INFORMATION TECHNOLOGY ORIENTATION
(continued)
SIT 143

STUDY GUIDE
Version 1

S Naidoo (Mrs)
S2/2015
CONTENTS

1. Overview 3
   1.1 Description 3
   1.2 Pre-requisites 3
   1.3 Related modules 3
   1.4 Study units 3

2. Outcomes 4
   2.1 Specific outcomes 4
   2.2 General outcomes and attitudes 5
   2.3 Code of conduct 6

3. Plagiarism policy 7

4. Instructors 7
   4.1 Interaction with Instructors 7
   4.2 Mark administration 7
   4.3 Module coordinator/Lecturer 8
   4.4 Tutors 8

5. Study material 9
   5.1 Class attendance 9
   5.2 Module websites 9
      5.2.1 The CS portal 9
      5.2.2 The ClickUP module page 9
   5.3 Prescribed textbook 10
   5.4 Additional references 10

6. Assessment 10
   6.1 Semester mark 10
      6.1.1 Semester tests 10
      6.1.2 Practical lab experiences 10
   6.2 Examination 11
   6.3 Final mark calculation 11

7. Lectures 11

8. Practical lab experiences 11

9. Lecture and practical lab experience schedule 12 - 13

10. General Information 13
1. **Overview**

1.1 **Description**

The Information Technology Orientation modules are presented to selected students on the four-year study programme in Bachelor of Information Science (BIS) with specialisation in Multimedia; and BSc IT (Information and Knowledge Systems) students. The two consecutive semester modules namely SIT 133 and SIT 143 are completed in the first year of study. These modules are credit-bearing.

The curriculum of the Information Technology Orientation modules is designed to provide learning opportunities to guide students with regard to communication skills, study methodologies and values. The beginning programmer will also be guided into developing structured program logic. Additionally the modules will expose students to Information Technology and its influences.

1.2 **Pre-requisites**

The entrance requirements for the BIS (Multimedia – four year programme) and BSc IT (four year programme) may be found in the yearbook for 2014 on pages 142 (IT.20.3) and 162 (IT.26) respectively. SIT 143 is a core module for both the programmes.

1.3 **Related modules**

The concepts presented in SIT 143 serve as an introduction to all the modules offered within the department of Computer Science and provides vital building blocks upon which all subsequent work is based. Students will be introduced to the concepts in computer science, the role of computers in our daily lives, and the constantly evolving nature of computers.

1.4 **Study Units**

Refer to the study units under section 2.2.
2. Outcomes

2.1 Specific and course outcomes

This module teaches important concepts underlying programming in all forms, and computer science in general. It provides a grounding in program planning and design, which is invaluable in any programming career. Additionally, all major fields within computer science are touched upon, thus giving students a broad basis from which to approach problems in any computer science related career. It covers the main themes of basic programming through the following study units:

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1</td>
<td>History of Computers</td>
</tr>
<tr>
<td>Chapter 6</td>
<td>Computer Networks</td>
</tr>
<tr>
<td>Chapter 7</td>
<td>Operating Systems</td>
</tr>
<tr>
<td>Chapter 9</td>
<td>Programming Languages</td>
</tr>
<tr>
<td>Chapter 10</td>
<td>Software Engineering</td>
</tr>
<tr>
<td>Chapter 14</td>
<td>Databases</td>
</tr>
<tr>
<td>Chapter 16</td>
<td>Security</td>
</tr>
<tr>
<td>Chapter 18</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td>Additional</td>
<td>Social Media</td>
</tr>
<tr>
<td>Additional</td>
<td>Mobile Technology</td>
</tr>
</tbody>
</table>

2.2 General outcomes and attitudes

Valuing responsibility, integrity and enthusiasm: In the context of the course, you demonstrate these values in the following ways:

- you take responsibility for your own work;
- you strive for excellence;
- you manage your time well;
- you hand in tasks and assignments on time;
- you diligently attend lectures and practical classes;
- you collaborate with fellow students on tasks and assignments when instructed to do so;
- you follow instructions with regard to processes and procedures;
- you request assistance and give feedback when appropriate; and
- you treat fellow students and staff with dignity and respect.
2.3 Code of Conduct

Software engineers (a career towards which you are aspiring) commit themselves to making the analysis, specification, design, development and maintenance of software a beneficial and respected profession. In accordance to their commitment, computing engineers adhere strictly to the principles such as those of the Institute of Electrical and Electronics Engineers (IEEE). Please read and apply the following IEEE code of ethics:

WE, THE MEMBERS OF THE IEEE, in recognition of the importance of our technologies in affecting the quality of life throughout the world and in accepting a personal obligation to our profession, its members and the communities we serve, do hereby commit ourselves to the highest ethical and professional conduct and agree:

1. to accept responsibility in making decisions consistent with the safety, health and welfare of the public, and to disclose promptly factors that might endanger the public or the environment;
2. to avoid real or perceived conflicts of interest whenever possible, and to disclose them to affected parties when they do exist;
3. to be honest and realistic in stating claims or estimates based on available data;
4. to reject bribery in all its forms;
5. to improve the understanding of technology, its appropriate application, and potential consequences;
6. to maintain and improve our technical competence and to undertake technological tasks for others only if qualified by training or experience, or after full disclosure of pertinent limitations;
7. to seek, accept, and offer honest criticism of technical work, to acknowledge and correct errors, and to credit properly the contributions of others;
8. to treat fairly all persons regardless of such factors as race, religion, gender, disability, age or national origin;
9. to avoid injuring others, their property, reputation, or employment by false or malicious action;
10. to assist colleagues and co-workers in their professional development and to support them in following this code of ethics.
3. **Plagiarism policy**

The Department of Computer Science considers plagiarism as a serious offence. Disciplinary action will be taken against students who commit plagiarism. Plagiarism includes copying someone else’s work without consent, copying a friend’s work (even with consent) and copying material (such as text) from the internet. **Copying will not be tolerated in this module.**

For a formal definition of plagiarism, the student is referred to [http://www.ais.up.ac.za/plagiarism/index.htm](http://www.ais.up.ac.za/plagiarism/index.htm) (From the UP main page follow the Library quick link and then the Plagiarism link).

If you have any questions regarding the plagiarism policy, please ask your lecturers, to avoid any misunderstanding later. Also note that the principle of code re-use does not mean that you should copy and adapt code to suit your solution.

4. **Instructors**

4.1 **Interaction with instructors**

In the event that you have any queries or questions, the primary means of contact should be via e-mail to the appropriate lecturer or assistant lecturer, or tutors (at least one day in advance). Whenever communicating via e-mail, **always** use the following guidelines:

- Give the module code (i.e. SIT 143) and a brief description of your problem in the subject line.

- Include your full name (including first name and surname), student number, and contact phone number (preferably a cell/mobile number) in the body of your message.

- Your e-mail address must have your full correct name displayed, and your student number.

- Be polite and courteous in all your interactions, and clearly describe your problem and what action you require.

You can also speak to the lecturers after classes. It is not advisable to visit a lecturer without an appointment since they have busy schedules and may be unavailable. Most queries can be dealt with in a short e-mail, and do not require a face-to-face consultation. However, you are always WELCOME to visit the lecturer on demand should the problem be urgent. If you’re unsure about work, do not wait for work to pile up before urgent deadlines such as tests or examinations. Make appointments timeously to see lecturers or tutors.

Tutors should be consulted during practical sessions. In the event of practical-related queries, tutors can be contacted via e-mail. Depending on times it may be possible for available for tutors to give assistance outside of practical hours. Even though you are on the Mamelodi Campus, you can make alternate arrangements with the tutor to meet with you on the Hatfield Campus, should this be more convenient. Fixed consultation hours of the lecturers and the tutors will be posted on the CS portal page.
4.2 Mark Administration

Marks for assessment opportunities will be posted electronically as soon as they are available. You will be given instructions as to how you may query a mark once it is published. Mark queries must be sent within five (5) working days of their publication and will be attended to as soon as possible after they have been received. Retain physical proof of all assessment opportunities (e.g. semester and class test scripts and marked practical assessments) until after the final examination for the module.

4.3 Lecturer

<table>
<thead>
<tr>
<th>Name</th>
<th>Office</th>
<th>Telephone</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mrs S Naidoo</td>
<td>Room 108 New Science Bldg Mamelodi Campus</td>
<td>012 842 3478</td>
<td><a href="mailto:snaidoo@cs.up.ac.za">snaidoo@cs.up.ac.za</a></td>
</tr>
</tbody>
</table>

4.4 Tutors

They can be contacted with regard to any problems you experience in the practical tasks, and may assess an allocate marks for aspects of these tasks. Please note that it is not their responsibility to complete part of the practical for you. Instead they will help with explanations and guidance when you need assistance. The details and contact information of the tutors are also available on the CS portal under the module name.

Their contact details follow in the table below:

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Office (Science Bldg)</th>
<th>Telephone</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutors</td>
<td>Abisole Agbaje</td>
<td>Room 115</td>
<td>012 842 3478</td>
<td><a href="mailto:mthemba4@gmail.com">mthemba4@gmail.com</a></td>
</tr>
<tr>
<td></td>
<td>Themba Mahlangu</td>
<td>Room 115</td>
<td>012 842 3478</td>
<td></td>
</tr>
</tbody>
</table>
5. **Study Material**

5.1 **Class attendance**

First and foremost, class attendance is **COMPULSORY** and is vital to maintain a good academic record. Material not covered in the slides or textbook may also be discussed during lectures. Please ensure that you attend these forums so that you are aware of important announcements, additional discussions and material not covered in this study guide. The lecturer can exercise her discretion in deciding whether a student is eligible to write the final examination if the student has **not** attended 70% of lectures and practical assessments.

5.2 **Module websites**

This module maintains two separate websites, each of which will host different types of material related to the module through the course of the semester. These websites are:

5.2.1 **The CS module page (portal)**

The website is maintained on the web page of the Department of Computer Science. You can reach this page by visiting the department’s website at [http://www.cs.up.ac.za/](http://www.cs.up.ac.za/), clicking the Undergraduate Portal link, and finally clicking the SIT 133 link in the list. You can also reach the CS module page directly, by visiting [http://www.cs.up.ac.za/courses/SIT133/](http://www.cs.up.ac.za/courses/SIT133/). The **CS module page** will be used to host **most of the study material for this course**, and is thus the primary point of contact for electronic information and resources. The CS module page will host the following content:

- All announcements.
- Most file downloads, links and notes.
- All practical specifications and upload submissions.
- Discussion forums.

Since announcements may be posted at short notice, it is advisable to check the CS module page **at least once a day** for **updated announcements**. There will also be a link from the CS portal page to **ClickUP** for this module.

5.2.2 **The ClickUP module page**

In addition to the CS module page, a ClickUP page is also available. The ClickUP page may be reached through the usual SOS portal for ClickUP pages, after you have logged in at [http://www.up.ac.za/](http://www.up.ac.za/). The **ClickUP module page** will be used to maintain only certain resources related to this course that cannot be maintained on the CS module page. These include:

- Electronic Quizzes
- Sensitive file downloads

You will be timeously informed, either in class or via announcements on the CS module page, if and when, information has been posted on the ClickUP page.

5.2.3 **The four-year programme web page**

Please remember to regularly consult the Four-year programme website for important information regarding the programme. It is the students’ responsibility to regularly view the website for important notices and announcements.

Where to find it:

- Go to University of Pretoria home page ([www.up.ac.za](http://www.up.ac.za))
• Click on Faculties (left menu)
• Click on Faculty of Natural and Agricultural Sciences
• Click on UP four-year programmes
• Click on important notices for Mamelodi students

5.3 Prescribed textbook

There is only ONE (1) prescribed textbook for this module. It is COMPULSORY to have a copy of this textbook since reference will be made to material contained in this book. Also note that the same textbook is prescribed for SIT153 (module for next year). The details for the prescribed textbook are as follows:

Title: Foundations of Computer Science
Author: Forouzan
Edition: Third Edition (or 2nd can still be used)
Publisher: Course Technology, Cengage Learning
ISBN: 9781408088418

5.4 Additional references:

During the semester, lecturers may prescribe additional notes or articles. It is then the responsibility of the student to ensure that they obtain a copy. Note that such copy may be examinable, unless stated otherwise.

6. Assessment

This module will follow the process of continuous evaluation. The semester mark will consists of the following assessment opportunities. Two (2) semester tests, and approximately ten (10) practical laboratory experiences. Each opportunity is discussed separately. Students may have the opportunity to complete two assignments, or it may be incorporated as part of the Lab experiences. Please note the table below indicating “Calculation of Final Mark”.

6.1 Semester mark

The semester mark for the module will be calculated as follows:

<table>
<thead>
<tr>
<th>Calculation Final Mark</th>
<th>Specific requirements</th>
<th>Sub minimum requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Evaluation: 60%</td>
<td>There are no specific requirements as students will not be refused entry into the examination based on their semester mark.</td>
<td>To pass the module, a student must obtain at least 40% in the examination (including the theory and practical exam marks) and at least 50% in the final mark.</td>
</tr>
<tr>
<td>Semester Tests: 60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tutorials &amp; Pracs: 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assignments: 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total: 100 Conv. 60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6.1.1 Semester Tests

The two (2) semester tests will be written on the following days:

<table>
<thead>
<tr>
<th>SIT 143</th>
<th>Date</th>
<th>Time</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester Test 1</td>
<td></td>
<td></td>
<td>ARENA</td>
</tr>
<tr>
<td>Semester Test 2</td>
<td></td>
<td></td>
<td>ARENA</td>
</tr>
</tbody>
</table>

Students’ who absented themselves from the test/s due to illness or any other reasons, have to present a medical certificate or other supporting documents to Dr Q Kritzinger’s office within three days.

6.1.2 Practical lab experiences

During the semester there will be ± ten (10) practical experiences and two assignments that contribute towards 60% of the semester mark. A practical experience can be defined as a written (quiz, etc), or a computer–based set of questions that must be submitted before the end of the practical session. Some lab experiences will take the form of a research assignment, which may stretch over more than one week. In the latter case, a submission deadline will be published on the lab experience specification. Please note that submission deadlines will be strictly observed, and late submissions will not be accepted under any circumstances. If the submission is electronic, make sure that you submit well before the deadline time, since network problems often delay student submissions.

6.2 Examination

The examination details will be made available at a later date. All the work covered, including any extra material made available, will be examinable. Please make sure to check the course website towards the end of the semester, for any updates. Supplementary Examinations are not organised by the Department of Computer Science and doctor’s notes, or other supporting documents, should therefore be presented to the Mrs Bridgette Yani’s office, or the Faculty offices.

6.3 Final Mark Calculation

Each student’s final mark will be calculated as follows:

Final Marks = Examination Mark (40%) + Semester Marks (60%)

In addition the following regulations hold for this course:

- A process of continuous evaluation will be followed for this module.
- Students do not require a minimum semester mark for entrance into the examination.
- To pass this module, a student must obtain at least 40% in the exam and a final mark of at least 50%.
- A student will pass the course with distinction if he/she obtains at least 75% for the final mark.
- A supplementary exam will be granted to students with a final mark between 40% and 49%.
Please also take note of the examination rules, as provided for in the general rules and regulations of the University of Pretoria, under section G.12. This is provided here, for your convenience: http://web.up.ac.za/sitefiles/file/publications/2012/yearbooks/eng/General Regulations and Rules 2012.pdf.

Note that for the supplementary examination, the semester mark is not considered. The mark obtained for the supplementary examination will therefore become the final mark for the module. The maximum mark that is achievable after writing the supplementary examination is 50%. Also note that the scope and general format of the supplementary examination will be identical to that of the examination. Students should take note of this and not make queries regarding supplementary examination scope.

7. Lectures

There are two (2) lectures per week for SIT 133:

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Group</th>
<th>Day</th>
<th>Time</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture 1</td>
<td>BSIT (G101)</td>
<td>Monday</td>
<td>13:00 – 13:50</td>
<td>A2</td>
</tr>
<tr>
<td>Lecture 2</td>
<td>BSIT (G101)</td>
<td>Wednesday</td>
<td>11:00 – 11:50</td>
<td>A2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Group</th>
<th>Day</th>
<th>Time</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture 1</td>
<td>BBIS (G101)</td>
<td>Monday</td>
<td>13:00 – 13:50</td>
<td>A2</td>
</tr>
<tr>
<td>Lecture 2</td>
<td>BBIS (G101)</td>
<td>Wednesday</td>
<td>11:00 – 11:50</td>
<td></td>
</tr>
</tbody>
</table>

8. Practical lab experiences

The practical lab experiences will be held in the computer laboratories. The timetable is as follows:

<table>
<thead>
<tr>
<th>Practical</th>
<th>Group</th>
<th>Day</th>
<th>Time</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prac 1</td>
<td>BSIT (G101)</td>
<td>Thursday</td>
<td>08:00 – 10:50</td>
<td>IT Labs Red</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Practical</th>
<th>Group</th>
<th>Day</th>
<th>Time</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prac 1</td>
<td>BBIS (G102)</td>
<td>Tuesday</td>
<td>11:00 – 13:50</td>
<td>IT Labs Red</td>
</tr>
</tbody>
</table>
9. Lecture and practical lab experience schedule

The following lecture schedule will be followed. However, you are advised that these activities are *provisional* and *the lecturer reserves the right to adapt this schedule at any point during the instruction of this module.*

<table>
<thead>
<tr>
<th>Dates</th>
<th>Topic</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1:</td>
<td>- History of Computers</td>
<td>1</td>
</tr>
<tr>
<td>Week 2:</td>
<td>- Computer Networks</td>
<td>6</td>
</tr>
<tr>
<td>Week 3:</td>
<td>- Operating Systems</td>
<td>7</td>
</tr>
<tr>
<td>Week 4:</td>
<td>- Programming Languages</td>
<td>9</td>
</tr>
<tr>
<td>Week 5</td>
<td>- Software Engineering</td>
<td>10</td>
</tr>
<tr>
<td>Week 6</td>
<td>- Databases</td>
<td>14</td>
</tr>
<tr>
<td>Week 7</td>
<td>- Databases</td>
<td>14</td>
</tr>
<tr>
<td>Week 8</td>
<td>- Security</td>
<td>16</td>
</tr>
<tr>
<td>Week 9:</td>
<td>- Security</td>
<td>16</td>
</tr>
<tr>
<td>Week 10:</td>
<td>- Artificial Intelligence</td>
<td>18</td>
</tr>
<tr>
<td>Week 11:</td>
<td>- Artificial Intelligence</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td><strong>Recess</strong></td>
<td></td>
</tr>
<tr>
<td>Week 12:</td>
<td>- Social Media</td>
<td>Research</td>
</tr>
<tr>
<td>Week 13:</td>
<td>- Mobile Technology</td>
<td>Research</td>
</tr>
<tr>
<td>Week 14:</td>
<td>- Mobile Technology</td>
<td>Research</td>
</tr>
<tr>
<td>Week 15:</td>
<td></td>
<td>Revision</td>
</tr>
</tbody>
</table>
10. General Information

Students please note that should you encounter ANY problems in the SIT 143 module, please do not hesitate to contact your lecturer or the tutors. You have our details we will be most willing to see you either by appointment, or on demand. We hope that you are able to achieve great success in this module.

*People become really quite remarkable when they start thinking that they can do things.*
*When they believe in themselves, they have the first secret of success.*

- Norman Vincent Peale