



## Faculty of Engineering, Built Environment and Information Technology

Fakulteit Ingenieurswese, Bou-omgewing en  
Inligtingtegnologie / Lefapha la Boetšenere,  
Tikologo ya Kago le Theknološhi ya Tshedimošo

# Study Guide

## Department of Informatics

### Information Systems

### INF 113

Last updated 25 Feb 2021

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# 1 Introduction

## 1.1 Welcome

A warm welcome to you as a student in the Department of Informatics! We hope you are going to enjoy your studies this year! Informatics studies the application and use of computer and information systems within the organisation. Our students' strengths lie in their broad background of the economic and management sciences, which implies that the world of business is nothing new to them. The use of Information Technology in organisations is growing exponentially and new, more complex and challenging applications are explored and developed on a daily basis. The work of an informatics specialist is extremely interesting, but studying Informatics has an added benefit in that there is a very small chance that the qualified informatician will ever be without work.

South Africa is an advanced user of Information Technology, and work opportunities for IT graduates have never been problematic. The work world and environment that we prepare you for through our degree in Informatics, is international and a substantial number of our students are successful when they, in the process of expanding their professional skills, seek employment overseas. We also take great care to ensure that our curriculum is in line with the curricula of overseas universities and we take part in and participate in overseas conferences where educational approaches and curricula are presented and discussed. Our BCom (Informatics) degree is one of only a handful of qualifications outside the USA that is internationally accredited by ABET (see [www.abet.org](http://www.abet.org)). Our best wishes accompany you - may you find pleasure in gaining this sought after knowledge!

## 1.2 Educational approach

The general objective with this module is to emphasise understanding rather than merely focusing on memorizing the content. This is done to stimulate creative thinking and the development of innovative skills amongst students. Student-centred and co-operative learning and teaching methods are applied during lectures as well as practical sessions, in order to optimally develop the above skills.

You are expected to participate in discussions during all sessions. Your fellow students are dependent on the inputs you provide, therefore your participation is crucial. After all, you are also dependent on their contributions.

**Please read our Departmental Brochure on ClickUP.** It is our hope that you will find your studies informative, formative and enjoyable.

## 1.3 Responsibilities of the student

Full detail about what is required from you as a student will be posted on ClickUP under the links Schedule and notes, as well as Assessment.

## 2 Administrative information

### 2.1 Contact details

	Name	Building and room number	Telephone number	Email address
Module coordinator	Prof Marita Turpin	IT 5-66.1	012 420 5351	Marita.turpin@up.ac.za
Lecturer	Dr Marié Hattingh	IT5-67	012 420 5322	Marie.hattingh@up.ac.za
Assistant Lecturer		IT 5-72	012 420 2591	

#### EMS Faculty Student Advisor:

Mr Daniël Ramollo

Tel: 012 420 6743

danny.ramollo@up.ac.za

Consultation hours will be published on ClickUP. Lecturers do not consult outside their stipulated hours. Please make a note of the consultation hours when published on ClickUP.

### 2.2 Timetable

Use the University of Pretoria's timetable which is available on the Student Portal to determine where and when you have classes.

Lectures are compulsory. Students complete class activities in lecture sessions if and when required. These activities are not repeated and a student is not allowed to submit these activities outside of class time.

Contact session	Day	Time	Venue (if on campus)
Group 1:			
Lecture 1	Monday	14:30 – 15:30	IT 4-4
Lecture 2	Thursday	13:30 – 14:30	GW/HB 4-14
Group 2:			
Lecture 1	Tuesday	09:30 – 10:30	EMS 4-150
Lecture 2	Thursday	10:30 – 11:30	GW/HB 4-3

### 2.3 Online presentation

During the period that students are not allowed to attend formal lectures due to lockdown or social distancing measures, classes will be presented online in the normal lecture periods using Blackboard Collaborate. Assessments will be submitted online on ClickUP. The semester test will be taken online with details communicated closer to the time.

At the end of a lecture week, students will be informed what to expect and/or prepare for the next week.

The assessment plan (7.1) as well as the calculation of the semester mark (7.2) allows for an online teaching and assessment format.

Students can interact with the contact session presenter/facilitator during the scheduled session, and per email with the lecturers/assistant lecturer during the rest of the week.

### 2.4 Practical sessions

There are no regular practical lab sessions for INF113.

## 2.5 Grievance procedures

All issues should be reported in writing, providing details of the complaint or issue. First consult the lecturer concerned about the complaint or issue. If the matter is, however, not resolved, you should consult the class representative (the primary function of the class representative is to serve as a two-way communication channel between the class and the lecturer.) If the matter remains unresolved you should consult the module co-ordinator in the case of large module classes with multiple lecturers. Where the co-ordinator is unable to or fails to resolve the matter, you should consult the Head of Department. Should the matter remain unresolved, you may approach the Dean of the Faculty.

## 3 Study material and purchases

Please note that the following textbooks are prescribed. INF 113 only has prescribed material and no recommended material. To successfully complete the subject, students will be required to supplement class notes and class activities with material found in the prescribed textbooks.



Authors: Mark Dawes, Ruth Matthews, Andrew Roberts and Geoff Thwaites  
Title: Thinking Skills  
Publisher: Cambridge University Press  
Edition: 3rd edition (2018)  
ISBN: 978-1-108-44104-9

## 4 Rules, requirements and guidelines

Please refer to the **Departmental Brochure** for general rules, requirements and guidelines.

## 5 Student support

The University of Pretoria supports you in various ways free of charge. For academic support contact the tutors allocated to the module (see section 2.1), and/or the Faculty Student Advisor (see section 2.1).

<b>Faculty student advisors</b>	Academic support Goal setting & motivation Adjustment to university life Test/Exam preparation Stress management Career exploration	Individual consultations and workshops about - time management - study methods	
<b>FLY@UP: The Finish Line is Yours</b>	<ul style="list-style-type: none"><li>• Think carefully before dropping modules (after the closing date for amendments or cancellation of modules).</li><li>• Make responsible choices with your time and work consistently.</li><li>• Aim for a good semester mark. Don't rely on the examination to pass.</li></ul>	<a href="http://www.up.ac.za/fly@up">www.up.ac.za/fly@up</a> email: <a href="mailto:fly@up.ac.za">fly@up.ac.za</a>	

### For e-learning support

- Report a problem you experience to the Student Help Desk.

- Approach the assistants at the help desks (adjacent to the Student Computer Laboratories in IT Building, NW2, CBT, etc).
- Visit the open labs in the Informatorium Building to report problems at the offices of the Student Help Desk.
- Call 012 420 3837.
- Email [studenthelp@up.ac.za](mailto:studenthelp@up.ac.za)

#### **Safety in the evening: Green Route**

- From 18:00 till 06:00 Security Officers are available to escort you (on foot) to and from your residence or campus anywhere east of the Hatfield campus through to the LC de Villiers terrain.
- Departure point is at the ABSA ATM next to the Merensky Library.
- Phone the Operational Management Centre if you need a Security Officer to accompany you from your residence to campus.

For more support services see Addendum A

## **6 Module information**

### **6.1 Purpose of the module**

At the end of this course the student should have a grounding in the critical thinking, analytical reasoning and problem solving skills that are required to become a proficient business and systems analyst.

### **6.2 Module outcomes**

After completion of this module, a student should be able to:

MO1: Identify, break down, assess and respond to a given argument, and construct his/her own argument according to critical thinking principles.

MO2: Classify three basic problem types and identify suitable problem solving approaches for given problems.

MO3: Demonstrate design thinking to design an artefact to solve a given problem.

### **6.3 Learning outcomes**

#### **Part I: Critical thinking**

- Learning outcome 1: understand what critical thinking entails.
  - 1.1 Understand what is meant by thinking skills;
  - 1.2 Understand what is meant by critical thinking;
  - 1.3 understand why and when critical thinking is necessary
- Learning outcome 2: analyse an argument.
  - 2.1 Understand what the different types of claims are;
  - 2.2 Judge a claim;
  - 2.3. Understand what an argument is;
  - 2.4. Know how to analyse an argument.

- 2.5 Identify a conclusion
  - 2.6 Understand what diffuse conclusions are.
- Learning outcome 3: critically evaluate an argument;
  - 3.1 Understand what a flawed argument is;
  - 3.2 Know the different types of fallacies;
  - 3.3 identify the flaws in arguments.
- Learning outcome 4: respond to an argument by developing further argument.

## **Part II: Problem solving and design thinking**

- Learning outcome 5: identify basic problem types and problem solving approaches;
  - 5.1 Understand how problems are defined and characterised;
  - 5.2 Differentiate between problems, symptoms and problem situations;
  - 5.3 Understand the difference between puzzles, problems and messes;
  - 5.4 Be able to identify the appropriate methods to deal with puzzles, problems and messes.
- Learning outcome 6: apply design thinking to design an artefact.
  - 6.1 Define design thinking
  - 6.2 Contrast design thinking with problem-based thinking
  - 6.3 Know the generic steps of a design thinking process
  - 6.4 Identify the pitfalls of design thinking
  - 6.5 Apply design thinking by following the Stanford University's design thinking process to design and manufacture an artefact.
- Learning outcome 7: apply problem structuring methods to messy problems;
  - 7.1 Understand the characteristics of a messy problem;
  - 7.2 Understand problem structuring methods;
  - 7.3 Understand Checkland's Soft Systems Methodology (SSM);
  - 7.4 Apply CATWOE mnemonic to develop root definitions as part of the SSM process

## **6.4 Articulation with other modules in the programme**

See Departmental Brochure for a full explanation of all Informatics modules.

## **6.5 Module structure**

The module entails 2 theory lectures per week, with regular class activities (see assessment plan). During online mode, assessment will mainly be in the form of activities to be completed at home and submitted online.

## **6.6 Learning presumed to be in place**

Prerequisites as for the BCom(INF) degree.

## **6.7 Credit map and notional hours**

The number of credits allocated to a module give an indication of the volume of learning required for the completion of that module and is based on the concept of notional hours. Given that this module carries a weighting of 10 credits, it follows that you should spend an average of 100 hours of study in total on the module (1 credit=10 notional hours). This includes time for lectures, assignments, projects, tests and exams. This means that you should spend approximately 100 hours/14 week=7 hours per week.

## 7 Assessment

In this section of the study guide it is important to share with the students the titles and the exact descriptions of all assessment tasks in the module.

### 7.1 Assessment plan

*Please note that the assessment plan below is for planning purposes. While we intend to implement it, some of the details may change due to unforeseen circumstances.*

Assessment type	Assessment task	About	Assessment tool	Due date	Marks	Weight (%)
Individual activity (critical thinking)	Written (online submission)	Argument analysis	Rubric	2 April	10	7.5
Class test	Written (online submission)	Argument evaluation	Rubric	22 April	20	10
Critical thinking take-home assignment	Written (online submission)	Present an argument/further argument	Rubric	18 May	10	10
Individual activity (design thinking)	Written and uploaded photo (online submission)	Design thinking	Rubric	28 May	10	10
Individual activity (puzzles)	Written (online submission)	Analytical problem-solving	Memo	11 June	10	7.5
Group activity (SSM)	Written (online submission)	SSM	Rubric	14 June	20	7.5
Individual activity (comp thinking)	Quiz	Comp thinking	Memo	18 June	10	7.5
Formal semester theory test	Written (online or physical tbc)	Critical thinking and design thinking	Memo	31 May	40	40
Formal theory exam	Written (online or physical tbc)	All topics	Memo	21 July (provisional)	50	50

### 7.2 Calculation of module mark and final mark

Module Average [as calculated at the end of the year/semester]	
• Individual and group activities, class test	60%
• Module test	40%
<b>Final year/semester average [30% required to write exam]</b>	<b>100%</b>

Absence from a module test must be supported by official and valid documentation (e.g. a relevant medical certificate) and must be submitted at the Informatics Help desk within three days of the date of the test. A special module test for all legitimate absentees can be taken on the specified date.

Pass requirements:

- A sub-minimum of 30% as a semester module mark is needed to gain access to the exam.
- According to faculty regulations you have to obtain a final mark of 50% or more to pass this module.

Final Module Average [as calculated at the end of the exam]	
• Semester mark	50%
• Exam mark	50%
<b>Final module average [need 50% to pass module]</b>	<b>100%</b>



Please refer to the **Departmental Brochure** for general rules and requirements related to supplementary exam qualification.

### 7.3 Assessment policy

Please refer to the **Departmental Brochure** for general rules related to assessment. Make sure to review the departmental brochure for all departmental rules and requirements as listed and related to University regulations and requirements. Test and assignment information and dates are available on ClickUP. Please make a note of these dates. **Class Tests/Class Activities are done during class time only. No special arrangements will be made in this regard. Please submit assignments and practical exercises on time. No late submissions will be accepted.**

There is no option for promotion in this module. A sub-minimum of 40% as a module mark is needed to gain access to the exam. According to faculty regulations you have to obtain a final mark of 50% or more to pass this module. A student's semester mark will be taken into consideration when calculating the final mark. All assignments due will be posted onto ClickUP. Completed practicals/assignments should be uploaded onto ClickUP. **All tests, assignments and activities will contribute towards your final mark.**






### 7.4 Plagiarism

Plagiarism is a serious form of academic misconduct. It involves both appropriating someone else's work and passing it off as one's own work afterwards. Thus, you commit plagiarism when you present someone else's written or creative work (words, images, ideas, opinions, discoveries, artwork, music, recordings, computer-generated work, etc.) as your own. Only hand in your own original work. Indicate precisely and accurately when you have used information provided by someone else. Referencing must be done in accordance with a recognised system. Indicate whether you have downloaded information from the Internet. For more details, visit the library's website:

<http://www.library.up.ac.za/plagiarism/index.htm>.

## 8 Addendum A: Support services

Please download a QR code reader on your cell phone. To download a QR code reader open your mobile app store (App Store, Google Play or Windows Marketplace) and search for QR code readers.

Student Counselling Unit	Provides counselling and therapeutic support to students.	012 420 2333	
Student Health Services	Promotes and assists students with health and wellness.	012 420 5233 012 420 3423	
The Careers Office	Provides support for UP students and graduates as they prepare for their careers.	<a href="mailto:careerservices@up.ac.za">careerservices@up.ac.za</a> 012 420 2315	
Department of Security Services	24-hour Operational Management Centre  24-hour Operational Manager cell Crisis Line	012 420-2310 012 420-2760  083 654 0476 0800 006 428	
Department of Student Affairs	Enquiries concerning studies, accommodation, food, funds, social activities and personal problems.	012 420 2371/4001 Roosmaryn Building, Hatfield campus	
Centre for Sexualities, AIDS and Gender	Identifies and provides training of student peer counsellors.	012 420 4391	
Disability Unit	Ensure an integrated and inclusive learning experience for students with disabilities.	012 420 2064	
Fees and funding	<a href="http://www.up.ac.za/enquiry">http://www.up.ac.za/enquiry</a> <a href="http://www.up.ac.za/fees-and-funding">www.up.ac.za/fees-and-funding</a>	012 420 3111	
IT Helpdesk	For student IT related queries	012 420 3051 <a href="mailto:studenthelp@up.ac.za">studenthelp@up.ac.za</a>	