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Advanced Database Systems SET09107

Introduction

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What will you learn ?

- Non-Standard Database Applications – Object-Relational Databases
- Data – Data Warehousing
- NoSQL
- Big Data Issues

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Course Overview

- Course Website:
  http://moodle.napier.ac.uk/

- Lecturer:
  Dr. Taoxin Peng (e-mail: t.peng@napier.ac.uk)

- Prerequisites
  - Database Systems SET08120
  - Object Oriented Software Development SET08119 Or
  - Software Development 2 SET08108

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Aims

- Aims – This module enables students to gain a detailed insight into the practical and theoretical aspects of advanced topics in databases, such as
  - object-relational databases
  - data warehouses
  - NoSQL
  - big data

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Structure of Course

- Lecture: Two hours per week
- Practical/Tutorial: Two hours per week in JKCC

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Assessment

- Format -- coursework and exam
- Coursework 60%
  - Handout: week 4
  - Hand in & Demonstration : week 10

- Exam 40% -- in weeks 14, 15.

Learning Outcomes

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- LO1: Critically analyse and evaluate modelling and development methods/techniques in Object-Relational Databases
- LO2: Design and implement a non-relational data model.
- LO3: Critically compare, analyse and evaluate methods/technologies in developing data warehouses
- LO4: Critically compare, analyse and evaluate different technologies in big data analytics
- LO5: Critically review a selection of emerging database technologies

References

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- T. Connolly and C. Begg

  Database Systems, 6th Edition, Pearson, 2015
- S. W. Dietrich and S. D. Urban

  An Advanced Course in Database Systems: Beyond Relational Databases, Pearson Education, Inc. 2005
- W. H. Inmon

  Building the data warehouse, 4th Edition, Wiley, 2005
- M. Minelli, M. Chambers and A. Dhiraj

  Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses, Wiley, 2013.
- Others. See a list from each topic

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Expected Knowledge

- General relational database concepts
  - E-R modelling
  - Integrity
  - Relational algebra
  - SQL queries
- Object-Oriented methods

A Learning Log

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- Keep a bound notebook as a record of your work
- Document your work
- Sketch graphs if required
- Record problems and solutions
- It can be either in handwritten or in MS word format. A template is available on Moodle.
- Can contain printouts from tutorial
- It is not assessed, but will be checked regularly.
- It will be used to write your coursework submission
- Use it to get feedback on what is expected in your assessment!
- A few pages per hour is all that is required…

Expected Input

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- Attend lectures and tutorials/practicals
- Complete tutorial/practical questions in time
- Read from the recommended reading list
- Actively seek out related publications online and in the library.
- Keep your Learning log up to date.
- Ask questions
- Submit your work on schedule
- Pass the exam!