Deakin College

SIT103
DATA AND INFORMATION MANAGEMENT

TRIMESTER 2 2018

This unit guide is applicable for the year and teaching period specified above only

UNIT CONTENTS AND IMPORTED INFORMATION

A note from your Unit Co-ordinator

Welcome to unit SIT103 Data and Information Management. This is a core unit in the Diploma of Computing and is fundamental to the understanding of data storage and retrieval, data models, databases, information management and new trends in data management.

This unit will help you to understand other units such as programming units, as programming clearly requires knowledge and skills when working with data. It will therefore benefit you greatly if you take the time and make the effort to excel in this unit.

This unit will introduce an important technology that powers the digital economy today – the database system. Without databases, Web 2.0 applications such as Facebook, MySpace or YouTube would not exist; nor would there be online services such as Internet Booking or Internet Banking. Databases are such an integral part of our lives now that we probably take them for granted. With almost every business and personal application needing a database to operate efficiently and effectively, the demand for IT professionals with sound knowledge of designing and maintaining a database is high. Employment research indicates that many positions cite database knowledge as an essential selection criterion.

A great deal of responsibility is placed upon you to manage your own learning, not only in this unit, but in every unit in the programme. The key to a good start is to read this guide carefully as it explains the structure, content, assessment, and rules associated with this unit. Once you have understood the expectations for this unit, you should work out a learning schedule for yourself, which includes classes and practical sessions.

Learning materials for every week are available on Moodle and you are required to develop a weekly schedule that includes time to review the lecture, complete the readings, and undertake the practical tasks.

I strongly encourage you to use the information provided in this outline to prepare yourself
for the expectations of this unit. A little preparation, hard work and planning will go a long way towards helping you to get the most out of this unit.

All the best!

Contact details

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Unit overview

Unit: SIT103
Unit title: Data and Information Management
Prerequisites: Nil
Teaching Method: Four hours of class contact per week are allocated to this unit.

Unit description

This unit will provide a solid foundation for the design, implementation and management of database systems. Data modelling is introduced, focusing on entity-relationship (ER) modelling. The skills required to construct such ER diagrams will be explored, with a focus on ensuring that the semantics of the model match those of the real-world they are representing. The relational data model will be presented, and the functionality it affords will be explored. The process of constructing, maintaining and retrieving information from the database using SQL will be a focus of this unit. Key implementation and management concepts, including transaction management and concurrency control, and database backup and recovery, will be investigated. The impact of new technologies on database design, particularly the Internet, will be covered briefly.

Unit Learning Outcomes

These are the Learning Outcomes (ULO) for this Unit.

ULO	At the completion of this unit students can:
ULO1	Describe the techniques used in storing and retrieving data.
ULO2	Evaluate data models and apply data modelling techniques to capture the data aspects of real-world situations
ULO3	Design and develop relational databases by using SQL and a database management system

Deakin College Transitional Attributes (DCTA)

All Deakin College Diploma units contribute to the following graduate attributes:

DCTA 1	Independent learner
DCTA 2	Knowledge base
DCTA 3	Research skills
DCTA 4	Time management skills
DCTA 5	Report writing skills
DCTA 6	Awareness of ethics of tertiary education
DCTA 7	Use of appropriate technologies
DCTA 8	Ability to work alone and as part of a team

Unit learning Resources

Essential learning resources

Coronel and Morris 2019, Database Systems: Design, Implementation, and Management. 13th Edition, Course Technology, Cengage Learning.

Textbooks, reference books, general books and software may be ordered from the bookshop:
- phone 1800 686 681
- email to DUSA-Bookshop@deakin.edu.au ; or
- order online from the University bookshop web site at http://www.dusabookshop.com.au/
- ebook link
  http://www.cengagebrain.com.au/shop/isbn/9781337627900

Recommended learning resources

Suitable referce books for this unit include:

1. Coronel, C., Morris, S. (2015): Database Systems: Design, Implementation and Management, 11th edition.Cengage Learning, ISBN-13:978-1-285-19614-5.

2. Silberschatz, A. et al (2011)): Database System Concepts, 6th edition. McGraw-Hill.

3. Connolly, T. and Begg, C. (2010): Database Systems: A Practical Approach to Design, Implementation, andManagement , 5th edition. Pearson Education, ISBN-13: 978-0-321-60110-0.

Assessments

Assessment task	Weighting	Due Date	Unit learning outcome(s)
1. Practical assignment 1 (Individual)	20%	11.59 PM on Monday 6 August 2018 - Week 6	ULO2, ULO3
2. Practical assignment 2 (Individual)	20%	11.59 PM on Monday 10 September 2018 - Week 10	ULO1, ULO3
3. Final Examination **(Must achieve 50% or higher in the exam to pass the unit)**	60%	Week 13	ULO1,2,3

Assessment Details

Summative assessments

NOTE: It is your responsibility to keep a backup copy of every assignment where it is possible (eg written/digital reports, essays, videos, images). In the unusual event that one of your assignments is misplaced, you will need to submit the backup copy. Any work you submit may be checked by electronic or other means for the purposes of detecting collusion and/or plagiarism.
When you are required to submit an assignment through Moodle, you should receive an email to your Deakin email address confirming that it has been submitted. You should check that you can see your assignment in the Submissions view of the Assignment folder after upload, and check for, and keep, the email receipt for the submission.

Summative assessment task 1

	Individual Project Documentation and Database
Brief description of assessment task	This assessment is for students to develop the capacity to design and implement a database. The assessment requires students to identify business rules, and develop an Oracle database using SQL. This is an individual assessment task. The project documentation submitted should include a requirements analysis of a practical information system, all details of database design, SQL source code, and database operation screen shots.
Detail of student output	This is an individual assessment task. The project documentation submitted should include a requirements analysis of a practical information system, all details of database design, SQL source code, and database operation screen shots. The implemented database within the Deakin Oracle database management system will also be assessed.
Grading and weighting (% total mark for unit)	Marked; contributes to 20% of the final grade, will be based on individual work
When and how to submit your work	Submission should be made electronically via Moodle and is due by Sunday 11 August 2018 at 11.59 PM (AEST). (Week 6)

Summative assessment task 2

	Individual Design Report
Brief description of assessment task	This assessment task is for students to develop an understanding of how to analyse business requirements, develop appropriate business rules, create a data dictionary, and create an Entity-Relationship diagram (database design) which can store data and fulfil the business needs of the requirements given in the specification. Further, students will map the design to the relational model, and perform normalisation to reduce inconsistencies, thus developing a stable database. This is an individual assessment task that requires students to prepare a report of 1000 words with diagrams.
Detail of student output	This is an individual assessment task. The design documentation should be submitted and should include Entity Relationship Diagram (ERD), relational model and normalisation.
Grading and weighting (% total mark for unit)	Marked; contributes to 20% of the final grade, will be based on individual work
When and how to submit your work	Submission should be made electronically via Moodle and is due by Thursday 13 September 2018 at 11.59 PM (AEST). (week 10)

Summative assessment task 3

	Final Examination
Brief description of assessment task	All content covered in classes, assignments, and practicals are examinable. More information about the examination will be provided in the last class.
Detail of student output	Students are required to sit the 2-hour closed book examination under supervised conditions. The examination will usually be comprised of short answer, long answer and multiple-choice questions, which will require the student to respond in writing.
Grading and weighting (% total mark for unit)	Marked; contributes to 60% of the final grade, will be based on individual work. Students should obtain 50 % in the final exam in order to pass the unit (hurdle).
When and how to submit your work	Students will be required to attend a supervised written examination during the end of trimester examination period. It is the responsibility of students to review their examination timetable when it is released via Moodle.

Determination of Final Grade

This unit has a hurdle requirement. In addition to achieving at least 50% in the unit overall, to obtain a passing grade in the unit you must:

"Achieve a minimum 50% score in the exam."

If you satisfy the hurdle requirement/s, your final mark out of 100 will be determined using the weightings in the assessment table above. Students who fail a hurdle requirement of a unit will receive a mark of no more than 44% for that unit.

In-Trimester Assessments

It is the responsibility of a student to sit for a test/assessment on the scheduled date, according to the class they are enrolled in.

Assessment Reviews

Review of Assessment During a Trimester

During the course of a trimester, students will be provided with feedback on their performance in all assessment tasks. It is expected that students will discuss any issues directly with their lecturer.

Limited grounds for a review of assessment are available and students are referred to the *Review of Assessment Policy* for further information (available from the Deakin College website or the Student Portal under Students/Forms/Policies and Procedures). A *Review of Assessment Application Form* must be completed and submitted within 5 working days of publication of the result for the particular piece of assessment.

Review of Assessment at the End of a Trimester

If a student reasonably believes that a final grade has not been added or processed correctly, he or she may apply for a review of final grade by completing the *Review of Final Grade Application*. Applications must be submitted to Deakin College Reception within 5 working days of the publication of the final results.

A review of final grade involves review and checking of marks - it does NOT involve a review or remarking of individual pieces of assessment.

Special Consideration

Special Consideration may be provided to students who are prevented from performing to the best of their ability in a particular piece of assessment, including a scheduled examination, due to serious and exceptional circumstances beyond their control. Examples of such circumstances are provided in the *Special Consideration and Deferred Examinations Policy* (available from the Deakin College website or the Student Portal under Students/Forms/Policies and Procedures) and include serious illness or injury, hardship or trauma.

Students are required to complete a *Special Consideration Application* (available from the Student Portal under Students/Forms) and submit this to Deakin College Reception, together with supporting documentation before the assessment due date, or **within 3 working days** after the submission/timetabled date of the relevant piece of assessment. Page 3 ('Health Practitioner Certificate') of the *Special Consideration Application* must be completed by a health practitioner for applications on medical, health or psychological grounds. Please refer to the *Special Consideration and Deferred Examinations Policy* for further information.

Students who require an assignment extension should not apply for special consideration but must complete a *Request for Extension of Assignment Dues Date* form (available from the Student Portal under Students/Forms).

Academic Misconduct

Students should familiarise themselves with the **Academic Integrity Policy** (available from the Deakin College website or the Student Portal under Students/Forms/Policies and Procedures).

Academic misconduct is a serious offence in academia. These include plagiarism, collusion, cheating and 'misrepresentations' (which includes falsification of documents). Penalties will be applied consistently with the *Academic Integrity Policy*.

Plagiarism occurs when a student intentionally or accidentally presents the work of another person(s) as though it is their own original work without proper reference to that source or sources. For example, copying or paraphrasing an author's work without referencing that work, translating foreign works into English without acknowledging those sources, or reusing one's own previously submitted or assessed work.

Collusion occurs when work is produced by collaborating with other person(s), without permission, and then presenting that work as if it is your own. For example, copying any part of another student's assignment, allowing another student to copy any part of your assignment, or allowing another person to rewrite or make changes to your assignment.

Cheating occurs when a student engages in other forms of dishonest conduct, whether in an assessment or in any representation. For example, communication with another student during an examination, having unauthorised notes during an examination - the notes may be on or in an object, a data storage device or on any part of the body, or 'contract cheating', which is the purchasing work or commissioning another person or website to produce a work which is then passed off as your own.

Misrepresentation occurs when a student presents falsified documents, or by words, conduct or non-disclosure of information creates a false status or an impression inconsistent with facts, for example, falsely asserting attendance at a lecture or a laboratory session or submitting a falsified medical certificate.

Whenever you refer to another person's research or ideas (whether by directly quoting or by paraphrasing them) you MUST acknowledge that source. Copying paragraphs from the internet and presenting them as your own work is plagiarism. If you download and copy paragraphs from the internet, you must identify the source.

You **MUST acknowledge the sources** that you have drawn on. This is a necessary courtesy to the original authors, and also allows the readers of your work to follow up on any points that you have raised.

If you directly copy another writer's phrase, sentence or paragraph, then you should use quotation marks and note the source of the quote. If you use another writer's ideas, but not his or her exact words, you should again note the source. There are a number of ways by which you can refer to other people's work.

The main referencing method used at Deakin College is the Harvard referencing method, which involves noting the author's name, the title of the article and journal, or book, the year of publication, the journal's volume number, the book publisher's name and location, and the relevant page numbers.

A copy of *Guide to Assignment Writing and Referencing* is available on the Deakin University website: http://www.deakin.edu.au/students/study-support/referencing/harvard

Assignment submission

Assignments must be submitted by the due date. Students should complete the *Assignment Cover Sheet* (available from the Student Portal under Students / Forms), attach it to their assignment and then submit the completed assignment as outlined in the assignment details. (Assignments will not be accepted at Deakin College Reception).

Students must keep a copy of each assignment submitted and must be able to produce the copy in the unlikely event that the original assignment is misplaced. Students must maintain backup copies of all their assignment work. Electronic loss of data is common, but is **NOT** a satisfactory excuse for an extension of a submission date.

Late submission of assignments

Extension of an assignment submission date
If there is a compelling reason why you are unable to complete your assignment before the due date you should complete a *Request for Extension of Assignment Due Date* form, available from the Student Portal under Students / Forms and submit it to your unit coordinator. This must be done **at least 48 hours before** the assignment due date.

Penalties for late submissions
Assignments received late and without prior approval will be penalised. A penalty of 5% of the total available marks will be deducted for **every day** the assignment is late. Assignments submitted more than 5 working days after the due date will be awarded a mark of zero.

Learning support

Students have access to group-oriented and individual learning support at Deakin College. During each trimester, students can attend a series of study skills workshops conducted both at Deakin College and Deakin University on topics such as time management, avoiding plagiarism, referencing, academic writing, critical thinking and exam preparation.

Students can book individual consultations with the Deakin College Academic Skills Advisor. They can also access the Deakin University Language and Learning Drop-in Centre. All students have access to the Academic Skills Moodle site which contains a number of resources to improve students' study skills and language proficiency.

Grading system

All students enrolled in any unit will be graded according to Deakin College's standard grading system as follows:

GRADE	DESCRIPTION	PERCENTAGE
HD	High Distinction	80 - 100
D	Distinction	70 - 79
CR	Credit	60 - 69
P	Pass	50 - 59
N	Fail	0 – 49
DE	Deferred Examination	
EX	Exemption Granted	
RI	Results Not Finalised	
RPL	Recognition of Prior Learning	
RW	Results Withheld	
UP	Ungraded Pass (Safety Units)	
W	Withdrawn without academic penalty	
WN	Withdrawn Failure	
XN	Enrolled Assessment Incomplete	

Changes to Enrolment

Enrolment changes can be made through the student portal until 5.00 pm Friday of the second week of the trimester.

- Withdrawal from any unit or course before the end of week 4 of a trimester will not incur an academic penalty. Fees paid for the unit(s) will be credited to the following trimester. Fees will be forfeited for any withdrawal after week 4;
- Withdrawal from any unit or course between weeks 5 and 8 of a trimester will incur a grade of W (Withdrawn). This grade does not incur an academic penalty;
- Withdrawal from any unit or course between weeks 9 and 13 of a trimester will incur a grade of WF (Withdrawn Fail). This grade will incur an academic penalty and a student's course progress will be assessed at the end of the trimester by the Academic Progress and Discipline Committee (APDC);
- Overseas students are required to maintain a full time enrolment. Therefore, if a withdrawal from one or more units constitutes a part time enrolment, withdrawal from such units will not be permissible.

Class Attendance

Deakin College takes attendance seriously. Attendance is an important element of a student's success in their studies and it is strongly recommended that attendance is maintained in all classes. All work covered in class is examinable.

Attendance will be recorded in all sessions and students should make themselves aware of the *Attendance Policy* (available from the Deakin College website or the Student Portal under Students/Forms/Policies and Procedures).

Where alternative classes exist for a unit, students are permitted to attend a maximum of two alternative classes per unit during the trimester. Students should collect a *Lecturer Attendance Variation Form* from reception or from the Student Portal under Students/Forms and submit this to the lecturer of the alternate class to sign and verify their attendance. The signed and verified form must be submitted to Reception by the student <u>within 7 days</u> after the initial scheduled class.

Medical certificates are not required to be submitted to Deakin College to explain occasional absences from class or short-term illness. However, where 'compassionate and compelling' circumstances exist, for example, serious illness or injury, trauma, or bereavement of close family members, an *Explained Absence Form* can be submitted to Deakin College Reception with your evidence within 7 days of the absence so that attendance records can be adjusted to show that compelling or compassionate circumstances occurred. <u>This does not change an 'absence' to an 'attendance' – it merely indicates that compelling or compassionate circumstances occurred which explain a student's absence</u>. Please refer to the *Attendance Policy* for more information.

Student evaluation of this unit

At the end of trimester students will be asked to evaluate all of the units they have studied during the trimester. Students are strongly encouraged to complete the Student Evaluation form for this unit and give feedback.

All ratings and comments are read and given careful consideration following completion of each trimester and inform the changes which may be introduced in subsequent trimesters.

Trimester timetable

WEEK	Week Commencing	LECTURES	PRACTICAL SESSION
1	Monday 2 July 2018	Introduction to database systems	Access Exercise – Creating tables, insert values and writing basic queries.
2	Monday 9 July 2018	SQL Basics	Wring Simple Queries with where
3	Monday 16 July 2018	SQL Group by Queries	Writing Queries with Group by
4	Monday 23 July 2018	SQL – Creating databases SQL – Various joins	Writing Queries with Joins Census Date: **Friday 27 July 2018**
5	Monday 30 July 2018	SQL – Advanced queries SQL – Views SQL – Union, Intersect, Minus SQL Basics	Writing Advanced Queries
6	Monday 6 August 2018	SQL Advance queries – nested SQL Advance queries – indexes Stored Procedures/Triggers SQL Group by Queries	Creating Views, Functions and Triggers **Practical Assignment 1 due**
Trimester Break: Monday 13 August – Friday 17 August 2018			
7	Monday 20 August 2018	Transactions and locking (concurrency controls) Database security and recovery Database Modelling	Identifying anomalies and Designing and Modelling – Learning ERD
8	Monday 27 August 2018	Anomalies and desirable attributes of a data model.	Model Mapping – ERD to Relational Schema
9	Monday 3 September 2018	Normalisation	Normalisation Exercises
10	Monday 10 September 2018	Transactions and locking (concurrency controls) Database security and recovery	Revision - SQL **Practical Assignment 2 due**
11	Monday 17 September 2018	Bitcoin and Blockchain	Revision – Database Design, SQL Queries and
12	Monday 24 September 2018	Big Data and NoSQL **Unit Review and exam revision**	Unit Revision and Q&A
Examination Week Monday 1 October to Friday 5 October 2018			

Trimester 2 Census Date: Friday 27 July 2018
Results released on portal: Tuesday 16 October 2018
Portal opens for T3 re-enrolment: Friday 19 October 2018

Appendix A: Examination Requirements and Instructions

SUMMARY OF EXAM REQUIREMENTS FOR STUDENTS

1. You should arrive for your exam <u>at least 15 minutes</u> before it is scheduled to commence.

2. You will not be permitted to sit the exam if you are more than 30 minutes late after writing time commences.

3. You MUST have your Deakin College student ID card with you for every exam you sit. You will not be permitted to enter the exam room without it.

4. No electronic equipment whatsoever, with the possible exception of a non-programmable calculator, may be used in an exam.

5. Personal items (purse, wallet, mobile phone) brought into the exam <u>should be left underneath your desk. Do NOT leave valuables in bags at the end of the exam room.</u> Mobile phones MUST be switched off. Any mobile phone which rings during an exam will be confiscated and not returned until the exam papers have been collected and placed into storage.

6. Find out before the end of the trimester from your lecturer or unit outline whether your exam is 'Open Book' or 'Closed Book'.

7. Find out before the end of the trimester whether or not you can bring a non-programmable calculator or a dictionary in book form into the exam.

8. The penalties for failing to behave in accordance with Deakin College standards for conduct during the exam are severe. Make sure you know before-hand what authorised materials and devices you can take into your exam. Students found with unauthorised material in their possession are in breach of the Academic Integrity Policy.

9. Students who are unwell during an exam may apply for special consideration by completing the Special Consideration form found on the Student Portal. An application for special consideration MUST be accompanied by supporting documentation and submitted within three (3) working days of the exam.

10. Students who are prevented from sitting an exam (e.g. a car accident) may apply for a deferred exam using the special consideration form found on the student portal. An application for a deferred exam MUST be accompanied by supporting documentation and submitted within three (3) working days of the exam.

    Students are advised to read all the exam regulations accessible on the student portal at http://learning.deakincollege.edu.au/forms (under policies and procedures).