Error Handling routines
(g) Distinction between security and privacy, Method and procedures for maintaining security. Access rights
5. Testing
(a) Test Strategies and approaches
(i) Unit, module, sub-system/integration, function testing system testing, acceptance testing
(ii) Top down, bottom up, white box, black box
(b) Test planning
(i) Scope
(ii) schedule
(c) Selection of appropriate test data (extreme, boundary, normal)
Evaluating Solutions, Maintaining and developing systems
(d) Performance against objectives
(e) Types of maintenance
(f) Factors affecting maintainability

Learning Activities

Students will be guided, as a group, through a small-scale structured, practical exercise by the teacher which will deliver an introduction to all aspects of System Analysis and System Building.

Students will then work thorough a series of workbook-based learning tasks and exercises that teach them how to code database solutions in order to add a wide range of customised functionality. Students will work at their own pace with the

support of the teacher as needed.

Students will then undertake a project requiring them to analyse a problem, build a database and document their solution. A range of problems of suitable scale and complexity will be presented to students from which they select one that interests them. All students in one group will be working on different problems.

References

Course Material	Book
Author	Heathcote, P M
Publishing Year	2004
Title	Tackling Computer Projects in Access with VBA
Subtitle	
Edition	4th Edition
Publisher	Payne Gallway
ISBN	9781904467533

Course Material	Book
Author	Mott, J and Rendell, I
Publishing Year	2003
Title	Data Projects in Access for Advanced Level
Subtitle	
Edition	
Publisher	Hodder Education
ISBN	9780340812013

Course Material	Book
Author	Getz, K et al
Publishing Year	2004
Title	Access Cookbook
Subtitle	
Edition	
Publisher	O'Reilly Publications
ISBN	9786596006785

Course Material	Book
Author	Carter, J
Publishing Year	2002
Title	Database Design and Programming with Access, SQL, Visual Basic and ASP
Subtitle	
Edition	2nd Edition
Publisher	McGraw-Hill Education
ISBN	9780077099862

Notes

This module gives students the opportunity to explore the help that database applications can bring to solving a range of problems and introduces the basic principles of system analysis and design.

Assessment:
Students will complete 1 assessed project that requires them to analyse a problem, build a database to deal with the problem and document their solution.

Students will be able to ask for assistance with this assessed project from the teacher; teachers will adjust the assessed project's marks for those students who have needed more assistance to complete the task than has been given to the group as a whole. This will allow all students to complete the assessed project without inflating assessment grades. This is a standard procedure used by IGCSE and A level Examination Boards.

Students will complete a 2 hour closed book examination testing their understanding of the concepts and principles of system analysis and system building.