Tutorial Letter 101/0/2023

Database Systems IV
IRM4723

Year Module

Department of Information Systems

IMPORTANT INFORMATION

Please register on myUnisa, activate your myLife e-mail account and make sure that you have regular access to the myUnisa module website, IRM4723-23-Y, as well as your group website.

Note: This is a fully online module. It is, therefore, only available on myUnisa.

BARCODE

UNISA | university of south africa

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CONTENTS

1   INTRODUCTION

Dear Student

Unisa is a comprehensive open distance e-learning (CODeL) higher education institution. The comprehensiveness of our curricula encapsulates a range of offerings, from strictly vocational to strictly academic certificates, diplomas and degrees. Unisa's "openness" and its distance eLearning character result in many students registering at Unisa who may not have had an opportunity to enrol in higher education. Our CODeL character implies that our programmes are carefully planned and structured to ensure success for students ranging from the under-prepared but with potential to the sufficiently prepared.

Teaching and learning in a CODeL context involves multiple modes of delivery ranging from blended learning to fully online. As a default position, all post graduate programmes are offered fully online with no printed study materials, while undergraduate programmes are offered in a blended mode of delivery where printed study materials are augmented with online teaching and learning via the learner management system – myUnisa. In some instances, undergraduate programmes are offered fully online as well.

Furthermore, our programmes are aligned with the vision, mission and values of the University. Unisa's commitment to serve humanity and shape futures combined with a clear appreciation of our location on the African continent, Unisa's graduates have distinctive graduate qualities which include

•   independent, resilient, responsible and caring citizens who are able to fulfil and serve in multiple roles in their immediate and future local, national and global communities

•   having a critical understanding of their location on the African continent with its histories, challenges and potential in relation to globally diverse contexts

•   the ability to critically analyse and evaluate the credibility and usefulness of information and data from multiple sources in a globalised world with its ever-increasing information and data flows and competing worldviews

•   how to apply their discipline-specific knowledges competently, ethically and creatively to solve real-life problems

•   an awareness of their own learning and developmental needs and future potential

This module is online.

Whether a module is offered either as blended (meaning that we use a combination of printed and online material to engage with you) or online (all information is available via the internet), we use myUnisa as our virtual campus. This is an online system that is used to administer, document and deliver educational material to you and support engagement with you. Look out for information from your lecturer as well as other Unisa platforms to determine how to access the virtual myUnisa module site. Information on the tools that will be available to engage with the lecturer and fellow students to support your learning will also be communicated via various platforms.

You are encouraged to log into the module site on myUnisa regularly (that is, at least twice per week).

We would like to warmly welcome you to the **Databases Systems IV (IRM4723)** module. We trust that you will find it both interesting and rewarding. We will do our best to make your study of this module successful. This tutorial letter provides all the information you need about the prescribed study material and other resources for this module. Please study this information carefully and make sure that you obtain the prescribed material as soon as possible

Because this is a fully online module, you will need to use myUnisa to study and complete the learning activities for this module. Visit the website for IRM4723 on myUnisa frequently. The website for your module is IRM4723-23-Y which is under myModules.

We wish you every success with your studies!

2 MODULE OVERVIEW

2.1 Purpose

Students who have completed this module successfully will be able to acquire adequate knowledge, and competencies to manage the design, implement of centralized and distributed database systems in terms of administration, security, transactions, concurrency, performance, and decision support.

Moreover, qualifying students are expected to differentiate between various database implementation alternatives and interactions. This module provides fundamental and prerequisite knowledge that will support further studies and applications in the management and services of Computer Science and Information systems sector, particularly in the field of Database Management Systems. These competencies therefore contribute to the development of competitive Information Technology practitioners who with theoretical and technical operational skills of designing, implementing and managing single and distributed database systems.

2.2 Outcomes

For this module, you will have to master several outcomes:

Specific outcome 1: Coordinate the activities of local database administrators in a distributed database and management of distributed database management systems (DDBMS).

Assessment criteria
1. Management and coordination to ensure database administrators understand distributed database management systems' benefits, limitations, and purpose. These are explained with examples.
2. Distributed database management systems are designed using different design strategies to solve industry related problems.
3. Distributed database management systems are applied in known, appropriate contexts, using appropriate techniques and methods.

4. Distributed database transparency features are critically analysed and explained.
5. Distributed database systems desirable properties (CAP theorem), security and database in the cloud are also explained.

Specific outcome 2: Coordinate the choice of database connectivity interface to ensure the selection, appropriateness and relevancy of database connectivity technologies

<u>Assessment criteria</u>
1. Database connectivity options are distinguished and illustrated with real-life examples.
2. Database connectivity options are applied using appropriate techniques and method Specific outcome 3: Coordinate administration and security of database system.

<u>Assessment criteria</u>
1. Comprehension of the database administration strategies are demonstrated through real life scenarios.
2. Database administration strategies are developed, implemented, and monitored
3. Database security issues, privacy, and integrity aspects are evaluated, refined, and enforced.
4. Database security vulnerabilities and protective measures are discussed
5. Database administration tools are examined using real-life scenarios
6. Creation and maintenance of database standards and policies discussed

Specific outcome 4: Coordinate and manage database transactions, concurrency control, and database performance-tuning.

<u>Assessment criteria</u>
1. Concepts of database transactions, concurrency control, database performance-tuning are discussed and illustrated using real-world use case scenarios
2. Database transaction properties and objectives of concurrency control are clearly articulated
3. Database transaction, concurrency control, database performance-tuning techniques are correctly applied under appropriate contexts
4. Monitor usage in terms of response times, concurrency level, and transaction volumes
   are maintained at the appropriate time.

Specific outcome 5: Generate database related reports and perform analyses of databases data for relational decision making.

<u>Assessment criteria</u>
1. Concepts of business intelligence and data analytics are discussed and demonstrated using real-life examples
2. Operational data and decision support data are clearly explained and distinguished

3. Decision support database requirements and techniques are correctly interpreted and applied
4. Data warehousing concepts and techniques are articulated and applied
5. Concepts of big data, data management and meta data are also discussed.

Specific outcome 6: Coordinate and oversee the database Development process.

Assessment criteria
1. Database development life cycle evaluation and revision framework and database design strategies are discussed
2. Threat to data security and security measures applied are articulated
3. The technical, managerial roles and the important of the database administrator (DBA) in an organisation are articulated

The following outcomes are embedded in the first six specific outcomes:

1. To understand the terms, identify the structures and formats so as to become familiar with the principles pertaining to database systems.
2. To understand the operation and utilization of database management systems.
3. To gather information, design, create set-up, utilize and integrate the selected database in an automated environment.
4. To understand the basic implementation process involved in database management.

3 CURRICULUM TRANSFORMATION

Unisa has implemented a transformation charter, in terms of which the university has placed curriculum transformation high on the teaching and learning agenda. Curriculum transformation includes student-centred scholarship, the pedagogical renewal of teaching and assessment practices, the scholarship of teaching and learning, and the infusion of African epistemologies and philosophies. All of these will be phased in at both programme and module levels, and as a result of this you will notice a marked change in the teaching and learning strategy implemented by Unisa, together with the way in which the content is conceptualised in your modules. We encourage you to embrace these changes during your studies at Unisa in a responsive way within the framework of transformation

4 LECTURER(S) AND CONTACT DETAILS

4.1 Lecturer(s)

The primary lecturer for this module is Dr S Ssemugabi:
Department: School of Computing **Telephone: 0116709200**
E-mail: ssemus@unisa.ac.za

4.2 Department

You can contact the Department of Information Systems as follows:

Telephone number: 011 670 9200
E-mail: computing@unisa.ac.za

4.3   University

To contact the University, you should follow the instructions in the **Study@ Unisa** brochure. Remember to have your student number available when you contact the University.

When you contact anybody in the university, please do not forget to always include your student number. This will help that person to assist you.

If you need to contact the university about administrative matters via e-mail, you should send your queries to the specific department whose contact details are provided in the brochure *Study @ Unisa*. This brochure also contains other important information about Unisa.

Contact addresses of the various administrative departments appear on the Unisa website: http://www.unisa.ac.za/sites/corporate/default/Contact-us/Student-enquiries.

Please include the student number in all correspondence

5   RESOURCES

5.1   Prescribed book(s)

This module is based on a prescribed book, which you must purchase as soon as possible. The book is:

Author: Coronel, C. and   Morris, S.
Title: Database System: Design, Implementation, & Management.
Edition: 14th
Year: 2023
ISBN: 978-0-357-67303-4

The syllabus is covered by Chapters 9, 10, 11, 12, 13, 14, 15 and 16 of the prescribed textbook plus the content of Tutorial letter 102.

This prescribed book is **not** included with your study material. To obtain a copy of the prescribed book, please refer to the list of official booksellers and their addresses in the *Study @ Unisa* brochure. The older edition will not be sufficient for use.

Prescribed books can be obtained from the University's official booksellers. If you have difficulty in locating your book(s) at these booksellers, please contact the Prescribed Book Section at Tel: 012 429-4152, e-mail vospresc@unisa.ac.za or refer to the *Study @ Unisa* brochure.

5.2   Recommended book(s)

There are no recommended books for this module.

5.3   Electronic reserves (e-reserves)

There are no e-Reserves for this module.

5.4   Library services and resources

The Unisa library offers a range of information services and resources:

- For brief information, go to https://www.unisa.ac.za/library/libatglance

- For more detailed library information, go to
  http://www.unisa.ac.za/sites/corporate/default/Library
-     For research support and services (e.g. the services offered by personal librarians and the request a literature search service offered by the information search librarians), go to http://www.unisa.ac.za/sites/corporate/default/Library/Library-services/Research-support
- For library training for undergraduate students, go to
  https://www.unisa.ac.za/sites/corporate/default/Library/Library-services/Training

The library has created numerous library guides, available at http://libguides.unisa.ac.za

Recommended guides:

- Request and find library material/download recommended material:
  http://libguides.unisa.ac.za/request/request
- Postgraduate information services: http://libguides.unisa.ac.za/request/postgrad
- Finding and using library resources and tools:
  http://libguides.unisa.ac.za/Research_skills
- Frequently asked questions about the library:
  http://libguides.unisa.ac.za/ask
- Services to students living with disabilities:
  http://libguides.unisa.ac.za/disability
- A–Z of library databases:
  https://libguides.unisa.ac.za/az.php

Important contact information:
- Ask a librarian: https://libguides.unisa.ac.za/ask
- Technical problems encountered in accessing library online services: Lib-help@unisa.ac.za
- General library-related queries: Library-enquiries@unisa.ac.za
- Queries related to library fines and payments: Library-fines@unisa.ac.za
- Social media channels: Facebook: UnisaLibrary and Twitter: @UnisaLibrary

6 STUDENT SUPPORT SERVICES

The *Study @ Unisa* brochure is available on myUnisa: www.unisa.ac.za/brochures/studies

This brochure contains important information and guidelines for successful studies through Unisa.

If you need assistance with regard to the myModules system, you are welcome to use the following contact details:

- Toll-free landline: 0800 00 1870 (Select option 07 for myModules)
- E-mail: mymodules22@unisa.ac.za or myUnisaHelp@unisa.ac.za

You can access and view short videos on topics such as how to view your calendar, how to access module content, how to view announcements for modules, how to submit assessment and how to participate in forum activities via the following link: https://dtls-qa.unisa.ac.za/course/view.php?id=32130

Registered Unisa students get a free myLife e-mail account. Important information, notices and updates are sent exclusively to this account. Please note that it can take up to 24 hours for your account to be activated after you have claimed it. Please do this immediately after registering at Unisa, by following this link: myLifeHelp@unisa.ac.za

Your myLife account is the **only** e-mail account recognised by Unisa for official correspondence with the university, and will remain the official primary e-mail address on record at Unisa. You remain responsible for the management of this e-mail account.

6.1   First-Year Experience Programme

Many students find the transition from school education to tertiary education stressful. This is also true in the case of students enrolling at Unisa for the first time. Unisa is a dedicated open distance and e-learning institution, and it is very different from face-to-face/contact institutions. It is a mega university, and all our programmes are offered through either blended learning or fully online learning. It is for this reason that we thought it necessary to offer first-time students additional/extended support to help them seamlessly navigate the Unisa teaching and learning journey with little difficulty and few barriers. We therefore offer a specialised student support programme to students enrolling at Unisa for the first time – this is Unisa's First-Year Experience (FYE) Programme, designed to provide you with prompt and helpful information about services that the institution offers and how you can access information. The following FYE services are currently offered:

- FYE website: All the guides and resources you need in order to navigate through your first year at Unisa can be accessed using the following link: www.unisa.ac.za/FYE

- FYE e-mails: You will receive regular e-mails to help you stay focused and motivated.

- FYE broadcasts: You will receive e-mails with links to broadcasts on various topics related to your first-year studies (e.g. videos on how to submit assessments online).

- FYE mailbox: For assistance with queries related to your first year of study, send an e-mail to fye@unisa.ac.za .

7.   STUDY PLAN

Use the *Study @ Unisa* brochure for general time management and planning skills.

You can plan around the chapters: in the following table. Visit myUnisa for a detailed a more detailed study plan with specific dates.

Syllabus	Chapters
Database design	Chapter 9 - Exam
Transaction management and Concurrency control	Chapter 10 - Exam
Database performance tuning and query optimisation	Chapter 11 - Exam
Distributed databases management systems	Chapter 12 - Exam
Business intelligence and data warehouses	Chapter 13 - Exam
Big data analytics and NoSQL	Chapter 14 - Exam
Big data, NoSQL, data management and meta data	Chapter 14 & Tutorial letter 102 - Exam.
Databases connectivity and web technologies	Chapter 15 - Exam
Database administration and Security	Chapter 16 - Exam

PLEASE NOTE: THE FOLLOWING TOPICS THAT HAVE BEEN ADDED:
   1. **Big Data**
   2. **Data Management, and**
   3. **Meta Data**

These three, have been added to the scope of this module and will form part of assignment 3 and final examination.

Envisaged Study programme for 2023

Months	Chapters to study	Assessment	Type of assessment
March to April	9 and 10	Assessment 1	Quiz
End of April to May	9 to 16	Assessment 2	Quiz
June to July	9-16	Assessment 3	Written assignment
August to exams	Revision for exams	Summative assessment	Quiz

8 HOW TO STUDY ONLINE

8.1   What does it mean to study fully online?

Studying fully online modules differs completely from studying some of your other modules at Unisa.

- **All your study material and learning activities for online modules are designed to be delivered online on myUnisa.**

- **All your assignments must be submitted online.** This means that you will do all your activities and submit all your assignments on myUnisa. In other words, you may **NOT** post your assignments to Unisa using the South African Post Office.
- **All communication between you and the University happens online.** Lecturers will communicate with you via e-mail and SMS, and use the **Announcements,** the **Discussion Forums** and the **Questions and Answers** tools. You can also use all of these platforms to ask questions and contact your lecturers.

9. ASSESSMENT

9.1 Assessment criteria

See Section 2.2 for Associated assessment criteria of each outcome.

9.2 Assessment plan

- To complete this module, you will be required to submit three assessments.
- All information about when and where to submit your assessments will be made available to you via the myModules site for your module.
- Due dates for assessments, as well as the actual assessments are available on the myModules site for this module.
- To gain admission to the examination, you will be required to submit one assignment. This must be Assignment 1 or Assignment 2 by its due date.
- To gain admission to the examination, you need to obtain a year mark average of any percentage for the assignments.
- The assignments weighting for the module is 20%.
- You will receive examination information via the myModules sites. Please watch out for announcements on how examinations for the modules for which you are registered will be conducted.
- The examination will count 80% towards the final module mark.

NB: 'Assignments' will be labelled 'Assessments' on your module web site for IRM4723-2023-Y

Because this is an online module, the assessments are not provided in this tutorial letter. Instead, the assignments are provided online as they become due. You will see them when you go online.

All assignments (Assessments) 1, 2 and 3 are found on myModules under myUnisa.

Assignment 01 (Chapters 9 and 10): A multiple-choice assignment (Quiz) on Unisa platforms.

Assignment 02 (Chapters 9 to 16 of the prescribed textbook): A multiple-choice assignment (Quiz) on Unisa platforms.

Assignment 03 (Chapters 9 to 16 of the prescribed textbook plus the content of Tutorial letter 102): A written (typed) assignment that will be marked online. It must be in pdf format.

All multiple-choice assignments, such as Assignment 01, is marked electronically. **No multiple-choice assignment (QUIZ) received after the due date can be accepted**.

You will get a *year mark* based on the percentages you achieve for Assignments 01, 02 and 03. The words 'assignment' and 'assessment' will be used interchangeably. The year mark will contribute 20% towards your final mark for this module. A year mark does not contribute to the result of a student writing a supplementary examination. However, it will contribute in the case of an aegrotat examination. A weight of 20% towards the year mark is allocated to assignment 01, 30% to assignment 02 and a weight of 50% to assignment 03. A discussion of the way in which the year mark is calculated follows. We use an example to explain:

Suppose you obtained the following marks for your assignments:

Assignment 01: 65%

Assignment 02: 68%

Assignment 03 77%

Your year mark will be calculated as follows:

$(65 \times 0.2) + (68 \times 0.3) + (77 \times 0.5)\% = 72\%$, where 0.2 (20%), 0.4 (40%) and 0.6 (60%) are the weights associated with Assignments 01, 02 and 03 respectively.

Suppose you achieve an *exam mark* of <u>74</u>%. Your *final mark* will be calculated as follows:

$(72 \times 0.20)\% + (74 \times 0.80)\% = (14.4 + 51.8)\% = 73.6\%$ that will be rounded off to 74%.

Due dates will be given for Assignments 01, 02 and 03. Please do not contact us for an extension of any of the submission dates. **You are strongly advised to submit all assignment via myUnisa on myModule website.** Please convert Assignment 03 to pdf format by converting your typed assignment to pdf. Then, upload the assignment to myUnisa. Please note that it is your responsibility to make sure that your assignments are received by the University. Note that MS Word has an option to save a document as a pdf. If your version cannot do this, there are a number of free shareware applications on the internet that you can use.

Examination information and details on the format of the examination will be made available to you online via the myUnisa site. Look out for information that will be shared with you by your lecturer and for communication from the University.

9.3 Assessment due dates

- There are no assignment **due dates** included in this tutorial letter.

- Assignment due dates will be made available to you on the myUnisa landing page for this module. We envisage that the due dates will be available to you upon registration.

- Please start working on your assessments as soon as you register for the module.

- Log on to the myUnisa site for this module to obtain more information on the due dates for the submission of the assessments.

- No assessment will be accepted after its due date.

9.4   Submission of assessments

- Unisa, as a comprehensive open distance e-learning institution (CODeL), is moving towards becoming an online institution. You will therefore see that all your study material, assessments and engagements with your lecturer and fellow students will take place online. We use myUnisa as our virtual campus.

- The myUnisa virtual campus will offer students access to the myModules site, where learning material will be available online and where assessments should be completed. This is an online system that is used to administer, document, and deliver educational material to students and support engagement between academics and students.

- The myUnisa platform can be accessed via https://my.unisa.ac.za. Click on the myModules 2023 button to access the online sites for the modules that you are registered for.

- The university undertakes to communicate clearly and as frequently as is necessary to ensure that you obtain the greatest benefit from the use of the myModules learning management system. Please access the announcements on your myModules site regularly, as this is where your lecturer will post important information to be shared with you.

- When you access your myModules site for the module/s you are registered for, you will see a welcome message posted by your lecturer. Below the welcome message you will see the assessment shells for the assessments that you need to complete. Some assessments may be multiple choice, some tests, others written assessments, some forum discussions, and so on. All assessments must be completed on the assessment shells available on the respective module platforms.

- To complete quiz assessments, please log on to the module site where you need to complete the assessment. Click on the relevant assessment shell (Assessment 1, Assessment 2, etc.). There will be a date on which the assessment will open for you. When the assessment is open, access the quiz online and complete it within the time available to you. Quiz assessment questions are not included in this tutorial letter (Tutorial Letter 101) and are only made available online. You must therefore access the quiz online and complete it online where the quiz has been created.

- It is not advisable to use a cell phone to complete the quiz. Please use a desktop computer, tablet or laptop when completing the quiz. Students who use a cell phone find it difficult to navigate the **Online Assessment** tool on the small screen and often struggle to navigate between questions and successfully complete the quizzes. In addition, cell phones are more vulnerable to dropped internet connections than other devices. **If at all possible, please do not use a cell phone for this assessment type**.

- For written assessments, please note the due date by which the assessment must be submitted. Ensure that you follow the guidelines given by your lecturer to complete the assessment. Click on the submission button on the relevant assessment shell on

myModules. You will then be able to upload your written assessment on the myModules site of the modules that you are registered for. **Before you finalise the upload, double check that you have selected the correct file for upload**. Remember, no marks can be allocated for incorrectly submitted assessments.

9.5   The assessments

As indicated in section 9.2, you need to complete three assessments for this module.

There are no assignments included in this tutorial letter. Assignments and due dates will be made available to you on myModules for this module. We envisage that the due dates will be available to you upon registration

9.6   Other assessment methods

There are no other assessment methods for this module.

9.7   The examination

Examination information and details on the format of the examination will be made available to you online via the myUnisa site. Look out for information that will be shared with you by your lecturer and e-tutors (where relevant) and for communication from the university.

9.7.1 *Invigilation/proctoring*

Since 2020 Unisa conducts all its assessments online. Given stringent requirements from professional bodies and increased solicitations of Unisa's students by third parties to unlawfully assist them with the completion of assignments and examinations, the University is obliged to assure its assessment integrity through the utilisation of various proctoring tools: Turnitin, Moodle Proctoring, the Invigilator App and IRIS. These tools will authenticate the student's identity and flag suspicious behaviour to assure credibility of students' responses during assessments. The description below is for your benefit as you may encounter any or all of these in your registered modules:

Turnitin is a plagiarism software that facilitates checks for originality in students' submissions against internal and external sources. Turnitin assists in identifying academic fraud and ghost writing. Students are expected to submit **typed** responses for utilisation of the Turnitin software.

The **Moodle Proctoring tool** is a facial recognition software that authenticates students' identity during their Quiz assessments. This tool requires access to a student's **mobile or laptop camera**. Students must ensure their camera is activated in their browser settings prior to their assessments.

The Invigilator "mobile application-based service does verification" of the identity of an assessment participant. The Invigilator Mobile Application detects student dishonesty-by-proxy and ensures that the assessment participant is the registered student. This invigilation tool requires students to download the app from their Play Store (Google, Huawei and Apple) on their **mobile devices** (camera enabled) prior to their assessment.

IRIS Invigilation software verifies the identity of a student during assessment and provides for both manual and automated facial verification. It has the ability to record and review a student's assessment session. It flags suspicious behaviour by the students for review by an academic administrator. IRIS software requires installation on students' **laptop devices** that are enabled with a webcam.

Students who are identified and flagged for suspicious dishonest behaviour arising from the invigilation and proctoring reports are referred to the disciplinary office for formal proceeding.

Please note:

Students must refer to their module assessment information on their myModule sites to determine which proctoring or invigilation tool will be utilised for their formative and summative assessments.

9.8   Supplementary

Supplementary exams will be done during January/February following the year in which you sat for the exam. This is also the case with the aegrotat examination. Please do not contact the lecturer for supplementary or aegrotat exams; rather refer to the *Study @ Unisa* brochure for guidelines. Read the *Study @ Unisa* brochure for general examination guidelines and examination preparation guidelines.

10. ACADEMIC DISHONESTY

10.1   Plagiarism

Plagiarism is the act of taking the words, ideas and thoughts of others and presenting them as your own. It is a form of theft. Plagiarism includes the following forms of academic dishonesty:

- Copying and pasting from any source without acknowledging the source.
- Not including references or deliberately inserting incorrect bibliographic information.
- Paraphrasing without acknowledging the original source of the information.

10.2   Cheating

Cheating includes, but is not limited to, the following:

- Completing assessments on behalf of another student, copying the work of another student during an assessment, or allowing another student to copy your work.
- Using social media (e.g. WhatsApp, Telegram) or other platforms to disseminate assessment information.
- Submitting corrupt or irrelevant files, this forms part of examination guidelines
- Buying completed answers from so-called "tutors" or internet sites (contract cheating).

10.3   For more information about plagiarism, follow the link below:

https://www.unisa.ac.za/sites/myunisa/default/Study-@-Unisa/Student-values-and-rules

11. STUDENTS LIVING WITH DISABILITIES

The Advocacy and Resource Centre for Students with Disabilities (ARCSWiD) provides an opportunity for staff to interact with first-time and returning students with disabilities.

If you are a student with a disability and would like additional support or need additional time for assessments, you are invited to contact (name and e-mail address of the lecturer must be inserted) to discuss the assistance that you need.

12. FREQUENTLY ASKED QUESTIONS

The *Study @ Unisa* brochure contains an A-Z guide of the most relevant study information. Please refer to this brochure.

13. SOURCES CONSULTED

See Section 5.1.

14. IN CLOSING

Do not hesitate to contact us by e-mail if you are experiencing problems with the content of this tutorial letter or with any academic aspect of the module.

We wish you a fascinating and satisfying journey through the learning material, and trust that you will complete the module successfully.

Enjoy the journey!

Dr S Ssemugabi – lecturer for IRM4723

DEPARTMENT OF Information Systems

15. ADDENDUM

There is no addendum in this document.

ANNEXURE: GLOSSARY OF TERM

There is no glossary of terms. However, the textbook has got them at the end of each chapter.