University of Sunderland

Department of Computing, Engineering and Technology

ADVANCED DATABASE CONCEPTS
(CIF302)

MODULE HANDBOOK
SEPTEMBER 2009

1. Module Catalogue Entry

This can be found through the Module Catalogue link at:

http://my.sunderland.ac.uk

2. Introduction to Module

This is a module which covers advanced aspects of database systems. The module starts by taking both a theoretical and a practical view of advanced relational database concepts. It then moves on to examine the different generations of data models and techniques for consistent design in the models. Following this, other advanced aspects of database systems, as given in the indicative content in the module catalogue entry are discussed. Students can expect to gain a broad knowledge and ability in many theoretical and practical areas of database systems which they will be able to apply in the future.

3. Lecture/tutorial Schedule

A full schedule for the module can be downloaded from Sunspace.

4. Timetable

This module will be delivered in weekly 2 hour sessions,

N.B. This module requires 200 learning hours. Only a small percentage of this time is formally timetabled. It is expected therefore that students undertake study for this module in their own time. This will include preparation time for lectures, tutorials and assignments.

5. Teaching & Learning Methods

Teaching approaches and learning methods consist of a number of lectures, exercises, self paced learning, tutorial exercises and student presentations.

Your teaching team consists of:

David Nelson (Module Leader). The module leader can be contacted either in timetabled sessions, or by e-mail to david.nelson@sunderland.ac.uk, or telephone extension 3643.

Rob Warrender, who can also be contacted in timetabled sessions, or by e-mail to robert.warrender@sunderland.ac.uk, or telephone extension 2484.

6. Assessment

This module is assessed equally by coursework and examination, i.e. each has the value of 50% of the total grade for the module. Provisional hand in dates and times for the assessments are given in the module schedule in Sunspace. The exam will normally take place during the assessment weeks at the end of the module.
There will be one assessment during the module plus an end of module examination.

The method of assessment will be:

- A portfolio which normally includes a research element, some practical exercises, a presentation and a critique. Further information about the portfolio is given in section 6.1 below.

The assessments are constituted as follows:

Assessment 1   Portfolio   worth 50% of the module
End of Module   Examination   worth 50% of the module

BOTH coursework and examination must be passed to successfully complete this module.

Instructions will be given for the completion of each assessment and failure to adhere to these may cause a ZERO mark to be allocated.

Your attention is drawn to the MCS regulations for rules on completing the module. In particular, you must ensure that you are aware of the infringement rules concerning plagiarism and collusion of assessment work.

6.1 Nature of Portfolio

The coursework assignment for this module is to be a portfolio. This portfolio will consist of a number of items, which will normally include (but may change):
1. a critique (of no more than two A4 pages) evidencing how the portfolio fulfils the learning outcomes of the module.
2. a research abstract (of no more than 1000 words) on a relevant area of database systems. You will be given a choice of topic areas on which you can decide to base your research report.

3. two practical exercises chosen from a number exercises which you will be given during the module.
4. a group presentation.

During the module there will be two timetabled review sessions, at which points your progress in producing the portfolio will be reviewed. Specifically,
1. in the **first review session,** you will be expected to produce a matrix identifying how the elements which you will be submitting will match the learning outcomes of the module. You will also be required to produce a draft 200-300 word abstract.
2. in the **second review session**, you will be required to submit a draft copy of the critique element of your portfolio, as well as a completed research abstract, and a draft table of contents.

Further detailed information about the portfolio requirements, and a marking scheme, will be given out in the assignment specification in the week identified in the module schedule.

7. Resources

Assessments will normally be handed in and returned via Assignment Services, which is based in the Prospect Building. Normal hand-in date for level three modules is Thursday before 4pm.

Any IT issues can normally be resolved either through the helpdesk which is based on the middle layer of the computer terraces, or the school programmers. You should also make yourself aware of school policies such as the health and safety policy, details of which can be found on the school web site.

The material for this module is available through Sunspace.

This contains lecture notes, module guide, assessment, teaching and tutorial notes and any additional information required for this module. You are also encouraged to use the discussion forums available in Sunspace to further enhance your learning during this module.

Notices regarding the module will also be placed on Sunspace, so you should ensure that you check it regularly.

8. Health and Safety

You must ensure that you make yourself aware of the health and security procedures in the school, which can be found at

In particular, you should make sure you are aware of the location of the nearest fire escape, extinguishers and where first aid can be found.

9. Guided Reading

General Database Texts

1. Connelly T & Begg C, Database Systems: A Practical Approach to Design, Implementation and Management, Addison Wesley, 5th edition, 2009.
   N.B. This book is highly recommended. It has excellent sections on SQL, and covers some of the lecture material.

2. Date, C.J, Introduction to Database Systems, 8th edition, Addison Wesley, 2003.

3. Elmasri, R & Navathe, S B, Fundamentals of Database Systems, Addison Wesley, 2007

4. Mannino, M, Database Application Development and Design, McGraw-Hill, 2001

5. Rob, P & Coronel, C, Database Systems: Design, Implementation and Management, 7th edition, 2007.

Advanced Database Texts

1. Abiteboul, S, Buneman, S, & Suciu, D, Data on the Web, Morgan Kaufmann, 2000.

2. Blaha, Premerlani, Object-Oriented Modelling and Design for Database Applications, Prentice Hall, 1998.

3. Cattell, R G G, The Object Database Standard: ODMG 3.0, Release 3, Morgan Kaufmann, 2000.

4. Chaudri, A B & Loomis M, Object Databases in Practice, Prentice Hall, 1998.

5. Chaudri, A B, & Zicari R, Succeeding with Object Databases, Wiley, 2001.

6. Dietrich, S W & Urban, D. An Advanced Course in Database Systems, Prentice Hall, 2005.

7. Graves, M, Designing XML Databases, Prentice Hall, 2001.

8. Kim, W, Introduction to Object-Oriented Databases, MIT Press, 1990.

9. Oszu, M T & Valduriez, P, Principles of Distributed Database Systems, Prentice Hall, 1999.

10. Rahayu, W, Taniar, D & Pardede, E, Object-Oriented Oracle, IRM Press, 2005.

11. Shah, N. Database Systems Using Oracle: A Simplified Guide to SQL and PL/SQL, 2nd ed. Pearson, 2005.

12. Stonebraker, M A, Object-Relational DBMSs : The Next Great Wave, Morgan Kaufmann, 1996.

Please note that this list is by no means exhaustive. There are numerous books in the library which deal in general terms with database issues. You will also be expected to consult up to date research literature, such as ACM PODS, ACM TODS, ACM SIGMOD, VLDB, BNCOD and the numerous other database journals and conference proceedings.

ADVANCED DATABASE SYSTEMS (CIF302)

ASSESSMENTS

The details below are indicative of the general content of assignments and are not to be taken as a definitive statement of their nature.

Assessment 1 Portfolio (50% of module)

- Students will be required to submit a portfolio containing a number of elements to count towards the assessment for the module. This will normally include, but is not limited to, at least one research-based element, one presentation and one piece of practical work, with a critique demonstrating how the portfolio relates to the module learning outcomes. More detailed information about the portfolio requirements is given in section 6.1.

Assessment 2 Examination (50% of module)

- The 2 hour examination will cover all aspects of the module, i.e. all work taught during the module. This will cover all learning outcomes for this module.

UNIVERSITY OF SUNDERLAND

SCHOOL OF COMPUTING AND TECHNOLOGY

ASSESSMENT RATIONALE PROFORMA

MODULE: CIF302 Advanced Database Concepts

ACADEMIC YEAR: 2009/10

Briefly define Module Assessment:

> 1 assessment, worth 50% of module and 1 exam worth 50% of module
>
> Assessment: portfolio.
> Exam: 2 hours, answer three questions out of 6.

LEARNING OUTCOMES - KNOWLEDGE/ABILITY	Specify type of assessment below			
	Ass 1	Exam		
K1: Critical analysis of current and new data models and database systems	√	√		
K2: Assessment of current and emerging trends in database developments	√	√		
A1: Compare and contrast the features of different database development technologies	√	√		
A2: Critically evaluate the major developments and issues within the database arena	√	√		