Tutorial Letter 101/0/2025

Introduction to Programming II

COS1512

Year: 2025

School of Computing

Computer Science

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, COS1512-25-Y, as well as your group website.

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

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1 INTRODUCTION

Dear Student

Unisa is a comprehensive open distance e-learning (CODeL) higher education institution. Our comprehensive curricula encapsulate 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 who may not previously have had an opportunity to enrol in higher education registering at the university. 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 those who are sufficiently prepared.

Teaching and learning in a CODeL context involves multiple modes of delivery, ranging from blended to fully online learning. As a default position, all post-graduate programmes are offered fully online with no printed study materials, while undergraduate programmes are offered using 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 serving humanity and shaping futures – combined with a clear appreciation of our location on the African continent – means that Unisa's graduates have distinctive graduate qualities, which include:

- being independent, resilient, responsible and caring citizens 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 and taking account of 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 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

COS1512 is an online module.

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 your 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 COS1512-25-Y.

Because this is a **fully online module**, you will need to use myUnisa to study and complete the prescribed learning activities. Visit the website for COS1512 on myUnisa frequently. The website for your module is COS1512-25-Y.

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 design, implement, and evaluate algorithms-based, structured object-oriented computer programs, with the fundamentals of simple data structures, (including object orientation). Students are equipped to think logically, creatively, and conceptually and to recognize the design rules, techniques, and components to compose and present a functional working program solution to a perceived computing problem of a client, for the application of these programs in the industry's process systems and organizational information systems, to specific standards (such as user-friendly, robust, solution specific, and to the satisfaction of the client). This module provides core compulsory and introductory knowledge, skills, and values that will support further studies and applications in the sector of object-oriented programming computing, in the field of computer science, as part of the B-degree.

COS1512 focuses on introducing objects and the object-oriented programming environment using C++ as a programming language. The following topics are included:

- file I/O streams as an introduction to objects and classes.
- using predefined classes such as string and vector; C-strings, pointers, and dynamic arrays,
- ADTs (i.e. user-defined classes including the functions and operators for these classes as well as separate compilation),
- recursion,
- single inheritance,
- and function and class templates.

2.2 Outcomes

For this module, you will have to master the following outcomes:

Specific outcome 1:
You can design a logical solution to a simple programming problem, making appropriate assumptions.

Assessment criteria:

- You can interpret a problem description which specifies the requirements of a program;

- You can identify all steps necessary to solve a problem and order the steps in the correct 6 logical sequence;
- You can write down the logical sequence of operations that a computer should perform to solve a particular problem;
- You can apply object-oriented principles during problem solving.

Specific outcome 2:
You can write C++ program code, demonstrating the principles of good programming style

Assessment criteria:
- You can use the different C++ programming constructs appropriately and correctly, in order to implement a solution to a programming problem;
- You can write functions and use them in a program;
- You can define classes and use object-oriented principles to implement programming problems; You can recognise/locate errors in a program and correct them.

Specific outcome 3:
You can demonstrate an understanding of the theory underlying the basic programming concepts.

Assessment criteria:
- You can explain the purpose of a particular C++ programming construct and identify problem descriptions where they are applicable.
- You can define relevant programming concepts.

The specific learning objectives for each chapter in the prescribed book for COS1512 in order to reach the above learning outcomes are given in more detail in the study guide included in Tutorial Letter 102, available under Additional Resources on the COS1512 course website.

3 CURRICULUM TRANSFORMATION

Unisa has implemented a transformation charter that places 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 are being phased in at both programme and module levels. 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, responsively and within the framework of transformation.

4 LECTURER(S) AND CONTACT DETAILS

4.1 Lecturer(s)

Please refer to the module welcome page on Mymodules for your lecturers' contact details.

4.2 Department

You can contact the Department of Computer Science as follows:

Telephone: 011 670 9100

E-mail: computing@unisa.ac.za

4.3 University

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 your student number in all correspondence.

5 RESOURCES

5.1 Prescribed book(s)

The prescribed book for this module is:

Walter Savitch. Problem Solving with C++, 10th edition. Pearson International Edition: Addison Wesley, 2018.

You may also use the 7 th, 8th or 9th edition of the prescribed book.

You are expected to purchase your own copy of the prescribed book. For contact details of official booksellers, please consult the list of official booksellers and their addresses in Study @ Unisa.

You can also buy an e-book version of Savitch at www.coursesmart.com. We will refer to the prescribed book as Savitch.

In this module, we cover the following chapters of Savitch:

Chapter	Topic	Sections covered
Chapter 1	Introduction to computers and C++ programming	1.1 and 1.2
Chapter 4	Overloading functions	**Only** 4.6
Chapter 5	Assert macro	**Only** 5.5

Chapter 6	I/O streams as an introduction to objects and classes	All sections
Chapter 8	C-strings and vectors	8.1 and 8.3, **plus** the subsection 8 Converting Between string Objects and C Strings, thus **excluding** 8.2 with the **exception** of the subsection **Converting Between string Objects and C Strings**
Chapter 9	Pointers and dynamic arrays	All sections **excluding** the optional subsections in 9.2
Chapter 10	Defining classes	All sections
Chapter 11	Friends, overloaded operators and arrays in classes	All sections, **plus** Appendixes 7 and 8
Chapter 12	Separate compilation (ADTs)	12.1 and only the first two pages of 12.2
Chapter 14	Recursion	14.1 and 14.2, thus **excluding** 14.3
Chapter 15	Inheritance	**Only** 15.1, thus **excluding** 15.2 and 15.3
Chapter 17	Templates	All sections

5.2 Recommended book(s)

You do not have to consult any other textbooks apart from Savitch. However, some of you may want to read more widely, and consult alternative references. The following is a useful book available in the Unisa library. Please note that the library does not have multiple copies of this book and that only limited waiting lists are kept.

DS Malik. C++ Programming from problem analysis to program design. Cengage, UK, 2013.

Recommended material can be used as additional reading and can be requested online, via the library catalogue.

5.3 Library services and resources

The Unisa Library offers a range of information services and resources and has made numerous library guides available at http://libguides.unisa.ac.za

Recommended guides:

- For brief information on the library, 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 Frequently Asked Questions, go to https://www.unisa.ac.za/sites/corporate/default/Library/Frequently-Asked-Questions
- For research support and services such as the Personal Librarian service and the Information Search Librarian's Literature Search Request (on your research topic) service, 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
- For Lending Services, go to https://www.unisa.ac.za/sites/corporate/default/Library/Library-services/Lending-services
- For Services for Postgraduate students, go to https://www.unisa.ac.za/sites/corporate/default/Library/Services-for-Postgraduates
- For Support and Services for students with disabilities, go to https://www.unisa.ac.za/sites/corporate/default/Library/Services-for-students-with-special-needs
- For Library Technology Support, go to https://libguides.unisa.ac.za/techsupport
- For information on finding and using library resources and tools, go to http://libguides.unisa.ac.za/Research_skills
- For an A–Z list of library databases, go to https://libguides.unisa.ac.za/az.php

Important contact information:

- 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
- Interlibrary loan service for postgraduate students: libr-ill@unisa.ac.za
- Literature Search Service: Lib-search@unisa.ac.za
- Social media channels: Facebook: UnisaLibrary and X Twitter: @UnisaLibrary

To view the Library orientation video – please click here : Unisa Library and Information Services Video_1_1 (2).mp4

6 STUDENT SUPPORT SERVICES

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

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

If you need assistance concerning 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: mymodule22@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 assessments and how to participate in forum activities by visiting https://dtls-qa.unisa.ac.za/course/view.php?id=32130

Registered Unisa students receive 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 claim your e-mail account immediately after registering at Unisa by following this link**:** **https://www.unisa.ac.za/sites/myunisa/default/Claim-UNISA-Login**

or follow this link to get more information: https://www.unisa.ac.za/static/myunisa/Content/Announcements/Documents/Claim-myUnisa-myLife-Nov-2017.pdf

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 managing this e-mail account.

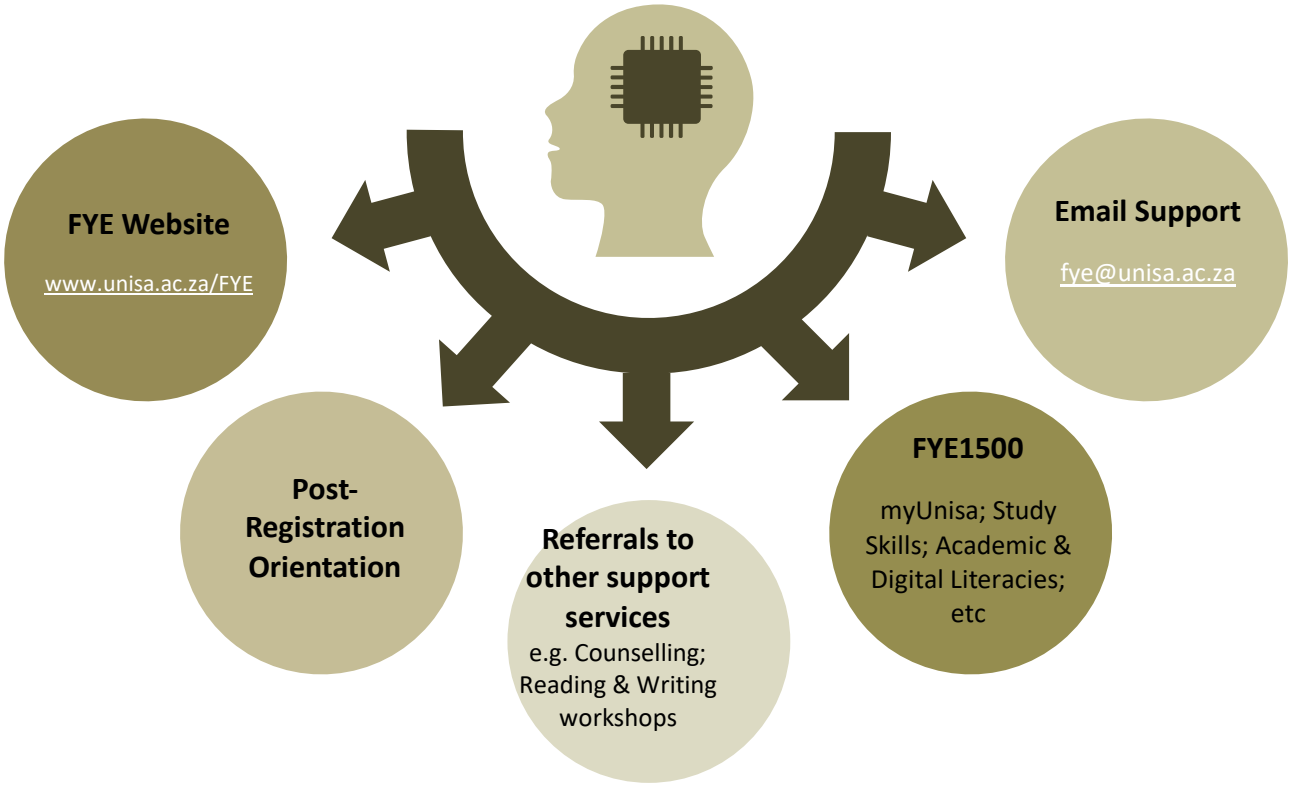
You remain responsible for the management of this e-mail account.

6.1 The Unisa First-Year Experience Programme

Many students find the transition from school education to tertiary education stressful and this is often true for students enrolling at Unisa for the first time. Unisa is a dedicated open distance and e-learning institution and is very different from face-to-face/contact institutions. It is a mega university and all its programmes are offered through either blended learning or fully online learning. For these reasons, we offer first-time students additional/extended support to help them navigate the Unisa teaching and learning journey seamlessly and with little difficulty and few barriers.

Unisa's First-Year Experience (FYE) Programme has been specially designed to provide you with prompt and helpful information about the services that the institution offers.

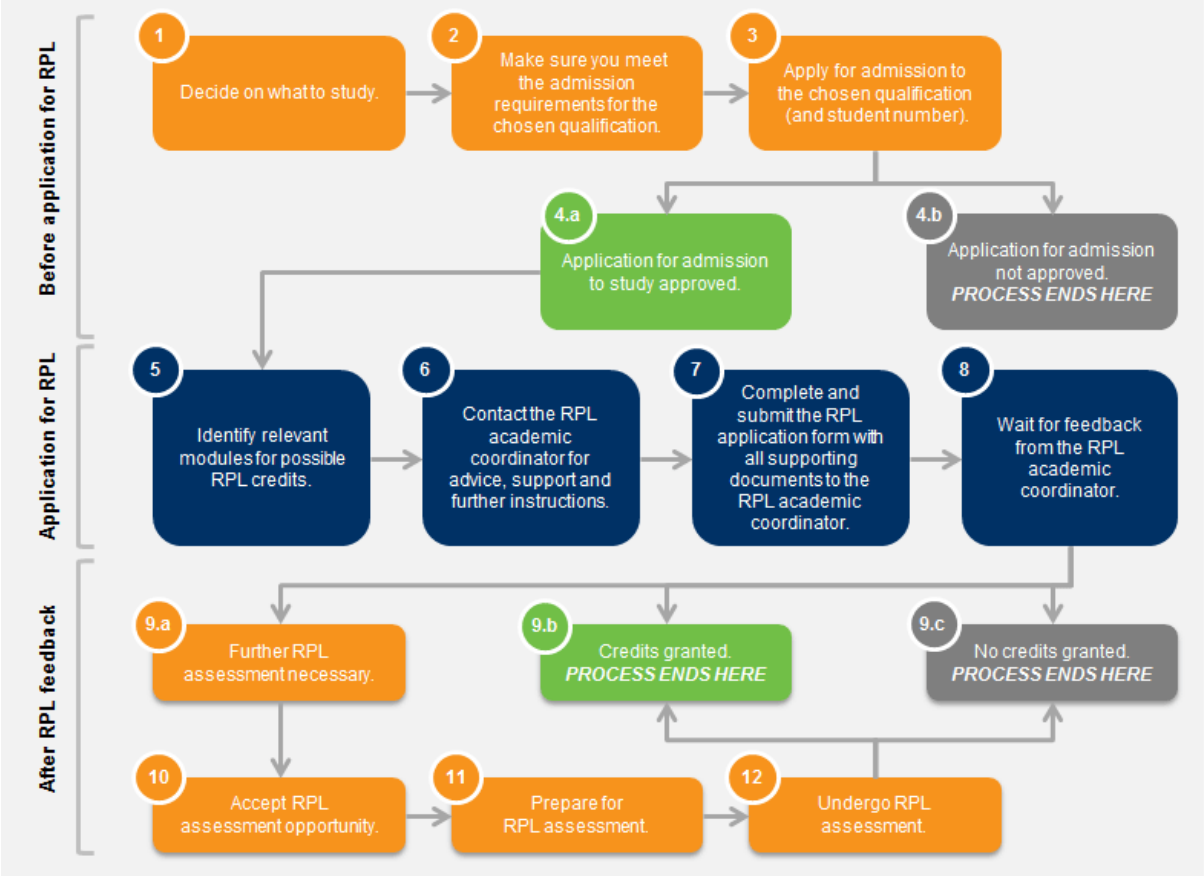
The following FYE services are currently available:



To ensure that you do not miss out on important academic and support communication from the SRU, please check your myLife inbox regularly.

6.2 Using Recognition of Prior Learning (RPL) to apply for module credit within a qualification.

Now that you are a registered student, you are advised to familiarise yourself with the learning outcomes of the module or modules you have chosen. If you have been exposed to those learning outcomes for three years or more – either through work experience or other involvement – you can apply to be exempted from completing assignments and writing examinations. As part of your application for this exemption, you will be required to compile a portfolio of evidence substantiating how your experience is equivalent to the learning outcomes. The diagram below shows the steps involved in obtaining recognition of prior learning (RPL) for module credit. For more information on the process, RPL fees, and the contact details of your college RPL coordinator, visit the Unisa website: www.unisa.ac.za/rpl



7. STUDY PLAN

COS1511 is a co-requisite for COS1512 registration. This means that if you have not yet passed COS1511, you have to register for both COS1511 and COS1512 simultaneously.

If you do not have any programming background or experience, it is highly recommended to first pass COS1511 before attempting COS1512, because COS1512 builds on knowledge that we expect you to have acquired in COS1511.

If you are registered for both COS1511 and COS1512, please note that you must study the Study Guide for COS1511 up to at least Chapter 23 before you start with COS1512. Here is a study program for students registered for both COS1511 and COS1512.

We also provide a study program for students registered for COS1512 only below. Note that due dates for assignments for students registered for COS1512 only and for students registered for both COS1511 and COS1512 simultaneously are the same. See the COS1512 course website for these dates.

Study programme for students registered for both COS1511 and COS1512.

Week	Date	COS1511	COS1512
1	5 March 2025	Install software Chapters 1 to 4	Install software .Chapter 1 in Savitch.
2	12 March 2025	Chapters 5 to 7	Play AutoThinking game
3	19 March 2025	Chapters 8 to 11	
4	26 March 2025	Chapters 12 to 14	
5	2 April 2025	Chapters 15 to 16	
6	9 April 2025	Complete Assignment 1 for COS1511 (Chapters 1 to 16)	
7	16 April 2025	Chapters 17 to 18	
8	23 April 2025	Chapters 19 to 20	
9	30 April 2025	Chapters 21 to 23	
10	7 May 2025	Complete Assignment 2 for	

		COS1511 (Chapters 17 to 12 23)	
11	14 May 2025	-	Section 4.6 in chapter 4 and section 5.5 in chapter 5 in Savitch Complete Assignment 1 for COS1512
12	21 May 2025	Chapters 24 to 26	Chapter 6 in Savitch
13	28 May 2025	Chapter 27	-
14	4 June 2025	Complete Assignment 3 for COS1511 (Chapters 24 to 27)	-
15	11 June 2025	-	Sections 8.1 and 8.3, plus the subsection Converting Between string Objects and C Strings in section 8.2 in chapter 8 on Savitch
16	18 June 2025	-	Chapter 9 in Savitch
17	25 June 2025		Complete Assignment 2 for COS1512 (chapters 4, 5, 6, 8 &9 in Savitch)
18	2 July 2025	Chapters 28 - 30	-
19	9 July 2025		Chapter 10 in Savitch
20	16 July 2025		Chapter 11 in Savitch
21	23 July 2025		Chapter 12 in Savitch
22	30 July 2025		Appendices 7 and 8 in Savitch
23	6 August 2025		Complete Assignment 3 for COS1512 (Chapters

			10, 11 & 12 in Savitch)
24	13 August 2025		Complete Assignment 3 for COS1512 (Chapters 10, 11 & 12 in Savitch)
25	20 August 2025		Chapter 14 in Savitch
26	27 August 2025		Chapter 15 in Savitch
27			Chapter 17 in Savitch
28	3 September 2025		Complete Assignment 4 for COS1512 (Chapters 14, 15 COS1512/101/0/2025 13 & 17 in Savitch)
29	10 September 2025	Complete Assignment 4 for COS1511 (Chapters 1 to 30)	
30	17 September 2025	Revision	Revision

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 will use the Announcements, Discussion Forum, and Questions and Answers options. You can also use all these platforms to ask questions and contact your lecturers.

9. ASSESSMENT

9.1 Assessment criteria

The assessment criteria for this module is provided in section 2.2 showing what is expected for each learning outcome.

9.2 Assessment plan

- To complete this module, you will be required to submit 4 assignments.
- All information about when and where to submit your assignments will be made available to you via the myModules site for your module.
- Due dates for assignments, as well as the actual assignments, will be available on the myModules site for this module.
- To gain admission to the examination, you will be required to submit at least two (2) assignment/s.
- To gain admission to the examination, you will need to obtain a year mark average of 50% for the assignments.
- The assignment 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.

9.3 Assessment/assignment due dates

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

- Assessment/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/assignments

9.4 Submission of assessments/assignments

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

- The myUnisa virtual campus offers students access to the **myModules site**, where learning material is available online and where assessments should be completed. Together, myUnisa and myModules form an online system that is used to administer, document, and deliver educational material to students and support engagement between those students and Unisa's academics.

- The myUnisa platform can be accessed via https://my.unisa.ac.za. Click on the myModules 2025 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 your 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 may be tests and others may be written assessments/assignments, while some may be 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 recorded there telling you when 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 made available online only. You must therefore access and complete the quiz online where it has been created.

- It is not advisable to use a cellphone to complete quizzes and you should please use a desktop computer, tablet or laptop for this task. Students who use cellphones 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, cellphones are more vulnerable to dropped internet connections than other devices. **If at all possible, please do not use a cellphone for this assessment type**.

- For written assessments/assignments, please note the due date by which your work must be submitted. Ensure that you follow the guidelines given by your lecturer to complete the assessment/assignment. Click on the submission button on the relevant assessment shell on myModules. You will then be able to upload your written assessment to the myModules site for the modules that you are registered for. Before you finalise the upload, double-check that you have selected the correct file for uploading. Remember, no marks can be allocated for incorrectly submitted assessments/assignments.

9.4.1 Types of assignments and descriptions

All assignments are defined as either optional, mandatory, compulsory, or elective.

- **Elective assignments**
  - If not submitted, the student gets no mark for this item.
  - The best of the required submissions will count.
- **Mandatory assignments**
  - If not submitted, the student gets no mark for this item.
- **Optional assignments** – You are encouraged, as a student, to do optional assignments in order to benefit your learning.

I. Elective assignments

a. The student is given a choice of which assignments within an identified group to submit and only the best result/s, the number of which is specified in advance, will contribute towards the year mark.
b. Elective assignments must be grouped into an elective group.
c. For the student to select which assignment to submit, the elective assignments must be grouped together. For such an elective group, relevant information (such as how many of the assignments must be submitted and how many of the assignment marks should be combined into the year mark) will be supplied to you.
d. The selection criteria define how marks received for assignments in an elective group are to be combined into the year mark. Three different criteria may be used for calculating the year mark:
    - The best mark should be used, or
    - If the student submits fewer than the required number of assignments per group, or no assignment in a group, a mark of 0% will be used.
    - 0% is awarded to all non-submitted or unmarked assessments. A best mark is then calculated from all the qualifying items submitted.

II. Mandatory assessments/assignments

a. Mandatory assessments/assignments contribute to the year mark.
b. If a student fails to submit a mandatory assignment, no mark is awarded and the year mark is calculated accordingly. The student will therefore forfeit the marks attached to such an assignment when the final mark for the module is calculated.

III. **Optional assessments assignments** – You are encouraged, as a student, to do optional assessments/assignments in order to benefit your learning.

9.5 The assessments/assignments

As indicated in section 9.2, you need to complete 4 assessments/assignments for this module. Details of the tasks set will appear on the assessments/assignments themselves.

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

Not applicable to COS1512

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), as well as for communication from the University.

9.7.1 Invigilation/proctoring

Since 2020, Unisa has conducted all its assessments online. Given the stringent requirements imposed by professional bodies, as well as increased solicitation of Unisa's students by third parties to unlawfully assist them with the completion of assignments and examinations, the University is obliged to assure the integrity of its assessment integrity by using various proctoring tools: Turnitin, Moodle Proctoring, the Invigilator App and IRIS. These tools authenticate the student's identity and flag suspicious behaviour to assure the credibility of their 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 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 when using the Turnitin software.

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

The Invigilator App is a mobile application-based service that verifies the identity of an assessment participant. The Invigilator app detects student dishonesty-by-proxy and ensures that the assessment participant is the student registered for the module concerned. This invigilation tool requires students to download the app from the Google Play Store (Android devices), the Huawei AppGallery (Huawei devices) or the Apple App Store (Apple devices) on their **camera-enabled** mobile devices prior to their assessment.

The **IRIS Invigilation** software verifies the identity of a student during assessment and provides for both manual and automated facial verification. It can record and review a student's assessment session and it flags suspicious behaviour by the student for review by an academic administrator. The IRIS software requires installation on students' **webcam-enabled laptop devices**. *IRIS invigilation software is used for all CSET online examinations/tests*. *It is the responsibility of students to ensure the software is working properly before the examination session, and attendance of training.*

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

Please note:

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

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 that source.
- Not including references or deliberately inserting incorrect bibliographic information.
- Paraphrasing without acknowledging the 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 matter is addressed in the 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 if you need additional time for assignments/assessments, you are invited to contact the module lecturer to discuss the assistance that you need. The contact details for the module lecturer are on the COS1512 module welcome page on MyUnisa.

12. FREQUENTLY ASKED QUESTIONS

What does it mean to study fully online? See section 8.

How can I structure my studies for the module? See section 7.

What can I expect from the module? See section 2.2.

13. 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!

ANNEXURE: GLOSSARY OF TERMS

Term	Description
Functions	Sections of programming code created to perform a specific task.
getline	Extracts characters from an input stream up to the nth occurrence of a delimiting character and copies them to a string.
srand	Seeds the random number generator with an integer.
Relational operators **==** **<** **>** **<=** **>=** **!=**	Operators used to perform a function on a variable relative to another.
Stream operators	Operators performing stream operations.

<< **>>**	
Newline escape character **\n**	Ends the current line and moves to the next line.
Boolean operators **&&** **||** **!**	Operators on the Boolean Type.
Debugging	Testing a program for errors.
Variables	Containers for values to be manipulated by the program.
Local variables	Variable that are declared and used only within the scope of a function.
Global Variables	Variable that are declared in the main program and can also be used within functions.
Assignment statements	Statements used to allocate (assign) values to variables.
Variable diagrams	Diagrams used to trace the values of variables as the program executes.
String	Words and text input represented in inverted commas “String”.
Integer	A numbers data type for whole numbers.
Double/ Float	A data type for fractions, and it caters for decimal numbers.

If statements	Programming logic that used conditional statements to determine the execution of the program code.
While loops	Condition-based looping/repeating statements that repeats while a specified condition holds.
Boolean values	Values of the Boolean data type.
Nested loop	A loop inside another loop.
Switch statements	Conditional statements that provide a selection of case options for the program to execute based on the case conditions.
For loops	Conditional loops that use numerical conditions for the number of iterations required.
Reference parameters	Variables passed from the main function of the program for their values to be updated in a function.
Data structures	Variables that contain multiple values.
One-dimensional arrays	A type of data structure that can contain multiple values of the same type.
Two-dimensional arrays	A type of data structure that can contain multiple values of different types.
ASCII table	A table of characters and number including their binary numbers.

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