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Industrial Engineering and Engineering Management Postgraduate Prospectus 2017

Important notice:

This document is intended to disseminate information about the Industrial Engineering Department's postgraduate offer. It further aims to act as a guideline on how the postgraduate programme is administered and managed. If there is any conflict between information presented in this document and an official policy or arrangement by the University of Stellenbosch, the latter will take preference and supersede this document.

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1 Introduction

The Department of Industrial Engineering at the University of Stellenbosch hosts two postgraduate study domains: Industrial Engineering and Engineering Management. In the Industrial Engineering study domain, there are two different programmes, i.e. the MEng (Industrial Engineering) programme and the PhD (Industrial Engineering) programme. There is only one programme in the Engineering Management study domain which is the MEng (Engineering Management) programme. These options add up to three different possible postgraduate qualifications for students in a variety of research areas:

1. MEng(Research) (Industrial Engineering);
2. MEng(Research) (Engineering Management); and
3. PhD (Industrial Engineering).

The PhD (Engineering Management) programme is under development and registration with the Department of Education at present and should be available in 2017.

The department used to present the MEng programme in two different models (Research or Structured) but the Structured version has been discontinued from 2015. The department also used to present a PGDip programme in both Industrial Engineering and Engineering Management, this programme has been discontinued from 2016. In previous versions of this guide, the Structured MEng as well as the PGDip programmes were described in detail and mention are made of them here for the sake of clarity and continuity.

The study domains hosted by the department, i.e. Industrial Engineering and Engineering Management, are fundamentally different but do have some overlap in certain areas. This often leads to confusion with prospective students and one of the objectives of this guide is to provide clarity on the department's offering. The full list of objectives of the guide are:

- Providing definition to the different postgraduate product offerings of the department especially highlighting the differences between Industrial Engineering and Engineering Management;
- Explaining the department's approach to accommodate students with different backgrounds in the same programme;
- Explaining the application process; Establishing a baseline plan for the postgraduate activities in 2016;
- Enabling students to plan their course work for the year; and
- Helping students to understand the various rules and regulations applicable to them[1].

Note that due to the dynamic nature of the postgraduate offering, this guide will be updated and improved continuously. The latest version of the document will be available from the postgraduate coordinator or administrator (contact details in Table 2) or it can be downloaded from the link on the title page of this document.

Always confirm that you have the latest version of the guide when consulting it. Later versions of the guide always supersede earlier versions in all respects.

2 Principles and orientation

[1] If there is a conflict between information in this guide, and the official regulations of the university, the official regulations will be applicable. This document is simply a guide to help the student to understand the process, and point him/her in the right direction, and is not a formal regulatory document. It does, however, contain department specific rules and requirements.

A few principles according to which the department delivers its programmes as well as general orientation to the various programmes are presented in sections to follow.

2.1 Industrial Engineering vs Engineering Management

Definitions for the different study domains are adopted from various sources and institutions involved in the field and are presented in this section as a basis to distinguish the domains.

Industrial Engineering is a discipline of engineering dealing with the optimization of complex processes or systems. It is concerned with the development, improvement, implementation and evaluation of integrated systems of people, money, knowledge, information, equipment, energy, materials, analysis and synthesis, as well as the mathematical, physical and social sciences together with the principles and methods of engineering design to specify, predict, and evaluate the results to be obtained from such systems or processes. Its underlying concepts overlap considerably with certain business-oriented disciplines such as operations management and financial management, but the engineering side tends to emphasize extensive mathematical proficiency and usage of quantitative methods.

Engineering (and technology) Management on the other hand is a specialized form of management that is concerned with the application of engineering principles to business practice. Engineering management often leads to a career that brings together the technological problem-solving abilities of engineering and the organisational, administrative, and planning abilities of management in order to oversee complex systems from conception to completion. Technology management, as a sub-set of engineering management, is a specialised professional practice that captures technology-based innovation opportunities. It guides technological progress, assesses the potential of individual technologies and uses this potential to the benefit of business, society and the environment. It distinguishes five generic processes: (i) identification of technologies, which are (or may be) of importance to the business; (ii) selection of technologies that should be supported by the organization; (iii) acquisition and assimilation of selected technologies; (iv) exploitation of technologies to generate profit, or other benefits; and (v) protection of knowledge and expertise embedded in systems.

2.2 Programmes

The Industrial Engineering Department offers two main programme structures for postgraduate studies as introduced earlier:

1. Masters in Engineering (Research) (both for Industrial Engineering and Engineering Management) which is discussed in Section 4.3; and
2. Doctor of Philosophy (PhD) as discussed in Section 4.4.

The MEng (Research) programme is purely a research based programme with an element of supplementary course work. Course work is necessary to calibrate backgrounds and ensure a common standard in research practices.

PhD students normally have no supplementary course work as part of the degree and only perform research which leads to a dissertation. In some cases, supervisors of PhD students may decide that an element of supplementary course work could be beneficial to the student and will then prescribe supplementary courses to the student.

2.3 Accommodating different academic backgrounds and qualifications

It is important to note that you do not necessarily require an Industrial Engineering (or engineering) degree to be accepted to one of the postgraduate programmes at the department (see Section 4). This means that students start off with different backgrounds and at different levels when doing course work or doing research for thesis/dissertation purposes. The principle on which the department handles varying backgrounds is fairly simple from a programme delivery perspective: varying effort will be required initially to participate (depending on students' academic backgrounds) but on completion of a course the knowledge of all students is strengthened and enhanced to achieve the expected level of competence, irrespective of background. Figure 1 illustrates this principle. Section 4 provides more details on the requirements to be accepted to a specific programme.

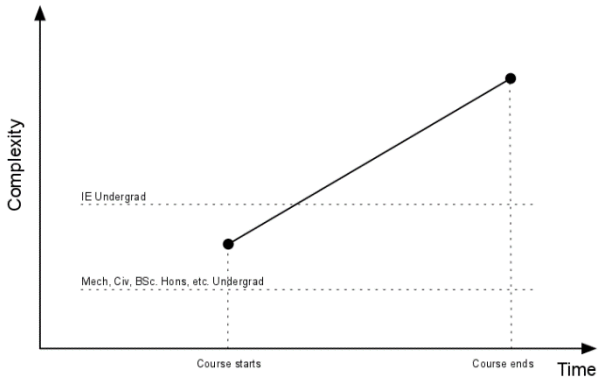


Figure 1: Accommodating different backgrounds

3 Research groups

In this section a brief introduction is provided to the various research groups in the department.

3.1 Enterprise Engineering

This area covers the engineering of enterprises as a whole. In order to achieve this, industrial engineers apply their ability to analyse enterprises, design them, implement them and operate them. Strategic industrial engineering includes fields such as enterprise engineering, knowledge and information management, financial management and technology management.

3.2 Engineering Management and Sustainable Systems

Engineering (and technology) management includes fields such as: Project management; Risk management; Quality management; Performance management; Operations management; Asset management and Innovation management. However, this research group focuses on the transition to a more sustainable economy and society, which will place an emphasis on the management of infrastructure and technology, including the planning and design thereof. This, in turn, requires trans-disciplinary, integrated approaches; since our academic and industrial organisations have great expertise in system components, but still lack experience with the management of the "systems of systems" that constitute our infrastructure and technology at the total societal level. This research group then aims to improve our understanding, and develop the associated capacities and capabilities, of how technical, economic, political and other socio-ecological factors interact, particularly in the context of great uncertainties as we embark on the transition. The research efforts then include fields such as: Life cycle assessment; System thinking; Systems dynamics modelling; Decision-analysis and -making.

3.3 Health Systems Engineering

Health Systems Engineering (HSE) is concerned with the optimization of health systems and processes. The focus is on (i) quantitative modelling, forecasting and scenario analysis to support decision making; (ii) analysis to diagnose the root cause of systemic problems in the healthcare delivery process; and (iii) the application of Industrial Engineering skills to problem solving in the healthcare sector. This is an applied research field and projects in this field are often conducted in collaboration with other research units such as the Systems Modelling, Operations Research and Decision Support group and the Supply Chain Optimization group.

3.4 Manufacturing

The industrial engineer's ability to make a difference in specific industries, especially to achieve resource efficiency, applies here. It includes the analysis, redesign, modelling, testing and implementation of improvements to reduce natural-, energy- and human resource wastes. All the individual aspects such as machining, human (operator/manager), automation and supply chain management as well as the holistic combination of these are focussed on. Our resource efficient techniques extend to improvements in wider fields such as manufacturing processes, manufacturing systems, robotics, logistics, electronics, metallurgy, medical technology and more widely their application in services such as primary- and secondary manufacturing, technology and financial institutions.

3.5 Physical Asset Management

Physical Asset Management is defined as the systematic and coordinated activities and practices through which an organization optimally and sustainably manages its assets and asset systems, their associated performance, risks and expenditures over their life cycles for the purpose of achieving its organizational strategic plan.

3.6 PRASA Engineering Research Chair

The PRASA Engineering Research Chair initiates and executes research into aspects of maintenance management, maintenance processes and applicable engineering principles best suited to the needs of PRASA/Metrorail. The PRASA Engineering Research Chair has extended its research boundaries to include other disciplines such as Mechanical-, Mechatronic-, Electrical-, Electronic- and Civil Engineering which allows for increased versatility and flexibility in finding suitable solutions. Research testing and validation through a virtual laboratory concept allows for access to interdisciplinary research and laboratory facilities of other engineering departments which results in increased possible research solution opportunities.

3.7 Resource Efficient Production Engineering

Resource Efficient Production Engineering improves processes to achieve sustainability in the creation of wealth. Sustainable value chains generate wealth whilst remaining conscious of the three Ps of #sustainability - People, Profit, Planet. This requires the efficient utilization of resources like energy, water, minerals, money, time, and minimizing waste. Efficient resource utilization requires knowledge, and innovation the most important resources in our value chain.

What do we do? We analyse any value chain by identifying its traditional pillars namely - Quality, Time and Cost - then we add "Flexibility" - a modern requirement of personalized products/services. Flexible value chains traditionally have the components "Machines", "Humans", "Automation" and "Material Handling". Our focus is on the interfaces between these components - a European INDUSTRY 4.0 approach - said to be the 4th industrial revolution. Sustainable interfaces with the human remains a challenge, and has progressed from a physical to a psycho-physical challenge. New innovative knowledge is sought in how the modern human would interact with its environment - our research seeks to explore and test these options - may it be Google Glass, Haptic exoskeletal, Robotic limbs, Artificial body parts, Bio-Medical processes or real-time Bio-Mechanics. How do we do it? We learn, iterate, teach and innovate. One step at a time, progressing from one level to the next, to first master, then innovate.

3.8 Supply Chain Management

A supply chain is a system of organizations, people, activities, information, and resources involved in moving a product or service from supplier to customer. Supply chain activities involve the transformation of natural resources, raw materials, and components into a finished product that is delivered to the end customer.

Supply Chain Management (SCM) is the management of the flow of goods and services. It includes the movement and storage of raw materials, work-in-process inventory, and finished goods from point of origin to point of consumption. Interconnected or interlinked networks, channels and node businesses are involved in the provision of products and services required by end customers in a supply chain. The research group focus on structuring and improving supply chains' overall output to the end consumer. This is done via industry focussed projects in order to address unique industry nuances to their customers' supply chain expectations. Various research areas are of interest to the group, including: Supply Chain Strategy; Supply Chain Performance Measurement; Supply Chain Planning and Integration; Supply Chain Resilience/Risk; and Agro-Processing Supply Chains.

3.9 Systems Modelling, Operations Research and Decision Support

The group focuses their research on the design and implementation of mathematical and statistical modelling techniques in support of effective decision-making in industry. In order to achieve this, industrial engineers model system responses to changes in their input parameters in the form of sensitivity analyses and scenario planning. They then use this knowledge of the system responses to determine suitable trade-off solutions which can be recommended as desirable courses of action in complex management problems. The modelling techniques typically used derive from the fields of linear, integer, nonlinear and dynamic programming, multi-objective optimisation, utility theory, Markov chains, queuing theory, inventory theory, game theory, graph theory, simulation and forecasting. This modelling approach finds natural application in areas such as the banking and insurance sector, lean manufacturing, efficient retailing and warehousing, responsible natural resource management, the formulation of robust agricultural practices, military decision support and various instances of streamlining within the public sector (e.g. energy planning and urban traffic congestion alleviation).

4 Programme requirements and format

Requirements for each programme are summarized below. For more details, please refer to the Engineering Calendar Chapter 3. The most recent version can be downloaded from http://www.sun.ac.za/english/faculty/Pages/Calendar.aspx. Note that the language used for postgraduate studies, particularly in the case of coursework, is inline with the strategic framework of the University to be language-friendly. Although Afrikaans is used as the point of departure, English is used as the language of instruction, where necessary. Postgraduate courses are therefore taught in English.

4.1 Postgraduate Diploma in Engineering

The PGDip has been discontinued from 2016 onwards and is only mentioned here for the sake of completeness.

The department realises that many applicants enrol in a PGDip as a means to access the Masters of Engineering degree in the Department - MEng in Industrial Engineering, or Engineering Management - as opposed to the MSc (Applied Sciences) degree that is offered elsewhere. The postgraduate office suggests that candidates who wish to

access the MEng degree at the Stellenbosch University Industrial Engineering Department apply for the one-year Honours degree in the Department of Industrial and Systems Engineering at the University of Pretoria: http://www.up.ac.za/en/industrial-and-systems-engineering/article/45575/postgraduate

On completion of this degree, candidates will be allowed access to the MEng degree, should they meet the requirements of the Admission Week of the department.

4.2 MEng (Structured)

The MEng (Structured) has been discontinued from 2015 onwards and is only mentioned here for the sake of completeness.

4.3 MEng (Research)

The MEng (Research) is a research based programme, generally requiring full-time study and research over a period of 18-24 months. A research thesis is produced together with the successful completion of a series of supplementary courses which aims to instil fundamental concepts but also to calibrate different backgrounds. The supplementary course requirements are shown in Figure 2.

Programme	Admission Requirements	Format	SAQA Credits
M.Eng (*Research*)(Industrial) M.Eng (Research)(Engineering Management)	1. Qualifications: • BEng • Applicable Hons BSc • Applicable 4-year B degree • PGDip(Engineering) • MTech 2. Successful completion of Admission Week (or the proxy evaluation, refer to Appendix P) 3. Selection by Department	100% research based programme with an element of compulsory supplementary studies, with the purpose of supporting the research.	180

The MEng (Research) programme includes four or five compulsory supplemental courses depending on students' undergraduate background and the study domain that they plan to pursue. See Figure 2 for a graphical overview of course requirements. The objective of the supplemental courses is to secure a common foundation amongst students and to calibrate different backgrounds:

1. The ability to perform independent research taught through Research Methodology for both the MEng study domains;
2. Commercial and/or financial reasoning capability delivered through Management Fundamentals for Engineers for both MEng study domains if a student has a background in BEng other than Industrial Engineering;
3. Strategic technology operations management and awareness of externalities delivered through Technology Management for the Engineering Management MEng course; and
4. Advanced operations analysis and synthesis, delivered through Analytics and Synthesis, for both study domains irrespective of undergraduate background.

“Thesis Aligned Subjects” shown in Figure 2 are prescribed as a requirement for the MEng course to assist in the delivery of top quality theses. There is significant freedom in the selection of thesis aligned subjects and this is normally determined in conjunction with the thesis supervisors. More information on thesis aligned subjects available for selection is given in Section 0.

It is also possible to exchange one of the thesis aligned subjects for a peer reviewed publication produced while the student is registered for the MEng (Research) degree. More information on producing the peer reviewed publication is provided in the compulsory Research Methodology course.

The thesis component of this degree has to be handed in before or on 1 September of any year to graduate in December in that year. Students that hand in theses after 1 September but before 23 November will only graduate in March / April the next year. (These dates differ to those given in the SU Calendar Part 1. Departments have a

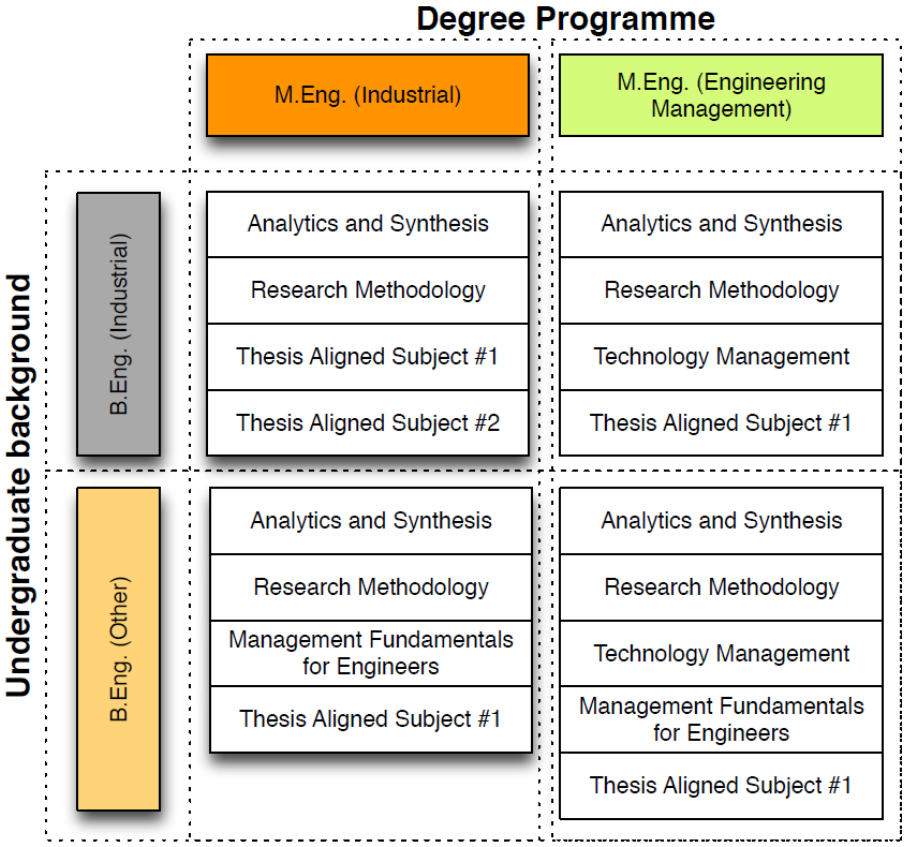


Figure 2: Subject Logic for MEng (Research)

degree of flexibility in the scheduling of postgraduate activities and this is an instance where the IE Department exercises this flexibility.)

4.4 PhD

Programme	Admission Requirements	Format	SAQA Credits
PhD	1. Applicable Master's Degree 2. Suitable Research Topic 3. Selection by Department	100% research programme.	360

The dissertation has to be handed in before or on 1 August of any year to graduate in December in that year. Students that hand in dissertations after 1 August but before 23 October will only graduate in March / April the next year. (These dates differ to those given in the SU Calendar Part 1. Departments have a degree of flexibility in the scheduling of postgraduate activities and this is an instance where the IE Department exercises this flexibility.)

5 Admission, selection and registration of MEng students

It is important to note that some elements of the admission, selection and registration process are handled centrally by the university's administration department. For convenience, the university's administration department will be referred to as **"Admin"** hereinafter. Other elements involving admission, selection and registration are handled by the department itself, specifically the postgraduate administrator (contact details in Table 2). The term **"The Department"** will be used in when referring to administration done by the Industrial Engineering Department.

5.1 First time applicants

First time applicants who wish to be selected and admitted for postgraduate programmes at the department have to be successful in two processes:

a) The **initial application** which leads to provisional acceptance to the postgraduate programmes; and
b) **Admissions Week** which comprises of several mini-modules on industrial engineering and engineering management as well as language and comprehension proficiency tests.

More information on these processes are described below.

Initial Application

Applicants who have never studied or been registered with the University of Stellenbosch or former students who have not been registered for more than one year have to complete all the steps below:

Step1: Complete the electronic application form on the university's website at http://t2000-05.sun.ac.za/eAansoeke/alg.jsp?Tl=1 The purpose of this step is to be issued with a student number which you should use as a reference in all further steps. Admin will send you a formal letter confirming your student number. There is an example of such a letter in Appendix A. **Please note that this is only administrative application to the university. You still have to be approved by selection committee at the department as well as be successful during the Admissions Week for final acceptance.**

Step 2: Complete the electronic application form on The Department's website at www.ie.sun.ac.za. The details that you have entered will be emailed to The Department for further processing.

Step 3: Confirm that you have completed both steps with the Postgraduate Manager, Ms Melinda Rust at mrust@sun.ac.za . Quote your student number in the email.

Step 4: Forward your abbreviated CV (one page) to the Postgraduate Manager, Ms Melinda Rust at mrust@sun.ac.za. Quote your student number in the email.

Candidates who have been registered at the university during the preceding year of intended MEng study only need to complete **Steps 2 and 4**. Once you have performed all the relevant steps above, The Department will confirm that your application is under review via email.

Other points of importance are:

1. Selection of candidates is done by a dedicated committee in the department and the purpose is to identify candidates' suitability, and whether the department will be able to support the specific research intention;
2. Applications have to be done by 15 July (non South African applicants) or 31 October (South African applicants) in the preceding year of the intended study-year; and
3. Depending on the programme selected, the selection process may take some time. The meeting frequency of the selections committee is once a month. Where the applicant has an international qualification, the department first needs to verify the applicant's qualifications through the International Office at the university which may take additional time.

After your application has been considered, The Department will notify you of the outcome. Successful candidates can prepare for Admissions Week. Unsuccessful candidates will not be considered further. The reasons for declining an application are usually disclosed to unsuccessful candidates and these candidates are welcome to reapply once the shortcomings have been addressed.

Admissions Week

Admissions Week is compulsory for **ALL** first time applicants for the MEng programmes and is scheduled for **28 November - 2 December 2016**. The concept of Admissions Week is loosely based on the Graduate Management Admissions Test (GMAT), Graduate Record Examination (GRE), the Test of English as Foreign Language (TOEFL) and the International English Language Testing System (IELTS) used in the USA and elsewhere for admission to postgraduate programmes at universities. **There are no exceptions to the requirement of attending the Admissions Week, i.e. the Admissions Week is absolutely compulsory for all prospective MEng candidates.**

The goal of Admissions Week is for the department to assess students' suitability for postgraduate programmes but also for students to make sure that they have made the right choice to apply for selection at the Industrial Engineering department. The details of the week are shown in Table 1 and described below:

Table 1: Admissions week schedule and content (to be finalized closer to the event)

Date	Time	Session	Session chair
28 Nov	09:00-10:00	Welcome session	Prof A Brent
	10:15-12:15	Sustainable systems	Prof A Brent/Ms I de Kock
	13:15-16:00	Operations and supply chain management	Dr L Louw/Mr K von Leipzig/ Mr J van Eeden
29 Nov	09:00-11:00	Enterprise engineering & innovation	Mr W Bam/Mr D Kennon/Dr L Louw/Prof C Schutte
	11:15-12:00	Inclusive innovation	Dr S Grobbelaar
	12:00-13:00	Health systems engineering & innovation	Ms I de Kock/Dr S Grobbelaar/Ms L Bam
	13:45-15:15	Asset care	Dr W Jooste
30 Nov	10:00-11:00	Industrial robotics	Dr S Matope
	11:15-12:15	Advanced manufacturing	Dr T Oosthuizen
	13:15-15:15	Operations research	Mr D Lötter/Prof J van Vuuren
1 Dec	09:00-11:00	Simulation & optimisation	Prof J Bekker
	11:15-13:00	Project management/PRASA rail chair	Prof N Fourie/Mr P Conradie
	14:00-16:00	Language Assessment	ICELDA
2 Dec	14:00-17:00	Admissions week exam	Prof A Brent/Ms M Rust

(a) All sessions will be presented in room M306; the admissions week exam will take place in rooms M301 & M302
(b) 100% attendance is required for all sessions of the Admissions Week;
(c) Starting and finishing times of scheduled activities can change at short notice. Make arrangements to be on campus every day between 09:00 and 17:00;
(d) The week consists of a series of mini-modules on a variety of subjects in Industrial Engineering or Engineering Management which are described in Table 1;
(e) Notes will be issued during every session of every day and your knowledge of the material will be tested during the afternoon session of the last day in a written examination; and
(f) The Inter-Institutional Center for Language Development and Assessment (ICELDA) will test applicants' ability to communicate in English in the afternoon session of the second last day in a written test. More information on ICELDA is provided in Appendix C.

To pass Admissions Week and to be accepted into a postgraduate programme, a final mark of at least 50% is required for the language assessment and 50% for the exam on the mini-modules. However, it is important that candidates understand that admission to the postgraduate programme is very competitive and only 50 applicants are admitted per year. Therefore, passing the language assessment and the exam on the mini-modules does not guarantee admission to the programme. The Department will issue a formal "**Permission to Register**" letter if you were admitted and you will re-

quire this document when formally registering at the university. The results of the Admissions Week will be published electronically by 17:00 on Wednesday 7 December 2016.

Note that even though you can formally register at the university for a particular programme on receiving the Permission to Register letter, you will still have to find a study leader that can supervise your thesis. In an extreme case you might be allowed to register at the university but if you have an interest in a field for which there is no supervision available in the department, e.g. quantum astrophysics, it may theoretically mean that you will never finish your programme. This example is extreme but it is necessary to consider the risk before deciding to register. More information on finding a study leader in Section 8.

Registration

This is the formal process where you will become an official student of Stellenbosch University and it is administered by the central administration.

In general, registrations are done in person at Mrs W Wessels' office (Admin A building, Room A2029). However, you may qualify for postal registration (where you can register by completing a form and submit this via email), please refer to Appendix B for details on postal registration;

The following documents must be presented when registering:

- Original degree certificate(s);
- Proof of payment or bursary (The 2017 study fees are still to be finalised but a quote can be requested from http://www.maties.com/fees/provisional-statement-of-fees.html)
- Your Permission to Register letter issued by The Department;
- International students take note of the following:
    - Before registration, report to the international office (Wilcocks building);
    - Present your passport, permit, medical aid insurance and proof of payment with registration;
    - Present proof of payment and registration when activating your student card at the Student Card Office in the Admin A building;

New, first-time MEng students have to register by 20 January 2017 at the office of Ms Wilna Wessels. This means that new (and continuing) students have to be registered BEFORE attending any subjects. Registration grants you access to the university's e-services and online learning platform, which will be a crucial part of your studies.

The closing date for continuing students' registrations is 31 March 2017. This date would be applicable to those students who have completed all their subjects in previous year(s).

5.2 Reregistrations

Fulltime and part-time non-first year postgraduate students may register online at www.mymaties.com (the student portal) from the 15th of January 2017. Those students who struggle with online registration may send Mrs W Wessels,

wilnaw@sun.ac.za, their proof of payment and she will register them. They may then print the proof of registration at www.mymaties.com. Candidates that are intending to take one of the four subjects offered by the department annually in 2017 must please ensure that they are registered **before** the subject commences as this is a prerequisite for granting access to the university's online learning platform.

5.3 Interrupting or discontinuation MEng studies

Should you need to interrupt your MEng studies for whatever reason, you have to apply for consent using the application form in Appendix G. Send the form to the post-graduate administrator for processing.

If you have decided to discontinue your studies, complete the form in Appendix I and send the form to the postgraduate administrator.

5.4 Reregistration after exceeding maximum allowable time

Students who exceed the maximum allowable time (as described in the Engineering Calendar downloadable from http://www.sun.ac.za/english/Documents/Yearbooks/2016/EngineeringCalendar2016.pdf) for MEng (Research) have to apply for reregistration according to the procedure outlined in Appendix H.

6 Admission, selection and registration of PhD students

It is important to note that some elements of the admission, selection and registration process are handled centrally by the university's administration department. For convenience, the university's administration department will be referred to as **"Admin"** hereinafter. Other elements involving admission, selection and registration are handled by the department itself, specifically the postgraduate administrator (contact details in Table 2). The term **"The Department"** will be used in when referring to administration done by the Industrial Engineering Department.

The formal process flow of the registration of PhD students is included in this guide as Appendix K. Some elements of the process are described below as a concise summary.

6.1 Initial Application

Applicants who have never been registered with the University of Stellenbosch or former students who have not been registered for more than one year have to complete all the steps below:

Step 1: Make contact with the postgraduate coordinator or a potential study leader in The Department via The Department's website (www.ie.sun.ac.za) to share your research interests with the study leader. If the study leader agrees to act as a potential supervisor for your work, obtain a written confirmation (via email) from the person that confirms his/her willingness to lead your research if you are formally accepted.

Step 2: Complete the electronic application form on the university's website at http://t2000-05.sun.ac.za/eAansoeke/alg.jsp?Tl=1 The purpose of this step is to be issued with a student number which you should use as a reference in all further steps. Admin will send you a formal letter confirming your student number. There is an example of such a letter in Appendix A. **Please note that this is only administrative application to the university. You still have to be approved by selection committee at The Department.**

Step 3: Complete the electronic application form on The Department's website at www.ie.sun.ac.za. The details that you have entered will be emailed to The Department for further processing.

Step 4: Confirm that you have completed both steps with the Postgraduate Manager, Ms Melinda Rust at mrust@sun.ac.za . Quote your student number in the email.

Step 5: Forward your abbreviated CV (one page) to the Postgraduate Manager, Ms Melinda Rust at mrust@sun.ac.za. Quote your student number in the email.

Candidates who have been registered at the university during the year preceding the intended year of study only need to complete **Steps 3 and 5**. Once you have performed all the relevant steps above, The Department will confirm that your application is under review via email. The Department may also request addition information if deemed necessary.

Other points of importance are:

1. Selection of candidates is done by a dedicated committee in the department and the purpose is to identify candidates' suitability, and whether the department will be able to support the specific research intention;
2. Applications have to be done in the year before the intended study-year, preferably before December; and
3. Depending on the programme selected, the selection process may take some time. The meeting frequency of the selections committee is once a month. Where the applicant has an international qualification, The Department first needs to verify the applicant's qualifications through the International Office at the university which may take additional time.

After your application has been considered, The Department will notify you of the outcome. If you were successful, The Department will issue a “Permission to Register” letter permitting you to register at the university for the PhD degree. You do not require an approved dissertation title at this point, but you need to submit a formal research proposal in line with the type of registration described in Section 6.2. More info on the research proposal in Section 6.3.

6.2 Registration

Type of registration

A candidate that will not be a full time PhD student in the Department of Industrial Engineering, and/or a candidate only registering after March of each year, will be registered as a “special student”. The candidate is then required to prepare a full PhD proposal; to be submitted to the Department by middle August of each academic year. Once approved by an appointed panel (see next section), the candidate is allowed to register as a PhD student, with title, in the following academic year.

A candidate that will be full time based in the Department, with a study leader that has agreed in writing, will be allowed to register as PhD student without title. The registration must be done before the end of March of each year. The candidate is then also required to submit a full PhD proposal by middle August of their first registration year for approval by an appointed panel. Failure to have the research proposal approved within one year after registration as a PhD student without title, will result in the student not being allowed to continue their PhD studies at the Stellenbosch Engineering Faculty.

The registration process

This is the formal process where you will become an official student of Stellenbosch University and it is administered by the central administration.

Fulltime and part-time students must report to Mrs N Hartzenburg's office (Admin A building, Room A2030) for registration;

The following documents must be presented when registering:

- Original degree certificate(s);
- Proof of payment or bursary (The 2017 study fees are still to be finalised but a

quote can be requested from http://www.maties.com/fees/provisional-statement-of-fees.html);

- Your Permission to Register letter issued by The Department;
- International students take note of the following:
    - Before registration, report to the international office (Wilcocks building);
    - Present your passport, permit, medical aid insurance and proof of payment with registration;
    - Present proof of payment and registration when activating your student card at the Student Card Office in the Admin A building;

Closing date for 1st semester registration: 31 March 2017.

6.3 PhD Research Proposal

Students registered for the PhD degree must submit a formal research proposal to the Department by middle August of each academic year, as communicated by the postgraduate coordinator. The PhD proposal process is quite involved whereby reviewers from outside the department are appointed by the Vice-Dean: Research, and the candidate must submit a formal proposal and present this proposal to a panel. If the panel approves the proposal, it is then submitted to the faculty committee, faculty board, and eventually the senate, before it is finally approved.

Since there are very few PhD students and they often have unique circumstances, the postgraduate manager will guide the student through the process and hence it is not described in detail in this document. A guideline for the arrangements and evaluation of a research proposal is attached as Appendix J.

6.4 Upgrading from MEng to PhD

In exceptional circumstances, MEng students are allowed to upgrade to the PhD programme. The appropriate steps are described below.

Upgrading during the normal master's evaluation process

1. The supervisor(s) is(are) of the opinion that the thesis to be submitted for evaluation exhibits such a degree of originality that the registration of the candidate may potentially be upgraded to PhD.
2. The supervisor requests the Postgraduate Coordinator to ask the examiners pertinently in the cover letter accompanying the thesis to consider the possibility of upgrading to PhD, after subjecting the thesis to the usual assessment.
3. After completion of the oral examination the Postgraduate Coordinator, in consultation with all the examiners concerned and the supervisor(s), considers the desirability of upgrading to PhD.
4. If it is decided that an upgrade is NOT appropriate, the normal M evaluation process continues and a final mark is awarded.
5. If it is decided that an upgrade IS appropriate, the candidate is requested to prepare a formal research proposal such as is expected from doctoral students registered for PhD without a research topic. This proposal would usually build on and constantly refer to the M thesis.
6. The research proposal, together with the M thesis and the prescribed application form, will be submitted to the departmental Executive/Admissions Committee, as is the case with doctoral students who have already been registered without a research topic.
7. As the candidate's thesis has been formally evaluated by the examiners and an oral examination has been completed, the departmental Executive/Admissions Committee has the authority to make an autonomous decision regarding the advisability of recommending an upgrade. The departmental Executive/Admissions Committee completes the recommendation form (Recommendation form - PhD registration.doc). (This form can be found on the faculty's SharePoint.)

Upgrading on recommendation of supervisor(s)

1. The supervisor(s) realize(s) during the course of the candidate's M studies that the research exhibits such a degree of originality that the registration may potentially be upgraded to doctoral studies.
2. The supervisor(s) request(s) the candidate to prepare a formal research proposal such as is expected from doctoral students registered for PhD without a research topic, and which conforms to the requirements set out in the SU Calendar-Part 1 (downloadable from http://www.sun.ac.za/english/Documents/Yearbooks/2016/PoliciesAndRules2016.pdf).
3. The research proposal, together with the prescribed application form, will be submitted to the departmental Executive/Admissions Committee, as in the case of doctoral students who have already been registered without a research topic.

4. A Candidature Panel, comprising the proposed promoter and at least two further knowledgeable people, at least one of whom should be from outside the home department, is appointed by the departmental Executive/Admissions Committee. The Vice Dean: Research must approve the proposed Candidature Panel.
5. The Candidature Panel adjudicates the research proposal and, after a compulsory oral presentation and evaluation of the candidate, a final recommendation is made. The Candidature Panel is at liberty to request that the research proposal be revised and resubmitted for consideration.
6. The recommendation of the Candidature Panel is made known to the departmental Executive/Admissions Committee. The departmental Executive/Admissions Committee completes the recommendation form (Recommendation form - PhD registration.doc). (This form can be found on the faculty's SharePoint.)
7. If the upgrading is recommended the research proposal and prescribed PhD application form are subjected to the same process as those of doctoral students who have already been registered without a research topic.
8. If the upgrade is NOT recommended the candidate continues his/her M studies.

6.5 Interrupting PhD studies

Should you need to interrupt your PhD studies for whatever reason, you have to apply for consent using the application form in Appendix G. Send the form to the postgraduate administrator for processing.

6.6 Reregistration after exceeding maximum allowable time

Students who exceed the maximum allowable time (as described in the Engineering Calendar downloadable from http://www.sun.ac.za/english/Documents/Yearbooks/2016/EngineeringCalendar2016.pdf) for the PhD have to apply for reregistration according to the procedure outlined in Appendix H.

7 Courses

This section outlines the course work components of the MEng programmes.

Courses for MEng

MEng (Research) students don't have course credit requirements but they have to complete supplementary courses as per Section 4.3. A description of the courses are provided in Appendix P and the schedule of these courses is provided in Section 7. Please note that the descriptions may change before the commencement of the courses.

Thesis Aligned Subjects (as described Section 4.3) are determined by the student in conjunction with his/her supervisor. There is significant flexibility on these selections and the aim of prescribing thesis aligned course work is to produce a better research thesis. Some options for Thesis Aligned Subjects include:

1. Short courses at other departments in the faculty;
2. Short courses at other faculties;
3. Short courses presented in industry; and
4. Online courses, including (but not limited to) the following course providers:
    - Coursera at www.coursera.org;
    - Future Learn at www.futurelearn.com; and
    - MIT Open Courseware at http://ocw.mit.edu/index.htm.

The funding of Thesis Aligned Subjects (where applicable) is handled or sponsored by supervisors.

All postgraduate students need to submit a progress report by 31 July of every year of their studies (More details on progress reports can be found in Section 11.3.) This report contains details on the subjects that have been completed as well as those that the candidate still intends to take. Thesis-aligned subjects are signed off by the study-leader as part of the progress report.

Take note of the possibility to exchange one of the Thesis Aligned Subjects for a peer reviewed publication (while being registered for M.Eng (Research) as described in Section 4.3. The details of this will be disseminated in the Research Methodology course which is attended by all master students.

Course registration process

Details of course registrations for MEng are presented in sections to follow.

MEng (Research) Programme

Important: The fee for the MEng (Research) programme (both study domains) includes the fee for the first attempt at any compulsory course as part of the tuition fee. If you start but do not complete a course, you will need to pay the per-credit fee for the second time you register for the course. Please plan and commit yourself fully to your courses so that you will not be required to register a second time for a course.

Course schedules

This section contains the specific dates scheduled for every course. There is also a global overview of the course schedules in Appendix S. Note that additional information about the scheduled dates of a particular course is provided in Appendix P as part of the detail description of courses. The courses consist of a full week contact period during which time the fundamentals of the course are shared and the prescribed study material and project descriptions are given. The assessment of the course is done towards the end of the week following the course.

7.1.1. Analytics and Synthesis

Date	Contact time	Room
Mon, 23-Jan-17	F	To be confirmed
Tue, 24-Jan-17	F	To be confirmed
Wed, 25-Jan-17	F	To be confirmed
Thu, 26-Jan-17	F	To be confirmed
Fri, 27-Jan-17	F	To be confirmed
Thu, 9-Feb-17	F	To be confirmed
Fri, 10-Feb-17	M	To be confirmed

M: Morning, A: Afternoon, F: Full day, H: Half day

7.1.2. Technology Management

Date	Contact time	Room
Mon, 20-Feb-17	F	To be confirmed
Tue, 21-Feb-17	F	To be confirmed
Wed, 22-Feb-17	F	To be confirmed
Thu, 23-Feb-17	F	To be confirmed
Fri, 24-Feb-17	F	To be confirmed

M: Morning, A: Afternoon, F: Full day, H: Half day

7.1.3. Management Fundamentals for Engineers

Date	Contact time	Room

Mon, 6-Mar-17	F	To be confirmed
Tue, 7-Mar-17	F	To be confirmed
Wed, 8- Mar-17	F	To be confirmed
Thu, 9- Mar-17	F	To be confirmed
Fri, 10- Mar-17	F	To be confirmed
Mon, 13- Mar-17	F	To be confirmed
Tue, 14- Mar-17	F	To be confirmed
Fri, 24-Mar-17		Online exam

M: Morning, A: Afternoon, F: Full day, H: Half day

7.1.4. Research Methodology

Date	Contact time	Room
Mon, 27-Mar-17	F	To be confirmed
Tue, 28-Mar-17	F	To be confirmed
Wed, 29-Mar-17	F	To be confirmed
Thu, 30-Mar-17	F	To be confirmed

M: Morning, A: Afternoon, F: Full day, H: Half day

8. Finding a study leader (MEng (Research) students)

MEng (Research) students have time until **31 March 2017** to find a supervisor for his/her thesis. The process of finding a supervisor is fairly easy after the Admissions Week: during the Admissions Week you will gain a good understanding of the various available topics, fields, research areas and capabilities of most of the potential supervisors in the department. Students are encouraged to make appointments and meet with supervisors after the Admissions Week to discuss their research visions.

To make an appointment with a potential supervisor, report to the reception at the department or phone the department on (021) 808 4234 to request an appointment. Your academic record and Admissions Week exam paper will be forwarded to the potential supervisor for his/her perusal before your meeting.

Once a supervisor has agreed to supervise a student, the student can select his/her Thesis Aligned Subjects.

Students who are unable to secure a supervisor before **31 March 2017** will have an opportunity to reapply for supervision by a study leader between 1 January 2018 and 31 March 2018. Every supervisor can only accommodate a limited number of students and applicants are encouraged to start with the process as early as possible.

9. Thesis/Dissertation format, submission and evaluation

A style guide for formatting theses and dissertations is attached in Appendix L. Study the guide carefully before documenting your work in a thesis or dissertation. For a guaranteed professional and consistent result, students are encouraged to make use of LATEX to develop their documents. LATEX is free and can be downloaded from http://www.latex-project.org. The Stellenbosch University templates for theses and dissertations can be downloaded from http://www.ctan.org/tex-archive/macros/latex/contrib/stellenbosch.

Theses and dissertations are evaluated as per a formal process dictated by the Faculty of Engineering. The process flow is shown in Appendix D and the minimum standards for evaluation are listed in Appendix E. Make sure you follow Appendices M or N as part of the submissions process.

10. Fees

Registration fee as well as course fee information is available from the student fees division only. Academic departments are not involved in student fee related matters. Enquiries and requests for quotes can be directed to: studentegelde@sun.ac.za or Mr Sean Davidse: seand@sun.ac.za .

11. General

11.1. Work hours

Work hour arrangements are handled individually by each supervisor. Typically, supervisors will require full-time students to be at the office during normal office hours (08:30 till 16:30).

11.2. Office space

Every supervisor has office space that they can offer to their full-time MEng students. The postgraduate office does not have access to “general” office space that can be offered to individuals that do not yet have a supervisor.

11.3. Adequate progress with a programme and progress reports

The department monitors the progress of students throughout their programmes carefully. If a student does not make sufficient progress with his/her particular programme, reregistration for the programme might be refused at the sole discretion of the department.

All postgraduate students are expected to submit a progress report during every year of enrolment:

1. **31 July 2017**: All M.Eng (Research) students. Satisfactory progress will have to be shown by departmental bursary holders before their bursaries are released.

These reports must be written by the student and signed off by themselves and by their study leader before being submitted to SunLearn. The progress reports are reviewed by the Postgraduate Co-ordinator before the list of students approved for bursary payments are released to the departmental officer.

The progress report should be a one to two-page document describing the path from the date of the progress report to the planned graduation date. The document must include at least the following:

1. A list of subject(s) completed (if applicable) to date and the mark(s) scored for every subject;
2. A list of subject(s) that will still be taken and their planned date(s);
3. A description of the progress made with the thesis including the thesis title, level of completeness of the literature study, experiments that have been completed, data that has been collected, etc. Also, very importantly, the anticipated hand-in date of the thesis must be indicated.
4. An indication of any obstacles that may be preventing progress with the degree;
5. A description of what the department can do to assist with overcoming these obstacles;
6. Any specific arrangements that have been made with the department with regards to subject exchanges, research visits, etc.
7. The document must contain a specific heading called Deviations. All deviations from the previous progress report (where applicable) must be clearly described. Include the reason for each deviation as well as a description on how the deviation will be overcome.

11.4. Funding

As part of the online application for MEng students (described in Section 5.1.1), students are asked to indicate whether funding is required or not. This indication is only used for planning purposes and is by no means an application for funding. Funding

can be applied for at http://www0.sun.ac.za/pgstudies/postgraduate-student-funding.html. You could also enquire about funding at study leaders directly. Some study leaders have access to research grants which may, in certain cases, be disbursed as bursaries.

11.5. Research agreement

All students that are enrolled for full-time postgraduate studies (whether they receive a bursary or not) are required to sign a research agreement with their primary study leader (as representative of the Department). A copy of this research agreement is included in Appendix R. The signed agreement must be submitted on Sunlearn by 1 February in the first year of studies.

11.6. Electronic communication

As far as possible, the department will endeavour to communicate with you via your preferred email address (as submitted in your application to the department or updated by you through a request to the Postgraduate Manager). However, the SU policy is that all electronic communication is sent to your University of Stellenbosch email address which you will receive when registering at the university. It is therefore your responsibility to make sure you check this email address regularly since important communication may be sent to your university address.

11.7. Plagiarism and Turnitin

"Plagiarism is the theft and use of the ideas, material and other intellectual property of others that are passed off as one's own" is the formal definition of plagiarism at Stellenbosch University as published by the senate in 2010 in the formal policy document: "SUN policy on academic integrity: the prevention and handling of plagiarism." (See Appendix Q). The Industrial Engineering Department has a zero-tolerance policy on plagiarism and suspicions of plagiarism are dealt with strictly in accordance to the formal policy.

The university also uses a service called Turnitin to assist in eradicating plagiarism. Students upload assignments onto the Turnitin database where the papers are compared with billions of pages on the internet. The results are returned in the form of an "Originality Report" that gives clear indications and explanations of possible plagiarism.

For more information on the university's plagiarism policy or Turnitin, visit http://www.lib.sun.ac.za/library/eng/help/IG_Programme/Plagiarism/Plagiarism_Index.html.

11.8. Important Contacts

The following contact details may assist you in your queries.

Table 2: Important contacts

Role	Name	Email	Tel Nr
Chairman: Department	Prof Corne Schutte	corne@sun.ac.za	021 808 3617
Postgraduate Manager	Ms Melinda Rust	mrust@sun.ac.za	021 883 2185
Postgraduate co-ordinator & Industrial Engineering postgraduate enquiries (academic)	Prof Alan Brent	acb@sun.ac.za	021 808 9530
Engineering Management Postgraduate enquiries (academic)	Mr Konrad von Leipzig	kvl@sun.ac.za	021 808 4233
Departmental financial administrator	Ms Anel de Beer	au1@sun.ac.za	021 808 3927

A Example provisional acceptance letters

UNIVERSITEIT·STELLENBOSCH·UNIVERSITY
jou kennisvennoot • your knowledge partner

[redacted]

14 November 2012
Student number: [redacted]

Dear [redacted]

RECEIPT OF APPLICATION FOR THE UNIVERSITY

Thank you for your application for admission in 2013 for

MEng (Structured)(Full time).

Although you have not yet been formally admitted to the University at this stage, we have already assigned you a student number, namely [redacted]

This number must be quoted in all your future communication with the University.

We will inform you in due course of your actual admission or not, to the University.

You have not indicated that you require University housing; we therefore assume you will be staying in private boarding.

If for whatever reason you were to cancel your application, you will be required to complete a new application form should you wish to study at the University the following year. Please note that

Please note that applications cannot be carried over from one year to another.

With regards from Matieland

SE Blanché

Mrs SE Blanché
for THE REGISTRAR

Navrae / Enquiries: Client services Tel.: +27 21 8089111 Verw./Ref.: AO33 / 1

Universiteitskantoor * University Offices

Privaatsak / Private Bag X1 * Matieland, 7602 * Suid-Afrika / South Africa
Faks / Fax: +27 21 808 3822 * www.sun.ac.za

US231

UNIVERSITEIT·STELLENBOSCH·UNIVERSITY
jou kennisvennoot • your knowledge partner

[redacted]

14 November 2012
Student number: [redacted]

Dear [redacted]

RECEIPT OF APPLICATION FOR THE UNIVERSITY

Thank you for your application for admission.

You have now been assigned a username and password to gain access to the University's personalised virtual web environment for students.

At www.maties.com, you have access to your e-learning environment, services on campus, the welcoming program for new students and parents, campus news, the electronic communications policy, e-shops and many more.

NB: This password also gains access AFTER registration to www.mymaties.com, www.sun.ac.za/library, e-mail, CUA's, Library computers and WebStudies.

Username: [redacted]
Password: [redacted]
(Please note the upper and lower case characters in 'Sun')

NB: If you experience any problem with 1) log on or 2) did not receive a username and password please report an error to the following address: https://iheat.sun.ac.za/webheat/ (choose the 'portal error' option)

This username and password is uniquely your own. Please also note the following:
- You must keep your password confidential.
- You may not use the password or username belonging to another person at any time and for any reason.
- You are not permitted to transmit your password or username through any medium (except through the Stellenbosch University network for which access is specifically granted by the password), including, but not limited to email and internet related chat.
- Should any person or entity attempt to obtain your password from you, you are requested to report this to Information Technology.

With regards from Matieland

JC du Toit
for THE REGISTRAR

Navrae / Enquiries: Client services Tel.: +27 21 8089111 Verw./Ref.: AO36 / 1

Universiteitskantoor * University Offices

Privaatsak / Private Bag X1 * Matieland, 7602 * Suid-Afrika / South Africa
Faks / Fax: +27 21 808 3822 * www.sun.ac.za

US231

B Postal registration

Postal registration process

To understand the normal registration process, please refer to Section 5.1.3. Please note that official registration can only take place once a student has received a Permission to Register letter, issued by The Department. Generally, these letter are only issued after a candidate has successfully completed the postgraduate Admissions Week.

As described in Section 5.1.3, the normal registration process takes place in person, at the office of Ms W Wessels (Admin A building, Room A2029) by 20 January 2017. However, in some cases, students are allowed to register via post / email.

B.1 Eligibility

The following students are eligible to register via post / email:

1. Students that were enrolled at Stellenbosch University (no other institution) in 2016, and that are enrolling for an M / PhD at Stellenbosch for the first time in the 2017;
2. Students that were enrolled for an M / PhD at SU in 2016 and that are continuing their studies towards this same degree in 2017; and
3. Students that studied at SU in the past and that have not obtained a qualification at any other institution.

The following students are not eligible to register via post / email:

1. International students; and
2. Students that have obtained a qualification from any institution other that SU. (These students need to show the original degree certificate for this qualification to Ms Wessels during registration.)

B.2 Process

Student that are eligible for postal registration, need to complete the form on the following page. (An MS Word version of this form can also be downloaded here.)

The completed form (together with the full set of registration documentation as outlined in Section 5.1.3), needs to be submitted to Ms Wessels either via email (wilnaw@sun.ac.za) or via post.

FAKULTEIT INGENIEURSWESE/ FACULTY OF ENGINEERING

NAGRAADSE POSREGISTRASIEVORM - 2016
POSTGRADUATE POSTAL REGISTRATION FORM - 2016

STUDENTENOMMER STUDENT NUMBER									GEBOORTEDATUM DATE OF BIRTH										
TITEL TITLE									VOORLETTERS INITIALS										
VOLLE NAME FIRST NAMES																			
VAN SURNAME																			
NOOIENSVAN MAIDEN NAME																			
GESLAG GENDER									HUWELIKSTATUS MARITAL STATUS										
BURGERSKAP NATIONALITY									IDENTITEITSNOMMER IDENTITY NUMBER										
KERKVERBAND RELIGIOUS DEMONINATION									BEVOLKINGSGROEP* POPULATION GROUP*										
HUISTAAL HOME LANGUAGE									TIPE PERMIT# TYPE OF PERMIT#										
PERMITNOMMER# PERMIT NUMBER#									PERMIT VERVALDATUM# PERMIT EXPIRY DATE#	D	D	M	M	J/Y	J/Y				

WERKSTATUS – MERK EEN 'X' WORK STATUS – CHOOSE ONE 'X'	VOLTYDS STUDENT FULL TIME STUDENT		VOLTYDS WERKSAAM BY US EMPLOYED FULL TIME AT SU		VOLTYDS WERKSAAM BY ANDER INSTANSIE EMPLOYED FULL TIME AT OTHER INSTITUTION		

PROGRAM (GRAAD) PROGRAMME (DEGREE)		VAK/MODULE SUBJECT MODULE	
SIVIELE ING (BV. KUS- EN HAWE INGENIEURSWESE) FOR CIVIL ENGINEERING: PLEASE SPECIFY STREAM IN CIVIL ENG (EG. PORT AND COASTAL ENGINEEIRNG)			
TIPE LOSIES, BV. KOSHUIS, PRIVAAT, OUERHUIS TYPE OF ACCOMMODATION, E.G. US RESIDENCE, PRIVATE			
LOSIESADRES ACCOMMODATION ADDRESS			
POSADRES POSTAL ADDRESS			
REKENING AAN (TITEL, VOORLETTERS, VAN) ACCOUNT TO (TITLE, INITIALS, SURNAME)			
REKENINGADRES ACCOUNT ADDRESS			

TELEFOON TELEPHONE	WERK WORK	kode / code	nommer / number	HUIS HOME	kode / code	nommer / number	
SELFOON CELLPHONE							

KORRESPONDENSIE – MERK VOORKEUR CORRESPONDENCE – MARK PREFERENCE	Eksamenuitslae / Exam results		Registrasieinligting/ Registration info		Gradeplegtigheidinl / Graduation info		
	e-pos / email	brief / letter	e-pos / email	brief / letter	e-pos / email	brief / letter	
E-POS ADRES EMAIL ADDRESS							

HANDTEKENING (STUDENT) SIGNATURE (STUDENT)		DATUM DATE	D	D	M	M	J/Y	J/Y		

* BENODIG VIR REGERINGSDOELEINDES / REQUIRED FOR GOVERNMENT PURPOSES
\# SLEGS VIR BUITELANDSE STUDENTE / FOR FOREIGN STUDENTS ONLY

KANTOORGE					
KWITANSIENOMMER		BEDRAG		BEAMPTE	

C Inter-Institutional Center for Language Development and Assessment

Testing of postgraduate students

Academic success and language ability

Studies have shown that the best predictors of academic success are firstly preparedness for the teaching and learning context, for example the ability to think critically and logically, and, secondly, motivation (Pascarella & Terenzini, 2005). The former, however, cannot be separated from language ability, as one uses language to structure thoughts while seeking for information, processing information and producing information, whether it is by means of listening, reading, speaking or writing, or a combination of these, as it always happens to be (Van Dyk & Weideman, 2004; and Bachman & Palmer, 1996). This is illustrated in Lipman's observation that this ability

> … ranges from very specific to very general abilities, from proficiency in logical reasoning to the witty perception of remote resemblances, from the capacity to decompose a whole into parts to the capability to assemble random words or things so as to make them well-fitting parts of a whole, from the ability to explain how a situation may have come about to the ability to foretell how a process will likely eventuate, from a proficiency in discerning uniformities and similarities to a proficiency in noting dissimilarities and uniquenesses, from a facility in justifying beliefs through persuasive reasons to a facility in generating ideas and developing concepts, from the capacity to solve problems to the capacity to circumvent them or forestall their emergence, from the ability to evaluate to the ability to re-enact – the list is endless because it consists in nothing less than an inventory of the intellectual powers of mankind Coles and Robinson (1991:12).

Low levels of ability in the language(s) of teaching and learning are widely considered as one of the main reasons for a lack of academic success, even among those with high academic potential. This is particularly evident in the ability of first-year and postgraduate (master's and PhD-level) students who have a great deal of difficulty in dealing with prescribed material, and producing proper academic text (both orally and written). The international body of research moreover indicates that approximately ten percent of academic success can be ascribed to language ability (cf. McNamara, 1996). Similarly, Van Rensburg and Weideman (2002) emphasise the importance of language ability for students by stating that it is a *sine qua non* for completing one's studies successfully.

Since the percentage mentioned above is quite substantial (Van Dyk 2010), the immediate issue to be addressed is to respond to evidence of inadequate success in whichever way it manifests, whether it be by a decline in throughput rates, students expressing a need for support, or supervisors maintaining that their students on master's or doctoral level do not meet the linguistic requirements associated with postgraduate studies (Butler, 2007). If one furthermore considers that English is in most cases the *lingua*

franca for postgraduate studies and that a large number of students are additional language users of English, it is imperative that innovative solutions for the implementation of fully functional language policies and plans be developed. These underlie and guide the educational resources mustered to solve the problem. Such policies and plans should include, *inter alia*, clear descriptions of language levels according to international standards, and the necessary conditions to implement and facilitate support mechanisms for students and staff, such as tests and support courses. The need to identify students who are at risk of failing or dropping out , so as to make informed decisions and intervene with relevant support programmes, is therefore urgently required to increase student success and enable effective language development to take place (Wickham, Van Schalkwyk, Pym, Schreiber & Bozalek, 2009; Du Plessis, 2012; and Rambiritch, 2012).

The Inter-institutional Centre for Language Development and Assessment (ICELDA)

The Inter-institutional Centre for Language Development and Assessment, a partnership of four multilingual South African universities (Pretoria, Stellenbosch, North-West and the Free State), identified a need for the development of an integrated, standardised, reliable and valid test to measure the academic language ability of entry level postgraduate students. The purpose of this test would firstly be to determine whether students find themselves at risk as a result of too low a level of academic language ability, and, secondly, to identify specific problem areas that need to be addressed through different kinds of support, i.e. academic language development courses, workshops in academic reading and writing and in proposal writing, the development of academic speaking skills for oral presentations, listening skills development, support from a writing centre, etc.

The Test of Academic Literacy for Postgraduate Students (TALPS) was consequently developed. This test is highly reliable and valid. The ICELDA partnership is responsible for the standard administration of the test, for marking them, and for assisting in the interpretation of their results.

The Test of Academic Literacy for Postgraduate Students (TALPS)

TALPS is used in the first instance to determine whether students find themselves at risk as a result of too low a level of academic literacy. Should that be the case, such students may be advised to put plans into place to help develop their ability to handle academic discourse more competently. It tests a number of components of academic literacy, that allow it to assess whether students are able to:

- understand a range of academic vocabulary in context;
- interpret and use metaphor and idiom, and perceive connotation, word play and ambiguity;
- understand relations between different parts of a text, be aware of the logical development of (an academic) text, via introductions to conclusions, and know how to use language that serves to make the different parts of a text hang together;
- interpret different kinds of text type (genre), and show sensitivity for the meaning that they convey, and the audience that they are aimed at;
- interpret, use and produce information presented in graphic or visual format;
- make distinctions between essential and non-essential information, fact and opinion, propositions and arguments; distinguish between cause and effect, classify, categorise and handle data that make comparisons;

- see sequence and order, do simple numerical estimations and computations that are relevant to academic information, that allow comparisons to be made, and can be applied for the purposes of an argument;
- know what counts as evidence for an argument, extrapolate from information by making inferences, and apply the information or its implications to other cases than the one at hand;
- understand the communicative function of various ways of expression in academic language (such as defining, providing examples, arguing); and
- make meaning (e.g. of an academic text) beyond the level of the sentence.

The Academic Listening Test (ALT)

Listening to lectures, seminars, symposia, etc. is such an important part of university study, it seems logical that an assessment of academic listening could add new insights to the body of knowledge that is being gathered on the subject of academic success. Although some progress has been made on the "cognitive nature" of listening, it remains the least researched of the four language skills. It must, however, be remembered that language skills are inter-connected and cannot be dissociated. A lecture situation is a good example of this, where listening, writing and reading, combine to facilitate learning. The development of these skills can pose a problem for students (Lynch, 2011) particularly if they are second language speakers who are hampered by a general lack of linguistic, and therefore content, understanding. It is thus imperative that some of the cognitive factors, such as the role played by listening, which contribute to the academic success or failure of tertiary level students in South Africa, are identified. A recent development has therefore been the design and refinement of the Academic Listening Test (ALT). This test aims to measure the academic listening ability of students. The purpose of ALT is to assist other tests, like TALPS, in more accurate screening of students, particularly the borderline cases. Its reliability has already been proven and its validity is currently under investigation.

The test consists of five tasks:

- The first task comprises a lecture situation where the students listen to a 12 minute video extract from a Psychology 1 lecture and answer the multiple choice questions that follow. This task tests a candidate's ability to differentiate between main and subordinate information and whether the main themes can be identified.
- The second task is based on listening for detail, where a lecturer gives the class instructions on the completion of an upcoming assessment. Multiple choice questions follow the audio clip.
- The third task is a gap-fill exercise based on a summary of what is heard through the headphones, as opposed to the exact words delivered in the clip. It is an extract from a talk given on Foreign Direct Investment by a specialist from the Gordon Institute of Business Science. In this task, the candidates can listen to the audio file twice, before being asked to select the correct words from a list (this is to prevent spelling from becoming an assessment factor), which also includes additional words that serve as red herrings, and place them in the relevant spaces.
- In the fourth task, candidates listen to an informal discussion by two Law students on the legal aspects of euthanasia. The multiple choice questions, that follow, require test-takers to infer meaning, as well as to supplement gaps in the information from their own background knowledge.
- The final task introduces the idea of listening effectively in spite of a speaker having a strong foreign accent. The topic of the seminar extract is 'Climate Change' and the speaker has a broad South Korean accent, making his pronunciation difficult to decipher at times. The fact that he has an oriental accent, rather than being from somewhere in the west, is so as to increase the fairness for all

test-takers, since the majority would be unfamiliar with this type of accent. Here too, the test-takers are required to take notes and answer the multiple choice questions that follow.

General enquiries

Internet address:

http://sun.ac.za/icelda

Contact persons:

Tobie van Dyk

North-West University

tobie.vandyk@nwu.ac.za

Fiona Stanford

Stellenbosch University

fcm@sun.ac.za

Albert Weideman

University of the Free State

albert.weideman@ufs.ac.za

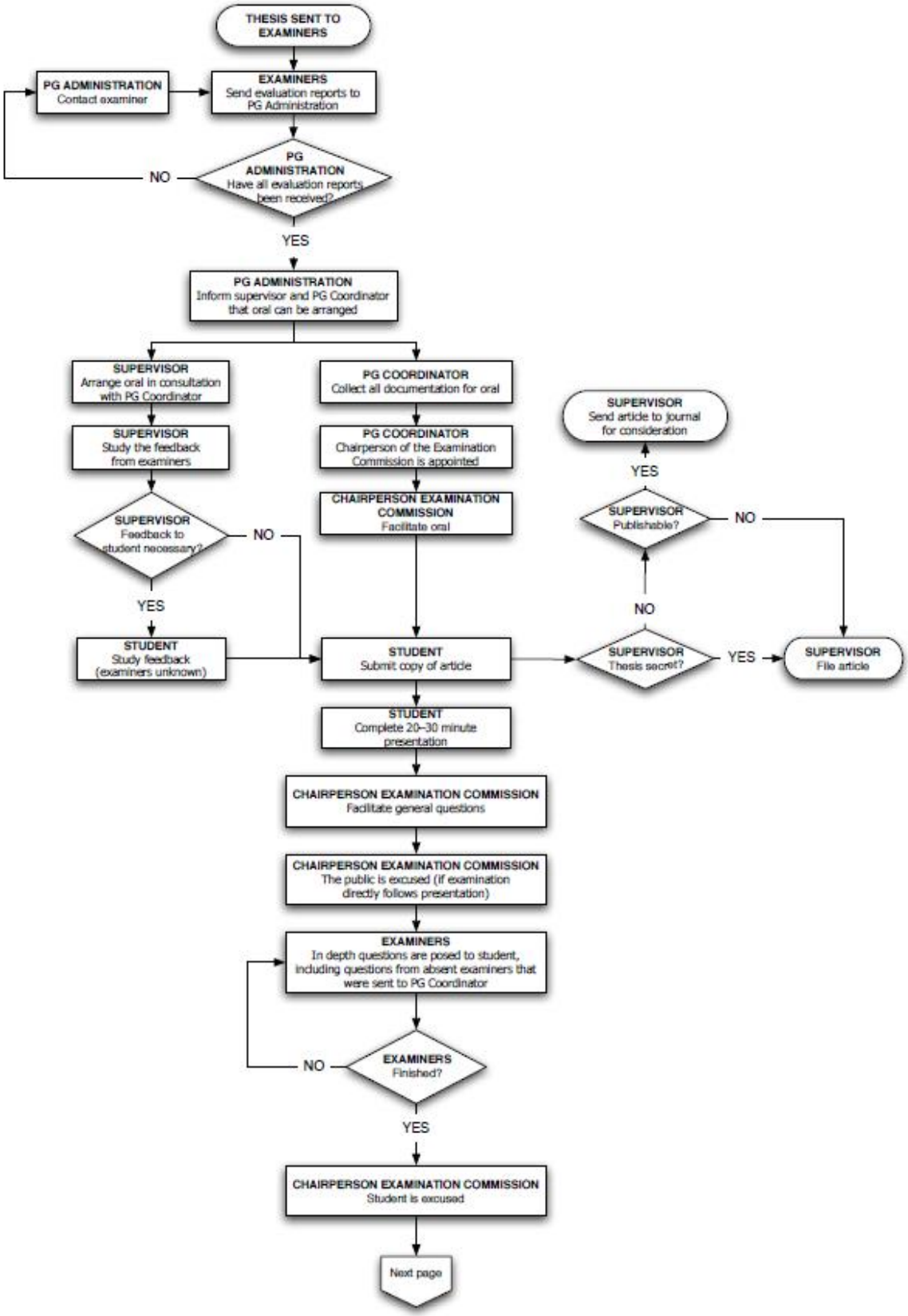
Jurie Geldenhuys

University of Pretoria

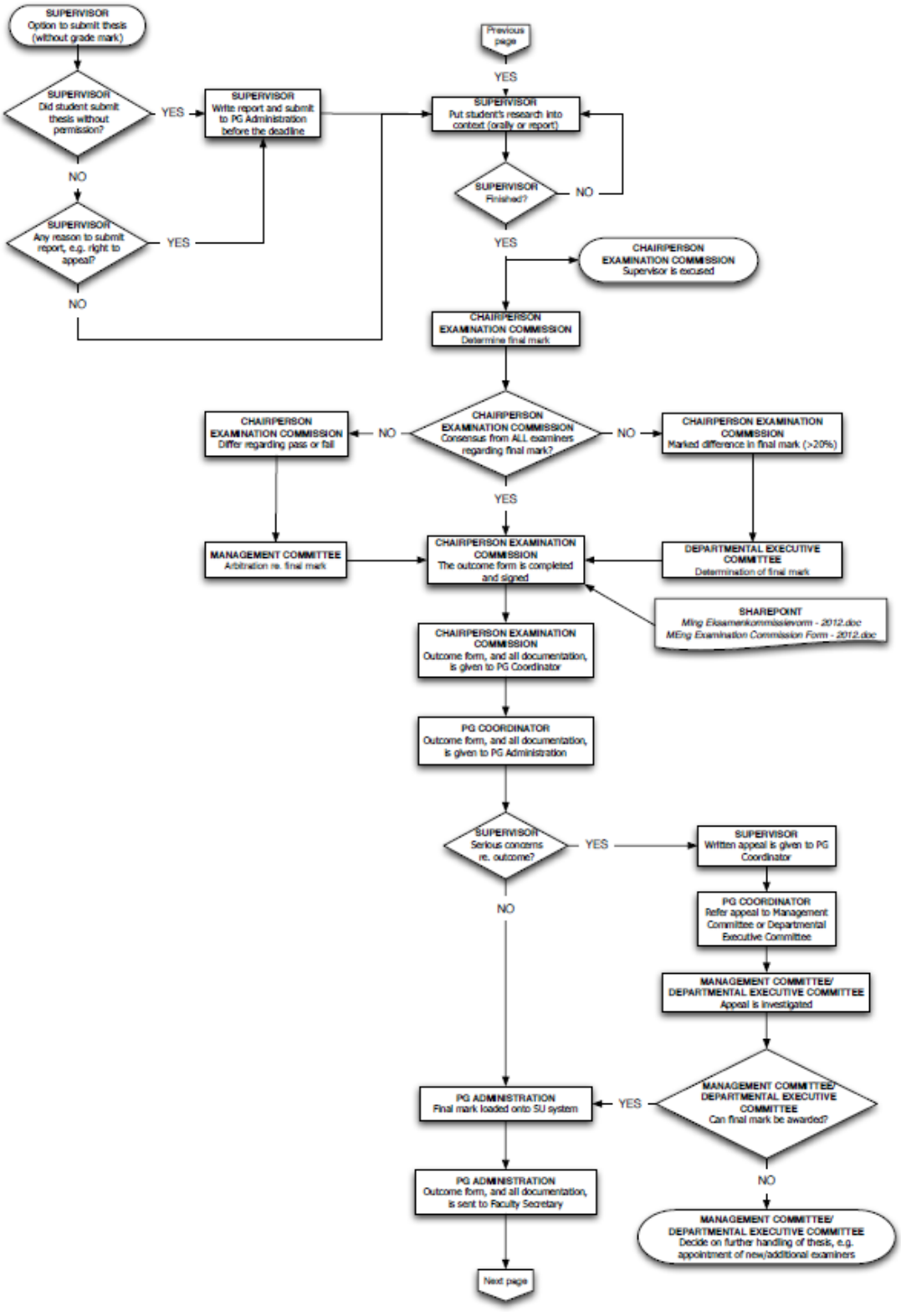
jurie.geldenhuys@up.ac.za

D Process flow of examining Master's theses

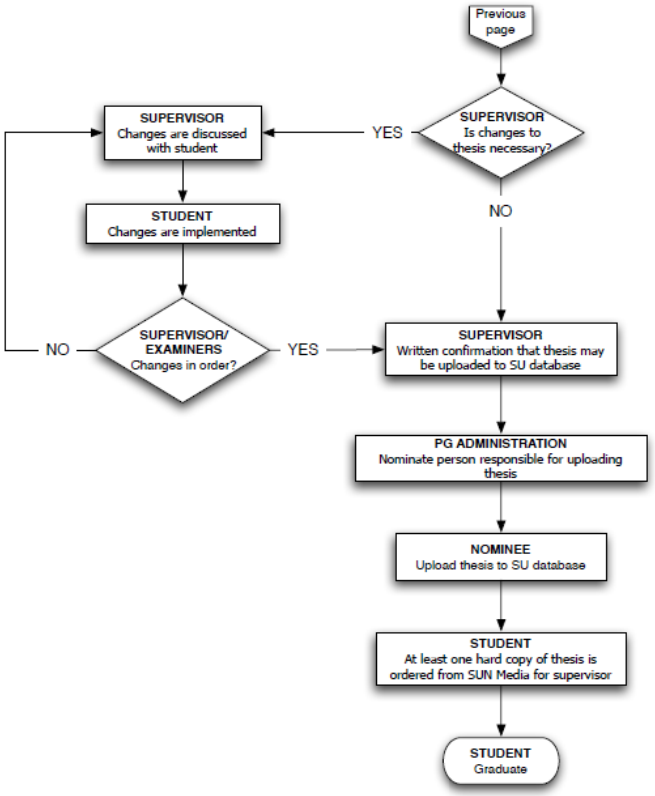
PROCESS FLOW FOR EXAMINATION OF MASTER'S THESIS



PROCESS FLOW FOR EXAMINATION OF MASTER'S THESIS (continue)



PROCESS FLOW FOR EXAMINATION OF MASTER'S THESIS (continue)



E Minimum standards for postgraduate dissertation/thesis examination procedures

MINIMUM STANDARDS FOR POSTGRADUATE DISSERTATION/THESIS EXAMINATION PROCEDURES

1. APPOINTMENT OF EXAMINERS
   - The study leader(s)/supervisor(s) nominate the examiners in writing, on condition that the examiners have been consulted prior to the nomination and that the independence of the external examiner(s) has been confirmed on the form. The template *Appointment* of Postgraduate Examiners-2017.doc, as well as the corresponding English version, is available for this purpose on SharePoint.
   - The nominations are submitted to the Departmental Executive Committee and, upon approval thereof, sent to the Faculty Secretary for placement on the agenda of the Faculty Committee.
   - Following approval by the Faculty Committee, and thereafter final approval by the Faculty Board, appointment letters are sent out by the Faculty Secretary. The study leader(s)/supervisor(s) may under no circumstances get in touch with the examiners with regards to the candidate for as long as the examination process has not yet been completed.

2. SUBMISSION OF DISSERTATION/THESIS
   - It is the responsibility of the study leader(s)/supervisor(s) to verify that the content and editorial care of the dissertation/thesis is of acceptable quality.
   - The designated departmental officer is requested by the study leader(s)/ supervisor(s) to submit the dissertation/thesis to *Turnitin*, in order to ensure that the candidate responsibly made use of citations and references.
   - In the case of a dissertation/thesis having been classified as secret, the document is not submitted to Turnitin, but instead it becomes the responsibility of the study leader(s)/supervisor(s) to ensure that the document is above reproach with regards to plagiarism.
   - A designated person, aside from the study leader(s)/supervisor(s), checks a random sample with regards to the editing of the dissertation/thesis, and reports the submission suitability of the document to the study leader(s)/supervisor(s).
   - The study leader(s)/supervisor(s) gives written permission for the dissertation/ thesis to be submitted for examination. The template Declaration MEng supervisor - 2017.doc and Declaration PhD promoter-2017.doc, as well as the corresponding Afrikaans versions, are available for this purpose on SharePoint.
   - If the study leader(s)/supervisor(s) does not give permission for the dissertation/ thesis to be submitted, the candidate may insist that his dissertation/thesis be examined. In such a case it is required that the study leader(s)/supervisor(s) submit a report, by the due date for submission of examiners' evaluation reports. The Examination Commission will review the report upon completion of the examination process.
   - It is the prerogative of the study leader(s)/supervisor(s) to submit a report on the dissertation/thesis, by the due date for submission of examiners' evaluation

reports, at the designated departmental officer. The latter is only valid if no grade is recommended (in the case of a thesis) or no recommendation is made with regards to the outcome (in the case of a thesis). If it so happens that there are serious objections with regards to the official result, such a report will ensure that the study leader(s)/supervisor(s) has the right to appeal.

- The student submits the required number of copies of the dissertation/thesis at the postgraduate departmental officer who is responsible for distributing the documents.

3. DISTRIBUTION OF DISSERTATION/THESIS
   - In addition to the following documentation, the postgraduate departmental officer who is responsible for distributing the documents sends the dissertation/ thesis to the internal and external examiner(s) – preferably by courier to the external examiner(s):
     - A cover letter that identifies the candidate and indicates the deadline for submission of the evaluation report.
     - The evaluation report form, of which the master template *MEng report form - 2017.docx or PhD report form - 2017.docx*, as well as the corresponding Afrikaans versions, are available for this purpose on SharePoint.
     - The Faculty Secretary initiates the payment for external examination by, upon completion of the evaluation process, sending claim forms to the external examiner(s).
   - The written letter of consent, which confirms that the dissertation/thesis may be submitted for examination, is not sent to the examiner(s).

4. RECEIPT OF DISSERTATION/THESIS EVALUATION REPORTS
   - The postgraduate departmental officer, who is responsible for receiving the evaluation reports, ensures that all reports are received by the due date. Timely reminder messages for the examiners may sometimes be necessary.
   - The Postgraduate Coordinator and study leader(s)/supervisor(s) are notified once all the evaluation reports have been received. The study leader(s)/ supervisor(s) are requested, in consultation with the Postgraduate Coordinator (who is responsible for appointing the Chairperson of the Examination Commission), to schedule an oral examination.
   - The study leader(s)/supervisor(s) now has full access to the examiners' evaluation reports and may, if the examiner(s) indicate it as such on the report form, share the feedback with the candidate. The grade point, as recommended by the examiners, may however not be conveyed to the candidate. Seeing that the candidate is at this stage not allowed to contact any of the examiners, THE CANDIDATE IS NOT ALLOWED TO KNOW THE IDENTITY OF THE EXAMINERS.

5. ORAL EXAMINATION
   - The Examination Commission consists of an independent Chairperson (usually the Postgraduate Coordinator, who should also be an academic staff member), the internal examiner, and at least one of the external examiners. An examiner who is available via telephone, Skype, or a similar acceptable connection, is regarded as present.
   - If an external examiner is unable to be present, he/she can send a list of questions to the Chairperson, who in turn will present these questions to the candidate.
   - The Chairperson is in possession of all the examiners' evaluation reports and recommendations.
   - The candidate submits a copy of the journal article on his research. In the case of an M-thesis, it is the study leader(s) prerogative to submit the article to a journal for publication, or to hold it back. In the case of a doctoral dissertation, the article should have been sent off prior to the oral. It is not required that the journal article be sent off in the case of a dissertation/thesis that has been classified as SECRET.
   - The candidate has the opportunity to deliver a presentation (typically 20 to 30 minutes) on his/her research. This presentation is open to the public and general questions may be posed to the candidate at the end of his presentation.
   - In the event of the presentation and the examination process following one after the other, the general public is excused and only the members of the Examination Commission, the study leader(s)/supervisor(s), and the candidate remain for the formal examination process.
   - The Chairperson now facilitates the candidate's examination by the examiners. The study leader(s)/supervisor(s) does not participate in the question session.
   - Upon completion of the question session (and after the candidate has been excused), the study leader(s)/supervisor(s) are given the opportunity to put the candidate's research into context with regards to issues such as workload, autonomy, unique contributions, etc. The report by the study leader(s)/supervisor(s) is now, if submitted, presented by the Chairperson to the Examination Commission for consideration.
   - The study leader(s)/supervisor(s) is now excused and the Chairperson attempts to reach consensus with regards to the grade point (for M-theses) and the outcome (for doctoral dissertations).
   - In a case where no initial consensus on the final grade mark or outcome can be reached, all the examiners must be consulted in determining the grade mark or outcome, even if an examiner was not present at the oral examination.
   - Once consensus is reached, the outcome is recorded on the Examination Commission Form and signed by the members present. The template MEng Examination Commission Form - 2017.doc or PhD_DEng Examination Commission

Form - 2017.doc, as well as the corresponding Afrikaans versions, are available for this purpose on SharePoint.

- If consensus cannot be reached, the situation is handled as follows:
  - If the candidate passes, but there is a huge difference in the grade mark (typically greater than 20%), and if the examiners stick to the original grade mark that was awarded, then the case is referred to the Departmental Executive Committee for a final decision.
  - If the candidate fails, and the examiners stick to their original standpoint, then the case is referred to the Faculty Management Committee for a final decision.
  - The Departmental Executive Committee / Faculty Management Committee may decide to appoint additional examiners.
- The Chairperson returns the Examination Commission Form (and all the evaluation reports and recommendations) to the postgraduate administrative officer, who, in consultation with the Postgraduate Coordinator, is responsible for capturing the final grade mark/outcome on the SU system.
- The study leader(s)/supervisor(s) has the right to appeal if the study leader(s)/supervisor(s) has serious objections regarding the final outcome of the Examination Commission, and if a report was submitted on time. Written appeal must take place via the relevant Postgraduate Coordinator, who can then refer it to the Departmental Executive Committee or the Faculty Management Committee for further handling.
- The required editorial changes should now be implemented in consultation with the study leader(s)/supervisor(s). THE CANDIDATE MAY NOW KNOW THE IDENTITY OF THE EXAMINERS, AS WELL AS THE FINAL GRADE MARK THAT HAS BEEN AWARDED.
- If the study leader(s)/supervisor(s), or the examiners, are satisfied with the edited dissertation/thesis, the study leader(s)/supervisor(s) should inform the postgraduate administrative officer in writing (usually via email) that the pdf version of the document can be loaded onto the SU database.
- The postgraduate administrative officer must now nominate, on the US system, the designated person (usually the study leader(s)/supervisor(s) or the postgraduate administrative officer) who will upload the dissertation/thesis onto the SU database.
- The dissertation/thesis is uploaded to the SU database by the nominated person.
- The candidate must supply the study leader(s)/supervisor(s) with at least one hard copy of the final dissertation/thesis.

F Final submission and declaration

Final Submission

FAKULTEIT INGENIEURSWESE, DEPARTEMENT BEDRYFSINGENIEURSWESE
FACULTY OF ENGINEERING, DEPARTMENT OF INDUSTRIAL ENGINEERING

FINAL SUBMISSION OF THESIS AND DOCTORAL DISSERTATIONS

MASTER'S AND DOCTORAL CANDIDATES' PERSONAL DETAILS

SURNAME: .....

INITIALS: .....

STUDENT NUMBER: .....

CELL NUMBER: .....

E-MAIL: .....

SUPERVISOR: .....

CO-SUPERVISOR: .....

DEPARTMENT(S): .....

- **6-8 keywords:** .....

  .....
- A compact disc submitted to the Post Grad Admin Officer in department **(AMELIA HENNING)** which must be marked with student number, initials and surname in permanent ink). **DO NOT ASK YOUR STUDY LEADER TO SUBMIT THE THESIS ELECTRONICALLY.**

MEng(*Research*) MEng(*Structured*):

1. Final version of the tesis in copyable PDF-format
2. A publishable Journal Article in Word.doc format
3. Other relevant data and information gathered during the study

PhD:

1. Your Article already submitted to an international journal with at least 50% of the authors being full time permanent academic personnel of the department
2. Proof of submission of the above
3. The final version of the dissertation in copyable PDF format
4. The ready submitted article in PDF-format
5. A second publishable article in Word.doc format
6. Other relevant data and information gathered during the study
7. A 50 word as well as 100 word abstract sent by mail to ah2@sun.ac.za. This will be read out at the graduation ceremony.

Submitted by: ..... **Signature** .....

Submission date: .....

FAKULTEIT INGENIEURSWESE

FACULTY OF ENGINEERING

DECLARATION BY SUPERVISOR

I/we _____ hereby certify that:

Firstly the accompanying unbound master's thesis / doctoral dissertation (line through non-applicable part) of (initials and surname):

_____

for the degree of _____
(use correct abbreviation) is in its original form and ready to be submitted to the ASM-USD for the duplication and binding of the prescribed number of copies and secondly the prescribed declaration page (as described in the Year Book), has been duly signed by the candidate.

Supervisor's signature _____

Date _____

CONFIDENTIALITY OF THE THESIS OR DISSERTATION

It is hereby certified that this copy is to be classified as confidential and be kept under lock and key

Until _____ (date)

Supervisor's signature _____

Date _____

When the thesis or doctoral dissertation is submitted, ASM-USD must be informed that it is confidential and that this decision has been approved by the senate. A letter of confirmation must accompany this.

Please note: no copy will be handed over to the student, supervisor or anyone before the abovementioned period of time has elapsed.

G Applying for consent to interrupt MEng or PhD studies

Faculty of Engineering
Application for consent to interrupt M- or D-studies

STUDENT			
Name:			
Degree programme:		Student number:	
Supervisor:			
Signature: (Student)			

MOTIVATION
Only the situation at work, medical reasons, financial reasons and highly special personal circumstances, with appropriate supporting documents, are valid reasons for consent to interrupt studies.

PERIOD OF INTERRUPTION OF STUDIES				(Mark with cross)
MEng	1 year			
PhD	1 year		2 years	

DEPARTMENTAL RECOMMENDATION			
Was application submitted before 30 April? (YES/NO)			
Is interruption recommended? (YES/NO with reasons)			
Signature: (Supervisor)		Date:	
Signature: (Departmental Chair)		Date:	

The recommendation must be sent to the Faculty Secretary, irrespective of the outcome of the recommendation, with a copy to the Departmental Postgraduate Coordinator.

H Reregistration after exceeding maximum allowable time

PROPOSED PROCEDURE FOR THE RE-ADMISSION OF POSTGRADUATE STUDENTS WHO EXCEED THE MAXIMUM TIME ALLOWED TO GRADUATE

1. Master's and doctoral students who, at the end of the current year, exceed their maximum permissible period within which to graduate in that year, are warned via email by the Faculty Secretary in June of that year that they will not be able to automatically register for the next academic year.
2. Qualifying master's and doctoral students are informed via email by the Faculty Secretary in November that, in the following year, they will exceed their allotted time within which to graduate, and that they cannot continue their studies without first obtaining permission from the department concerned.
3. The list of students is sent to the relevant department's Postgraduate Coordinators, Departmental Chairs and the Vice Dean (Research).
4. The students concerned must submit documents for re-admission to the Office of the Departmental Chair by 15 January, for consideration by a departmental committee / management committee.
5. The departmental recommendations (with motivation) regarding the re-admission of master's students are sent by 31 January to the Vice Dean (Research) for final approval, after which it is sent to the Faculty Secretary, who will then officially inform the students regarding the Faculty's decision.
6. The departmental recommendations (with motivation) regarding the re-admission of PhD students are sent to the Faculty Secretary, with copies sent to the Vice Dean (Research). The recommendations must reach the Faculty Secretary by the closing date of the Faculty Committee's agenda, so that it can serve at the first Faculty Council meeting in February.

I Discontinuation of MEng studies

Administrasie en Dienste
Akademiese Administrasie

STAKING VAN STUDIE / *DISCONTINUATION OF STUDIES*

A. VERKLARING / *DECLARATION*

Hiermee gee ek skriftelik kennis van my staking van studie, en dus van my hele registrasie as student, met ingang van
I hereby give notice in writing of discontinuing my studies and hence my registration with effect from

Datum / *Date*: _____

Minderjariges: Ek het reeds my ouers / voog / beursgewer verwitting.
Minors: I have informed my parents / guardian / bursary donor.

My rede(s) vir staking van studie / *My reason(s) for discontinuing my studies*:

_____

_____

B. PERSOONLIKE BESONDERHEDE / *PERSONAL PARTICULARS*

Studentenr / *Student No*: Voorbeeld / *Example*: 13045841-2001

								-				

Van / *Surname*: _____

Volle naam / *First names*: _____

Program / *Programme*: _____

Universiteitskoshuis, Huis, Woonstel / *University Residence, House, Flat*:

_____

C. BANKBESONDERHEDE / *BANK DETAILS*

Bank / *Bank*: _____

Bankrek no / *Account nr*: _____

Takkode / *Branch Code*: _____

Tipe rekening / *Type of Account*: _____

Naam van rekeninghouer / *Name of account holder*: _____

LW: Indien u van Universiteitsbehuising gebruik maak, MOET u u behuising by die Afdeling Toelating en Losies in Blok A formeel kanselleer.
PLEASE NOTE: If you have been making use of University accommodation, you MUST cancel your accommodation formally with the Division for Admissions and Accommodation in Block A.

Adres waarheen enige korrespondensie gestuur moet word:
Address to which any correspondence should be sent:

_____

_____

_____Poskode / *Postcode*: _____

Telefoonnommer / Selfoonnommer: _____

_____ _____
HANDTEKENING / *SIGNATURE* DATUM / *DATE*

Faksnr: (021) 808 3822

J Proposed Process for PhD Selection and Readmission for Faculty of Engineering

MINIMUM STANDARDS REGARDING PHD REGISTRATION

1. The prospective student and possible supervisor come to a verbal agreement regarding a possible field of study.
2. If the supervisor is willing to accept the student, the short application form for registration as a PhD candidate is completed and signed by both the supervisor and the student.
3. The application form and academic transcript of the prospective student are submitted for approval by the departmental Admissions Committee and, if so approved, the signature of the Chair. Typically the Admissions Committee comprises of at least 3 persons with PhD qualifications, of which two members are not involved in the particular study, and where at least one person is appointed on the same level as the proposed supervisor. The Committee may request additional information (such as a CV) to help in making the decision.
4. The signed form is sent to the Faculty Secretary, who then registers the student, without a dissertation subject.
5. The student has a maximum of twelve months from the beginning of the semester of first registration to formulate a research proposal with a descriptive title, in collaboration with the supervisor. The student's registration will lapse unless the research proposal is submitted, at the latest, to the first meeting of the Faculty Council after the expiration of the twelve month period.

   The research proposal, typically 20 to 30 pages in length, should contain at least the following information:

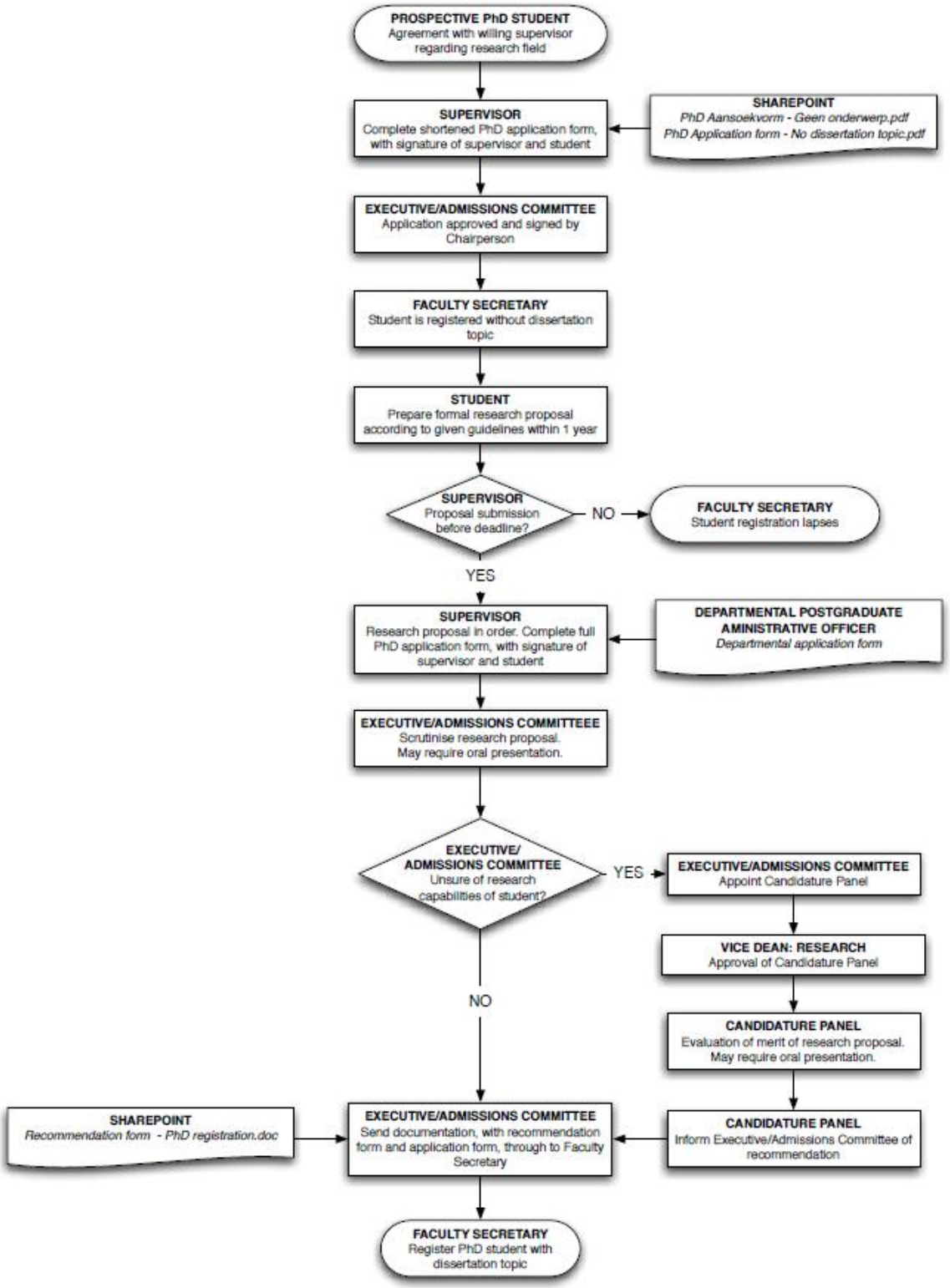
   5.0. An extensive exposition of literature relevant to the PhD studies as well as a synthesis and evaluation of the most important themes found in the literature.
   5.1. A clear explanation of the study's objectives with specific reference to how it relates to previously published work and what the expected original contribution of the study will be.
   5.2. A description of the research methodology proposed in order to attain the set objectives.
   5.3. A broad time schedule for the study, typically in terms of 4-10 activities, with a short description of the focus of each.
   5.4. A clear explanation of the infrastructure (software, equipment, laboratories, operating costs etc) necessary to complete the study, as well as arrangements that have been made to ensure its availability.
   5.5. A critical self evaluation by the student of the progress made to date.
6. In addition to the research proposal, an Executive Summary (maximum of 600 words) must be prepared by the student. Only the following information must be contained in the document:
   6.1. The title of the research project.
   6.2. Name of student.
   6.3. Name of supervisor(s).
   6.4. The body of the Executive Summary with the following numbered sections:
      6.4.1. A short summary of the research project and the goals of the study.
      6.4.2. The anticipated unique research contribution(s) of the study.
      6.4.3. A broad time framework for the study, typically in terms of 4 to 10 activities.
7. When the supervisor is satisfied with the research proposal it is submitted, together with the separate Executive Summary and the prescribed PhD application form, signed

by both the student and the supervisor, to the departmental Admissions Committee. The Committee may request that the candidate make an oral presentation and/or to request that the research proposal be revised and resubmitted for consideration.

8. If the supervisor(s) is(are) not satisfied with the research proposal or if the departmental Admissions Committee decides that further opinion should be sought regarding the research proposal and/or the student's research capabilities, a Candidature Panel is appointed, comprising the proposed supervisor(s) and at least two further knowledgeable people, at least one of whom should be from outside the home department. The Vice Dean: Research must approve the proposed Candidature Panel. It is important to note that the rejection of a research proposal can only by recommended by a Candidature Panel.
9. The Candidature Panel adjudicates the research proposal and makes a recommendation to the departmental Admissions Committee. The Candidature Panel may request that the candidate make an oral presentation and/or to request that the research proposal be revised and resubmitted for consideration.
10. The Candidature Panel's recommendation is then made known to the departmental Admissions Committee.
11. After acceptance of the research proposal by the departmental Admissions Committee, the recommendation form (*Recommendation form - PhD registration.doc*) is completed and the prescribed PhD application form is signed by the Chair and then sent, together with the Executive Summary and the research report, to the Faculty Secretary for inclusion in the agenda of the Faculty Committee for approval.
12. The recommendation form and the Executive Summary serve at the Faculty Committee for approval. The research proposal is available online as a pdf document.
13. After approval by the Faculty Council, the subject of the dissertation is entered in the existing academic record of the student.

K Process flow for PhD Registration

PROCESS FLOW FOR PHD REGISTRATION



L Thesis Style Guide

SECTION B

THE TECHNICAL EDITING

OF

MANUSCRIPTS

CONTENTS

THE ABRIDGED HARVARD REFERENCE SYSTEM THAT IS RECOMMENDED (SEE SECTION C) IS ADAPTED FOR USE BY STUDENTS OF THE FACULTY OF EDUCATION, UNIVERSITY OF STELLENBOSCH

THE TECHNICAL EDITING

OF

MANUSCRIPTS

INTRODUCTION

An assignment, thesis or dissertation must offer proof that you

- **have the ability to do independent research**
- **can come to specific, valid conclusions concerning the subject of study**
- **can combine the data that are obtained and/or the results of the inquiry into a logical and rounded whole**
- **can convey all the information that is obtained in a concise, clear and meaningful way to the reader.**

In the course of the study or inquiry, you will have to study sources

- **to orientate yourself to the field of study in which the inquiry will be conducted,**
- **to scrutinise authoritative viewpoints or opinions or specific research on aspects of the field**
- **to gain more information about the subject.**

Your writing must demonstrate an

- **honesty and freedom from bias**
- **logical coherence and clarity**
- **thoroughness and comprehensiveness**
- **clear formatting and attention to detail.**

The submitted work will be assessed on

- **the content**
- **the quality of research**
- **the logic of the argument**
- **how systematic the presentation is**
- **the style of writing, formulation and language usage**
- **the professionalism of the technical production.**

Section B provides guidelines on the kind of submitted work that is acceptable to the Faculty of Education. The following aspects of a thesis/assignment/portfolio/dissertation are discussed:

- **preparation for the study/inquiry**
- **the format and presentation of the text**
- **the compilation of a thesis/assignment or dissertation**
- **the presentation of illustrative and reference material, and**
- **the reference system that the student should use.**

1. PREPARATION FOR THE RESEARCH

1.1 INTERPRETATION OF THE TOPIC

After the study topic has been finalised, first clarify how it **is to be interpreted** and what the **its scope** should be. It will then be necessary **to read** extensively in the field of study in which the topic has to be studied.

1.2 SEARCH FOR SOURCES

In trying to find relevant literature, it is advisable to begin with general sources (such as indexes) which will help you find bibliographies that will put you on the track of topic-related sources. The **University librarians** can assist you in initiating a search for sources.

Sources should be chosen carefully because the quality of the eventual product depends on the nature and status of the sources that are chosen. Unless the historical origin and course of an item or the topic also have to be traced, it is advisable to give more attention to contemporary sources because they offer the latest research findings.

1.3 LITERATURE STUDY

A search for sources should also involve an intensive period of reading during which you orientate yourself to the subject and develop the capacity to analyse and evaluate the information that is obtained. Eventually you will be in a position to begin systematising the information and so finally to arrive at a synthesis of it. Only then should you try to articulate your personal insights on the topic.

1.4 SCOPE OF THE RESEARCH

Generally, a research design includes both quantitative and qualitative research. A **doctoral dissertation** will require research of greater scope than a **master's thesis**, while the nature of the topic of a **research portfolio/assignment** or **50% thesis** will probably demand an inquiry on a smaller scale. Whatever the scope of the research may be, the student will probably first have to consult a variety of sources (and resource people), before planning the actual research.

Planning the research will include the following:

- the steps to be followed (the planning framework)
- the nature of the information to be collected
- the data gathering techniques to be used
- the design of the questionnaires, activities, etc
- the people to be involved in the inquiry.

1.5 CONSULTATION WITH THE SUPERVISOR/PROMOTOR

The student ought to consult the supervisor/promotor regularly particularly in the initial stages of the research

- to ensure that the topic is being interpreted correctly
- to ensure the appropriateness and feasibility of the planned enquiry
- to obtain approval relating to certain aspects
- to report on progress.

1.6 PERMISSION TO DO THE RESEARCH

Depending on the nature of your inquiry you may need to obtain the approval of institutions (for example, an education department or a school governing body) or persons before the inquiry can be launched. The supervisor/promotor will be able to give the necessary advice on the steps to be followed.

1.7 PROFESSIONAL PRESENTATION

All work should be word-processed and edited before being submitted. Preliminary work should already show evidence of logic, thoroughness, organisation and refinement of ideas.

2. FORMAT AND PRESENTATION OF SUBMITTED WORK

2.1 UNIVERSITY REQUIREMENTS

2.1.1 Theses and dissertations

Apart from this manual, the **US Calendar, Part 1** should also be studied with regard to

requirements for theses/assignments for master's studies and dissertations for doctoral degrees
the form and format in which these should be submitted
copies that are needed for examining and later of the completed manuscript
the duplication and binding of theses/assignments/dissertations
the publication of theses and dissertations or part thereof.

2.1.2 Research portfolios and research assignment

A student who has to submit a research portfolio or research assignment should discuss the nature, scope and format with the supervisor.

2.1.3 Submission of the final manuscript

A final and original copy of the dissertation or thesis (100% or 50%) should be submitted to the printing department of the US **at least 10 working days** before the relevant degree ceremony. Comprehensive regulations in this regard are clearly set out in the **US Calendar, Part 1**.

2.2 FACULTY STIPULATIONS

2.2.1 Form of presentation

Your work must be presented in word-processed form. Unless the supervisor/promotor arranges otherwise with the student, handwritten texts may not be submitted. Perforated computer paper will not be accepted.

The **compilation** of theses and dissertations is discussed in **par 3 of this section**.

2.2.2 Format of the submitted work

Paper	- White Bond paper, A4 size (80g thickness), on one side only
Paragraphs	- Block format
Spacing	
Text	- Double spacing (or one-and-half line spacing)
References	- single spacing with an open line between each entry
Footnotes	- single spacing
Appendices	- single spacing
Margins	- 2cm width around the written section
Font size	- Font 10-12 for the text (as prescribed by the University)
Headings	- Bold
Page numbers	
Title page	- No page number
Introductory pages	- Small Roman numerals, at head of page, centred
Text	- Arabic numerals, without a stop, at head of page, centred
Reference lists	- Continuous with the text
Appendices	- Continuous with the reference lists
Paragraph numbers	- Arabic numerals

Sub-paragraphs

- **3.2**
- **3.2.1**
- **3.2.1.1**
- **Thereafter:** Small Roman numerals: (i), (ii), (iii), etc.
- **Thereafter:** Small letters: (a), (b), (c), etc.

OR

- **Symbols** (*bullets*) in a consistent sequence.

2.3 REFERENCE SYSTEM

2.3.1 The abridged Harvard System

The abridged **Harvard system** (see **Section C**) is recommended for students of the Faculty of Education. Another reference system may, however, be used if the supervisor/promotor so desires. The student should consult the supervisor/promotor in this regard.

2.3.2 Preliminary work

Preliminary chapters: A list of the sources that have been consulted for a particular chapter should always accompany the preliminary chapters. Find out whether the preliminary chapters should be bound or not.

Final manuscript for examination: A complete reference list should of course accompany the final manuscript. The number of copies that has to be submitted for examination/evaluation purposes will depend on the number of examiners that has been assigned (consult the supervisor/promotor and the **US Calendar, Part 1**).

2.3.3 Illustrative or reference material

Preliminary chapters: Relevant graphic work, tables, appendices and other essential illustrative material should also accompany the preliminary chapters.

Final manuscript: The final manuscript that is submitted to the examiners should contain all illustrative or reference material (see also **US Calendar, Part 1**).

3. THE COMPILATION OF A THESIS OR A DISSERTATION

The completed thesis/assignment or dissertation consists of five distinct parts:

Title page: Not numbered.
Introductory pages: Numbered with small Roman numerals.
Text: Numbered from page 1.
Reference list (list of sources): Numbered continuously with the text.
Illustrative material (appendices): Numbered continuously with the text and the list of sources.

3.1 TITLE PAGE

The **US Calendar, Part 1** sets out clearly the university's requirements regarding the compilation of the title page, the format and the essential information that has to be distributed across the title page. Some aspects are discussed here.

Complete title: From the beginning of the studies, the title should be formulated as briefly but as comprehensively as possible. The title on the title page may not differ from the **registered** title (which has been approved officially and in writing by die Faculty Council and the Senate at the first registration). The title may be altered only with permission and by being re-registered. The subsequent **cover** title of the final, bound copy may however be shortened on the spine in consultation with the binder.

Initials and surname of writer: No title is indicated; only one first name is given in full.

Degree/degrees already achieved: The degree/degrees that the writer has already achieved are placed on the line just after the author's name. The name of the degree must be written as it is stated on the degree certificate.

Indication if this is an assignment/thesis/dissertation: The following formulation is obligatory:

Thesis 100%:

Thesis submitted in partial fulfilment
of the requirements for the degree of
Master of Education
at the
University of Stellenbosch

Thesis/Research Portfolio/Assignment (50%):

Thesis (or Research Portfolio or Assignment) **submitted in partial fulfilment**
of the requirements for the degree of
Master of Education
at the
University of Stellenbosch

Dissertation:

Dissertation presented for the degree of
Doctor of Education
at the
University of Stellenbosch

Title, initials and surname of supervisor/promotor

Date: The **month** and **year** in which the degree will be received.

3.2 OTHER INTRODUCTORY PAGES (BEFORE CHAPTER ONE)

3.2.1 Declaration of originality

This declaration is inserted on a separate page immediately after the title page and is formulated according to university requirements. It is set out as follows:

DECLARATION

I, the undersigned, hereby declare that the work contained in this dissertation (or thesis/research portfolio/assignment) **is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.**

***Signature*: ……..**

***Date*: ……..**

3.2.2 Abstracts in Afrikaans and English

An abstract of about 500 words in both Afrikaans and English, on separate pages, must precede the text. The abstract states very succinctly the problem that is investigated, the method and procedure that are followed and the findings of the inquiry. If the thesis/dissertation is written in Afrikaans, the Afrikaans abstract is placed first. If it is written in English, the reverse applies.

3.2.3 Acknowledgements

It is usual (but not essential) for the writer to thank certain people for help or guidance with the completion of the thesis or dissertation. Occasionally the work is also dedicated to someone. An acknowledgement should preferably be limited to **one** page.

3.2.4 Table(s) of contents of the text

The work as a whole ought to be provided with a table of contents with page references. This gives the reader a general view of the contents and makes it easier to consult the work. The heading for this is **CONTENTS** (capital letters and centred).

Each **chapter** may also be provided with a table of contents in which main and sub-paragraphs are indicated.

The **headings** for chapters and main or sub-paragraphs should be represented in the table of contents **exactly as written in the text**.

3.2.5 Table of contents of the source material

Immediately after the table of contents of the text, the reference and illustrative material is mentioned (with page references), for example:

REFERENCES	**210**	
APPENDIX A	**215**	
APPENDIX B	**231**	etc

3.2.6 Table of contents of the tables, figures and other graphic material

On separate pages, after the list of reference material, lists of the tables and figures and other graphic material (with numbers, titles and page references) respectively.

3.3 THE TEXT

Together with this, consult Section C of the Guidelines.

The term **text** refers only to the content of the thesis, assignment or dissertation. The tables of contents, reference list, appendices and illustrative or reference material are thus not included here.

3.3.1 Presentation of the information or research results

3.3.1.1 Presentation style

The nature of the research will to a large extent determine the style of presentation of the information. Consult your supervisor/promotor in this regard.

3.3.1.2 Terminology

If you wish to use terms in a specific context or attach specific connotations to them, or use words that are possibly unknown to the reader(s), explain these terms either on a separate page before the start of the text or in the first chapter of the thesis or dissertation. Words from another language that are used once may be explained by adding the meaning, or the translation or the familiar form after the word, for example: *abantwana* (boys).

3.3.1.3 Chapter division

Chapters should reflect the logical course of the study.

The contents of the **first chapter** may be finalised in consultation with the supervisor/promotor. Usually this chapter serves as an introduction to the problematic aspect of the research topic. Items such as the following may be discussed in it:

statement of the problem and formulation of aim: a succinct formulation of the aim of the research
demarcating the field: the nature and scope of the research
literature survey: a survey of previous research that has been conducted in this particular field or of works that deal with the particular topic or problem
research design which includes the **method of inquiry and/or procedure of inquiry** that will be followed

explanation or definition of concepts so that the reader will interpret the specific concepts within the framework of the assignment/thesis/dissertation.

In the **subsequent chapters** the content is presented in the order agreed to with the supervisor/promotor.

Provide each of the **preliminary chapters** with a table of contents, also when they are submitted individually for a first evaluation, and number the pages again from page 1. Only with the **final copy** are the pages of the text and the tables of contents of the chapters numbered continuously from page 1 of chapter one.

Each chapter begins on a **new page**.

The **title** of the chapter is centred and written in **bold** capital letters.

Each chapter should have an **introductory paragraph** and should be concluded with a succinct **summary**. Such a summary may also include a **link with or connection to** the contents of the following chapter(s).

3.3.1.4 Paragraphs

Paragraph division should reflect the essentially argumentative nature of theses and dissertation. A thesis or dissertation can not just be a compilation of other people's points of view and ideas – or of relevant material – on a topic. Quotations, information and inquiry data should **serve a specific purpose** (such as supporting or refuting a particular proposition) and/or **be critically analysed**.

Sub-paragraphs should be limited to those that are really necessary for the logical exposition of the subject or problem. A thesis/assignment/dissertation is not just an inventory of other writers' opinions or research, and is also not just a manual for the reader (with lists of hints or proposals offered in sub-paragraphs), but deals with research that is undertaken to resolve a particular problem or to present information that will support or reject a particular hypothesis.

Paragraph headings: Paragraphs and sub-paragraphs should have appropriate and succinct headings. The headings of the **main sections** (for example, **2** and **2.1**) are typed in **capital letters** and in **bold** (not underlined). Different font sizes may however be used. The **US Calendar, Part 1** contains prescriptions regarding the font size of the text itself. The headings of **subsections** (in **bold**) that follow are written in small letters, naturally with the exception of the first letter. If for practical reasons an exception has to be made to this, the change should be applied consistently. Consult the supervisor/promotor in this regard.

EXAMPLE OF POSSIBLE FONT FORMATS

Font type = Arial (computer)

	CHAPTER TWO	**(14)**
	MANAGEMENT STYLES	**(14)**
2.1	**A DEMOCRATIC MANAGEMENT STYLE**	**(12)**
2.1.1	**Introduction**	**(12)**
2.1.1.1	**Historical perspective**	**(12)**

HINTS

Prior **paragraph planning** can ensure that each paragraph follows logically on the other. The paragraphs may be rearranged later if they do not contribute to the logical build-up of the argument, description, etc.

Logical progression may be, for example, from the broader perspective to the narrower, from the international perspective to the more local, sequence according to passage of time, from the beginning of the process to the end, etc.

Classify in categories the information that is to be used in a particular paragraph before the paragraph is arranged in a **logical order**. Give **temporary headings** to sub-paragraphs under a particular broad argument, description or exposition to serve as guidelines and to keep your train of thought on track as you write.

Example:
ATTITUDES REGARDING MULTICULTURAL EDUCATION
Community / Parents / School / Teachers / Learners / Individual learner
(The paragraphs are arranged from a broader to a narrower perspective).

3.3.2 Technical editing of the text

3.3.2.1 Language editing

The **final** manuscript of the thesis or dissertation should be edited for language usage according to **university requirements** (see **US Calendar, Part 1**) before the final copy is submitted. **Preliminary** work must satisfy the language requirements of the supervisor/promotor.

3.3.2.2 Pagination

Preliminary chapters should be numbered individually to begin with.

Final copy: Only after the compilation of the manuscript has been finalised, the chapter corrections have been effected, and all the graphic work, tables, the reference list and appendices have been added, are the pages numbered in sequence. The first page of the **text** is page **one** (1) of the thesis/assignment/dissertation.

Illustrative or reference material that is added at the end of the thesis/dissertation must be numbered continuously with the text and reference list. Each type of reference material begins on a new page. The first page of each of these sections is also recorded in the table of contents.

3.3.2.3 Abbreviations of words

Only the following abbreviations may be used in the text:

Titles of address abbreviations are written without stops. If the title appears in the middle of a sentence it is written with a small letter in Afrikaans but always with a capital in English.

Afrikaans:	Mev / Prof / Dr (beginning of sentence) / mev / prof / dr (within sentence)
English:	Mrs / Prof / Dr (always)

Names of organisations, institutions, and psychometric instruments (without stops). When the name is used for the first time in the text it is written in full with the abbreviation in brackets afterwards. Consult a dictionary or glossary.

North Atlantic Treaty Organisation (NATO)

Standard Latin abbreviations

et al.

Statistical, mathematical and scientific concepts

N / s

3.3.2.4 Written usage for amounts, numerals, formulae and symbols

Amounts up to nine (9) should be written out in the text except when mathematical, statistical, natural science and technical content demands numerals, as well as where dates, percentages, decimals and sums of money are concerned. In such cases, follow the prescriptions of the subject field concerned. However, avoid as far as possible sentences that begin with a numeral (see examples below).

Only 290 children (20%) passed the test. Twenty children (11%) suffer from leukaemia.

3.3.2.5 Underlining / Italicising

Avoid as far as possible the underlining of words or headings in computer processed text. The only exception is the underlining of word in a quotation for emphasis (see **Section C, par. 4.2: Own initial**).

Italicise as follows:

Foreign language words (= foreign to the language of the text). *Palaistra* and stadium are both Greek words but only the former will be italicised.
Latin words or abbreviations: *et al.*
Emphases: The term *stress* refers in this study to ....
Published titles of books, names of journals and **statutes** when they are named in the text: key articles can be found in *Tesol Quarterly*.

3.3.2.6 Style of font

Avoid too many kinds of font style in the text as this leads to a "busy" final product.

aaaa aaaa aaaa aaaa

3.3.2.7 Quotations

Quotations should be presented in such a way that the text can be clearly distinguished from the quotation. The quotation may be italicised provided it is written in a language other than that of the thesis/assignment/dissertation. A quotation is placed between **double quotation marks**. **Single quotation marks** are used for a quotation within a quotation. Excessively long quotations from sources should, however, be avoided. A longer quotation (more than three lines) is treated as a separate paragraph, slightly indented (0.5 cm) on both sides, with or without quotation marks and typed in single spacing (see also **Section C, par. 4.2**).

Students should especially take note of the following:

Spelling, punctuation and paragraphing of the original text must be retained.

Copyright regulations for the quotation of texts or the use of tables, figures or illustrations from other sources should be strictly observed.

Authors/ names are **not** written in italics, in bold or underlined.

3.3.2.8 References in the text

The use of authors' names in the text, as well as quotations from their works, requires references to the particular work that is being used. Textual references are discussed fully in **Section C**.

3.3.2.9 Illustrations, figures and other graphic material

Graphic work should be of a high standard throughout.

Figures: Figure (or the abbreviation = **Fig**) is used in the text for any graphic illustration except tables. Figures are numbered per chapter and in succession and are provided with headings above or below the figure.

FIGURE 3.2: SECOND MOVEMENT

(This is the second figure of **Chapter 3**.)

Tables: Tables are identified by numbers per chapter and in succession and with descriptive or explanatory headings/titles above or below the table.

TABLE 4.1: TARGET GROUP

(This is the first table of **Chapter 4**.)

A table (with the descriptive title) should be able to fit onto a **particular page** completely. If there is space under the table on a page, the text should be continued. If a table has too many columns, it may be placed widthways on the page, but the page number is placed in the usual position. Tables may also be reduced for easier placing on an A4 page, or a folding page may be used for exceptionally large tables. Footnotes may be placed below tables.

Textual references to tables and other graphic material: If tables, figures, photographs and other graphic material are used, there should be references to them in the text. They should be placed as close as possible to the textual reference.

It is important to remember that tables and graphic material may not contain references to the text whereas the facts that are contained in the tables, figures and other graphic material may be referred to in the text.

Example:

Table 5 reflects the increase in the number of children who have been diagnosed over a period of 10 years as children with minimal brain dysfunction. This indicates that ....

3.3.2.10 Footnotes

The abridged Harvard reference system excludes the use of footnotes for making references. A footnote may indeed still be used, but only when the writer wishes to explain or expand on something in the text without disturbing the flow of the argument. It is thus an explanatory (interpretative) footnote and is indicated in the text with the aid of a **symbol**, for example (*), or a numeral, for example [1] or (1). This symbol or numeral is also placed at the foot of the relevant page in front of the footnote. Footnotes are written in single spacing and in a smaller font size than the text.

3.4 LISTS OF REFERENCES

Different types of reference lists may be compiled.

3.4.1 List of References

A **list of sources/resource material** is usually included in a thesis, assignment or dissertation. It contains only works that have been consulted – ie the sources that the writer actually studied or consulted during his research – and which have been referred to in some way or other (with or without quotations) in the text or appendices. This list includes published and unpublished works.

All works that are referred to in the text must be mentioned in the list of references.

Sources are arranged **alphabetically** in the reference list according to the name of the writer and are not numbered. The works of one writer are placed in **chronological sequence** (see, however, also **Section C, par 3.2.2**). The titles of references are always recorded in the language of the version used by the student.

Complete guidelines are presented in **Section C** for

the recording of **the different types of consulted sources**
the **citing of reference works in the text**
the **compilation of a list of reference works**.

3.5 ILLUSTRATIVE MATERIAL/APPENDICES

Illustrative material is inserted directly after the list of references. Each type of appendix begins on a new page.

Appendices consist of material that cannot reasonably be included in the text or that could obstruct the flow of the argument. They are inserted only if they contribute an essential explanatory or elucidatory contribution to the text. **Questionnaires, schedules of interviews, important documents, letters of permission, extended mathematical deductions, sketches, programmes** and so on may be included here. They are arranged in the order indicated in the table of contents and the pages are numbered continuously with the text and the reference lists.

M MEng Examination Online Submission Process

MEng Examination Online Submission Process

To understand the MEng requirements and important dates, please refer to Section 4.3.

Take note that some supervisors follow the process provided in the URL below, but the process that follows in this Appendix is generally used by the Industrial Engineering department. http://library.sun.ac.za/English/howdoi/Pages/Submit-my-thesis-online.aspx

Please note that that no signature is required on the Declaration of the submission.

This Appendix applies to the following course as shown on http://learn.sun.ac.za:

881 Industrial Engineering / Engineering Management master's thesis

M.1 Before Submission

Students have the freedom to submit their work to TURNITIN to check their similarity score for plagiarism purposes.

This can be found by logging into SunLearn at http://learn.sun.ac.za/.

Click on the Thesis DRAFT version (sandbox) and if no previous submission was made, click the Add Submission button.

Please take note that you will need to confirm that you accept the TURNITIN user agreement.

Once you have read the TURNITIN user agreement, select the "I agree - Continue" button.

This area is an unofficial TURNITIN playground which is open to as many attempts as is required by the student.

M.2 Examination Process

Once you, and your supervisor, are satisfied that the thesis is ready for examination, proceed to Thesis EXAMINATION version and submit the final document.

Together with this process, the student needs to submit 2 (two) hard copies of the thesis to Melinda Rust at the postgraduate office. These hard copies need to be printed on a single side and ring bound.

Two examination colloquiums are held annually, one for the December graduation and one for the March / April graduation. The colloquium for the December graduation is normally scheduled for October (approximately 8 weeks after the hand-in date of 1 September). The colloquium for the March / April graduation is normally scheduled for late in January (the hand-in date for March / April graduation is normally 23 November although the date may vary slightly from one year to another).

The student needs to:

1. Prepare for the examination; and
2. Provide Melinda Rust with the Abstract of their thesis 1 (one) week before the examination date (in order to send out the Masters Examination meeting request to the Industrial Engineering Department).

M.3 Post Examination

The student will most probably require some rework to their thesis. After the agreed upon rework has been done, the student will submit their final .pdf version of their thesis to the Thesis PUBLICATION version link on SunLearn.

It is crucial that the title of the dissertation .pdf file is in the following format:

Surname_firstwordoftitle_2017.pdf.

The student must also:

1. Submit their relevant journal publications to Publication management section (if applicable); and
2. Submit 6-8 keywords on the dissertation to the 6 - 8 keywords link.

The supervisor will then grade all these actions in order to approve that the thesis can be uploaded (by Melinda Rust) to the SU database and will be available for viewing under scholar.sun.ac.za.

N PhD Examination Online Submission Process

PhD Examination Online Submission Process

To understand the PhD requirements and important dates, please refer to Section 4.4.

Take note that some supervisors follow the process provided in the URL below, but the process that follows in this Appendix is generally used by the Industrial Engineering department. http://library.sun.ac.za/English/howdoi/Pages/Submit-my-thesis-online.aspx

Please note that that no signature is required on the Declaration of the submission.

N.1 Before Submission

Students have the freedom to submit their works to TURNITIN to check their similarity score for plagiarism purposes.

This can be found by Logging into SunLearn at http://learn.sun.ac.za/.

Select the course module **Bedryfsingenieurswese / Industrial Engineering 978** and proceed to the Dissertation Management Section.

Click on the Dissertation DRAFT version (sandbox) and if no previous submission was made, click the Add Submission button.

Please take note that you will need to confirm that you accept the TURNITIN user agreement.

Once you have read the TURNITIN user agreement, select the “I agree - Continue” button.

This area is an unofficial TURNITIN playground which is open to as many attempts as is required by the student.

N.2 Examination process and public defence

Once you, and your supervisor, are satisfied that the thesis is ready for examination, proceed to Dissertation (for examination) and submit the final document.

Please note that Article 1 (compulsory) also needs to be submitted and accepted by your supervisor before the link is available to submit the final dissertation.

Together with this process, the student needs to submit 2 (two) hard copies of the thesis to Melinda Rust at the postgraduate office. These hard copies need to be printed on a single side and ring bound.

The student needs to:

1. Prepare for the public defence;
2. Supply the examiners with hard copies of his/her 2 (two) journal articles; and
3. Provide Melinda Rust with the Abstract of their dissertation 1 (one) week before the public defence (in order to send out the Public Defence meeting request to the Industrial Engineering Department).

N.3 Post Public Defence

The student will most probably require some rework to their dissertation. After the agreed upon rework has been done, the student will submit their final .pdf version of their Dissertation to the Dissertation PUBLICATION version link on SunLearn.

It is crucial that the title of the dissertation .pdf file is in the following format:

Surname_firstwordoftitle_2017.pdf.

The student must also:

1. Submit their relevant journal publications to Publication management section;
2. Submit a 100-word abstract to the 100 words link;
3. Submit a 50-word abstract to the 50 words link; and
4. Submit 6-8 keywords on the dissertation to the 6 - 8 keywords link.

The supervisor will then grade all these actions in order to approve that the dissertation can be uploaded (by Melinda Rust) to the SU database and will be available for viewing under scholar.sun.ac.za. *The student's name will be published in Die Burger approximately one week before the graduation ceremony.*

Admissions Week Exam Proxies

As from 2017's new intake of students (i.e. students who apply in 2016 for 2017), the Department of Industrial Engineering will only consider admitting applicants on the basis of the outcome of the department's admissions week and exam. The department will no longer consider the outcomes of tests such as GRE, GMAT, TOEFL or IELTS.

Should an applicant not be able to attend the admissions week and/or exam (for whatever reason), he/she will not be considered for admission. In such a case, it is recommended that the applicant applies for the following year.

P Details of MEng courses

P.1 Analytics and Synthesis

Course name:	Analytics and Synthesis
Short Description of the Course:	Analytics and Synthesis builds on the undergraduate Operations Research background of the candidate and exposes him/her to new Operational Research tools and techniques not encountered in the undergraduate studies.
Presenter(s):	Prof. Jan van Vuuren
Contact Time:	5 consecutive contact days, with extra two days for assessment
Objectives/Overview:	The objective of the course is to extend the students' knowledge of the Operations Research tools available and its application in solving problems.
Course Content:	• Optimization modelling (linear programming, non-linear programming, metaheuristic modelling); • Applied statistics including probability theory, hypothesis testing, regression, correlation, ANOVA, data reduction and presentation, extrapolation, goodness of t tests, etc.; and • Modelling in stochastic and uncertain environments.
Course Outcomes:	To introduce the student to operations research tools they have not encountered before and to verse them in the application thereof.
Delivery Mechanisms:	Lectures
Assessment Methods:	• Optimisation modelling project assignment; • Applied statistics project assignment; • Modelling in stochastic and uncertain environments project assignment; and • A written examination covering all content covered in the module.

Assessment Criteria Information:	Students should demonstrate a firm grasp of the underlying theory and must be able to solve exercise problems on all topics covered in the module. The students must also show competence in practically applying the techniques to solve problems (from designing the model to solution implementation and interpretation to communication of solution).
Textbook:	none
Notes:	Not available

P.2 Technology Management

Course Name:	Technology Management
Short Description of the Course:	Technology Management focuses on improving the management practises over the technology life cycle to improve the competitive advantage of the firm - and the country.
Presenter(s):	Dr Sara Grobbelaar
Contact Time:	5 consecutive contact days with an extra day for assessment.
Objectives/Overview:	The objective of the course is to create awareness, a certain level of understanding, and some application skills in the management of technology, relevant to the engineering management functions in industry.
Course Content:	1. Technology and competitiveness; 2. Innovation and the technology colony; 3. Concepts of technology; 4. Technology dynamics; 5. Technological capability; 6. Linking technology to business; 7. Technology acquisition management; and 8. Technology exploitation.
Course Outcomes:	1. To understand the evolutionary forces and patterns that lead to the development of technology over time and in societies, the competitive position of South Africa in the broader international context, and what leads to this position. 2. To understand the concept of innovation and the

	very important link between technology and innovation. It is also important to understand government policy in this regard and implementation thereof. 3. To understand the basic definitions of technology and the problems of context, dimension and perspective. 4. To understand the dynamic nature of technology and its reflection in management decision-making, as well as the lateral thinking stimulated by the functional perspective; and to develop some skill in the application of these concepts. 5. To understand the concept of technology as capability and to develop the language and graphical means to record and communicate practical information regarding capability to non-technical senior management; and to apply the same framework to quantify technology gaps that need to be addressed and the ways and means to bridge these gaps. 6. To understand the process of linking technology to the business concept and the value creation process, as well as the relationship between business strategy, business life cycle and product life cycle; and to develop some skill in the application of these concepts. 7. To understand the distinction between internal and external acquisition of technology and, as a logical extension of this insight, the distinction between internal and external technology transfer, as well as to understand the strategic implications of deciding on the alternative for acquiring technology and to create a framework to plan the acquisition process. 8. To understand the nature and content of, and reasons for technology sales to other enterprises; and the strategic implications of technology sales and the possible ways of protecting the value of such technologies have to be appreciated.
Delivery Mechanisms:	Lectures and the SunLearn platform
Assessment Methods:	Individual assignment/report. Written exam.
Assessment Criteria Information:	The student needs to be able to: • Discuss South Africa as technology colony. How can we improve on the situation? Structure a firm's broader technology network.

- Analyse an organisations core technologies by using scurves.
- Design a technology space map to audit an organisations technological capabilities.
- Define parameters that would typically be used to measure technological capability.
- Describe the purpose of a gap analysis.
- See the link between the technological capability audit and technology acquisition.
- Draw a technology balance sheet for an organisation.
- Discuss the product/market mix of an organisation from a strategic point of view.
- Use the s-curve techniques to determine the different technology lifecycles.
- Describe how the technology lifecycles compare with the product lifecycles.
- Discuss possible technology push / market pull strategies for an organisation.
- Develop a product technology roadmap for a new product.
- Evaluate a technology acquisition case in a firm using the Ford decision framework and the capability hierarchy diagram.
- Discuss management of technology acquisition in an organisation.
- Discuss the link between technology audits and technology acquisition.

Textbook:	To be confirmed.
Notes:	De Wet, G. Emerging from the technology colony - A view from the South. Department of Engineering & Technology Management article, University of Pretoria. De Wet, G. Technology Space Maps for Technology Management and Audit. Department of Engineering & Technology Management article, University of Pretoria. De Wet, G. Corporate Strategy and Technology Management: Creating the Interface. Department of Engineering & Technology Management article, University of Pretoria. Huston L. & Sakkab, N. 2006. Connect and Develop in side Procter & Gambles new model for innovation. Harvard Business Review, vol. 84, no, 3, pp58. Iansiti, M. & West, J. 1997. Technology Integration: Turning great research into great products. IEEE Engineering Management Review. Phaal,

R., Farrukh, C. & Probert, D. 2004. Technology roadmapping A planning framework for evolution and revolution. Technological forecasting and social change, vol. 71, no. 1-2, pp. 5-26.

P.3 Management Fundamentals for Engineers

Course Name:	Management Fundamentals for Engineers
Short Description of the Course:	The one week course in Management Fundamentals focusses on two specific areas, financial management and the supply chain. Basic accounting mechanisms and financial statement analysis as well as the integrative nature of decision making within a supply chain will be addressed.
Presenter(s)	Mr Konrad von Leipzig & Mr. Joubert van Eeden
Contact Time:	7 contact days (excluding the weekend), with an extra day for assessment.
Objectives/Overview:	The objective of the course is to create awareness of the importance of the bottom line within an enterprise, to illustrate the role of integrated managerial decision making within an enterprise and highlight the impact these have on the cash flow and efficiency of a supply chain. The financial aspects are structured around three central concepts, namely: 1. An emphasis on intuition the principles are discussed on a common sense or intuitive basis, as participants have very little financial background; 2. A unified valuation approach, where NPV is used as the common denominator, showing the impact particular decisions have on valuation; and 3. A managerial focus, with avoidance of a “black box” approach, but rather an emphasis on an approximate or pragmatic approach to decision making.
Course Content:	The financial statements of a company, specifically income statements and balance sheets are discussed, with particular emphasis on the importance of cash flow. The importance of financial planning for especially small firms and a long term sustainable growth rate is explored. The time value of money and discounted cash flow valuations are done in detail. The SA bond market as well as the JSE is discussed, and ratio analysis along with a Du Pont analysis

	are done to illustrate the complexity of a company's valuation. Project cash flows are covered thoroughly, along with a balanced examination of various project evaluation criteria, such as NPV, IRR, payback and risk. Sources of finance are looked at along with some of the implications of the financial and monetary policy framework in SA. The Supply Chain Management is built around the critical links between the management of enterprises resources within a formal or informal supply chain, and how successful operations directly support the creation of value for the firm's customers, and long-term sustainability for the company and the company's supply chains. The supply chain integration is structured around an on-line simulation which students will play in groups of 4.
Course Outcomes:	At completion of this module the student should be able to: • Understand the role of financial managers as decision makers, requiring managerial input and judgment; • Understand and analyse the basic financial statements of a company, and perform a Du Pont analysis of a company; • Calculate the free cash flow of a firm; • Grasp the net present value (NPV) as the basic concept underlying corporate finance; • Realize that NPV represents the excess of market value over cost; • Discuss the JSE in general, share trading in particular, and apply some of the common share valuing approaches; • Fully understand the complexities of company valuations; • Understand and apply capital budgeting techniques; • Do a financial project analysis and evaluation, including a risk evaluation; • Have a basic understanding on some of the contemporary policies and approaches specific to SA, such as BBBEE; • Understand the role an individual firm plays within a larger supply chain, and how specific frameworks facilitate co-operation between supply chain members; • Discuss business profitability as dependent on the

	firm's ability to generate sales of the goods and services it creates and the control of associated costs operations are expected to control the costs of resources required and manage the processes needed to create value; • Experience how to draft, communicate, implement and evaluate SC strategies & tactics; • Understand the concept of trade-offs between different performance attributes; and • Know and experience how different SC strategies & tactics can have a dramatic influence on a business financial performance.
Delivery Mechanisms:	Participants will be expected to do pre-course reading to familiarize themselves with the theoretical framework(s). Contact periods will be used to further explore the pre-course reading, expand on specific approaches and/or techniques, and illustrate their applicability through the use of exercises and/or case studies. The on-line simulation will be explained, and groups need to discuss their situation and make their decisions after hours, while feedback on the results will be provided by the lecturers.
Assessment Methods:	A short introductory test will be written covering the material from the pre-course reading. Students need to successfully complete the on-line simulation (showing a positive ROI for their company). Students have to prepare a case study based on financial analysis and risk evaluation in the week after the classes. An exam will be written one week after the classes.
Textbook:	Not available
Notes:	Will be disseminated via the SunLearn platform.

P.4 Research Methodology

Course Name:	Research Methodology
Short Description of the Course:	Engineers are disciplined to solve real-world problems with known techniques and methods. However, these known techniques and methods may not be adequate to understand certain problems in a comprehensive manner and develop appropriate solutions. This is the domain of research, and in this module the nature and process of research is explained to enable students to formulate and

	conduct a research effort to find answers to specific problems.
Presenter(s):	Prof Alan Brent
Contact Time:	4 consecutive contact days.
Objectives/Overview:	Research is said to be a blind date with knowledge. A blind date since we do not know the outcome yet, but we have an expectation of success. Research is a process that involves the scientific gathering of data through various methods, to bring forth a truth, previously unknown. Research is meant to provide an objective view of a practical or abstract problem and research should never be undertaken to satisfy personal curiosity only. Research should have application beyond the individual and academic research is meant to increase your understanding of the engineering discipline. For this purpose, research serves to describe, explain and predict. In this module you will ask yourself: 1. What type of researcher am I? Exploring the theoretical foundations of research, its different paradigms and your role as researcher. 2. What type of research do I want to do? Exploring whether your study will inherently be inductive, deductive or abductive. 3. Which research design suits my research question? Exploring the differences between qualitative, quantitative and mixed method designs. 4. How will I present my findings? Exploring data analysis and presentation techniques. 5. How will I convince my study leader of my ability to conduct research? Exploring the requirements for writing a research proposal and article in your specific discipline. This module is presented against the background of the specific research context in Africa and South Africa and also with acknowledgement of the several ethical pitfalls that re- searchers and researchers-in-training should be aware of. In summary, this module introduces students to research methodology. This enables students to become research- orientated and to be in a position to plan research and write research outputs in the form of a proposal and article.
Course Content:	The content of the course is based on the chapters of Welman et al. (2012): 1. The aims of research.

	2. The research topic, project title, and research problem. 3. Literature review. 4. Population and sampling types. 5. Types of quantitative research designs. 6. Validity of conclusions. 7. Data-collecting methods and measuring instruments in quantitative research. 8. Qualitative research designs. 9. Data analysis and interpretation of results. 10. Writing the research proposal. 11. Writing research articles.
Course Outcomes:	At completion of this module the student should be able to: • Formulate a research purpose, research questions, propositions/hypotheses and approach. • Demonstrate through a literature analysis of the research field that the research output will build upon the current body of knowledge. • Decide on (an) appropriate research method(s) to accomplish the research objectives and embed the(se) method(s) in the research proposal. • Participate in peer review processes. • Write a comprehensive research proposal. • Write a concise research article suitable for journal publication.
Delivery Mechanisms:	Lectures and participation in a workshop format. Engagement through the SunLearn online platform. Peer-review writing groups.
Assessment Methods:	Online tests through the SunLearn platform on the chapters of Welman et al. (2012). Peer and lecturer assessment of the research proposal. Peer and lecturer assessment of the research article. The final assessment output is a research article.
Assessment Criteria Information:	Did the student demonstrate sufficient knowledge concerning the science of research? An 80% mark is required for each online test on the chapters of Welman et al. (2012). Are the research proposal and article clear, appropriate, sufficient and in line with the research principles taught? A 60% mark is required for both the proposal and the article.

Textbook:	Welman JC, Kruger F, Mitchell B (2012). Research methodology. 3rd edition, Cape Town: Oxford University Press Southern Africa.
Notes:	Not available

Q SUN policy on academic integrity: the prevention and handling of plagiarism

SU POLICY ON ACADEMIC INTEGRITY: THE PREVENTION AND HANDLING OF PLAGIARISM

Senate: 26 November 2010

1. BACKGROUND

The academic work done at a university means that academics and students are exposed to the ideas, written material and various intellectual and creative products of fellow students and colleagues. The intention of academic work is precisely that the ideas of the lecturer/researcher and student are shaped and honed by these ideas and material of others. At the same time, a process of critical evaluation is required to make new or original inputs or syntheses in order to make it applicable to contemporary international and local questions. Herein lies the particular satisfaction of academic work at university level.

Naturally, the original contribution by a person can only be evaluated if it can be distinguished clearly from the contributions of other people. This is done by way of acknowledged systems of acknowledgement and referencing. By not following these conventions and giving the necessary acknowledgement, the basis of the academic work at a university is undermined. By taking over this work (words, ideas, creations) of other people and passing it off as the writer's own is to commit plagiarism.

The University wishes to ensure that the mechanisms are in place that will enable staff and students to promote academic integrity and eliminate plagiarism. At the same time it is important that the effort to deal with cases that are related to plagiarism are dealt with in a consistent and fair manner. It therefore is essential that the University have a policy in place to intercept these aspects and create a framework within which it is possible to function.

The following policy is thus proposed and has to be read together with the Framework Policy for the assurance and promotion of ethically accountable research at Stellenbosch University, the disciplinary code for students of SU, the disciplinary code for staff of SU, as well as any other University policies and guidelines that may be applicable from time to time.

2. PLAGIARISM: DEFINITION AND BROAD CATEGORIES

2.1 Definition:

Plagiarism is the theft and use of the ideas, material and other intellectual property of others that are passed off as one's own.

The intellectual property contained herein is, among others:

a) *literary works*, which include articles, books, dissertations, theses, newspapers, notes, course material, the assignment of fellow students, e-mail messages, data, computer code, internet sources, and *spoken text*, which includes speeches, cassette recordings, lectures, interviews, etc.
b) *artistic works*, which include images and graphic art, photographs, etc.
c) *multimedia products*, which include websites, video productions, films, CDs, design projects, etc.
d) *musical works*, which include compositions, lyrics, CDs, DVDs, music or sound bites on the internet, etc.

2.2 Categories:

All cases of *plagiarism* amount to a serious offence, which can have dire consequences for the person concerned, including suspension or expulsion (in the case of a student) or dismissal (in the case of a member of staff) from the University, besides possible criminal or civil action.

In terms of the University's handling of cases of plagiarism, the offences are divided into three broad categories:

Category 1: Minor offences that can be regarded as resulting from ignorance, negligence or inaccuracy in working with and acknowledging sources, but that can still be regarded as plagiarism.

Category 2: Less serious cases, in which sources/work/material has/have been handled injudiciously, but that by nature still constitute plagiarism. Category 1 and 2 offences are usually dealt with by the department concerned in the case of students. Repeated category 2 offences can be referred to the Central Disciplinary Committee (CDC) in the case of students, and in the case of staff they will be dealt with in terms of the Disciplinary Code for Staff (refers to less serious cases).

Category 3: Blatant cases, i.e. where the work/material of another person has been taken over and used intentionally and deliberately. In the case of students, such cases will normally be referred to the Central Disciplinary Committee (CDC), and in the case of staff will be dealt with in terms of the to the Disciplinary Code for Staff (refers to serious cases).

3. THE UNIVERSITY'S APPROACH

The University's policy approach is based on a developmental or awareness-creating dimension, particularly in the case of students and with due observance of the University's Policy on Learning and Teaching. This does not mean that the University is lenient in its handling of plagiarism; on the contrary, it creates a basis for the firm, consistent and tenable handling of cases of plagiarism. Through this dimension, the University creates an opportunity for offences relating to plagiarism to be handled in a decentralised manner and for certain cases to be dealt with at the departmental level and for others to be addressed by way of disciplinary processes, as set out in 3.1 and 3.2 of this document.

3.1 ALLEGED OFFENCE(S) BY A MEMBER OF STAFF

(a) The departmental chairperson will only respond to written complaints that plagiarism has allegedly been committed, together with the necessary documentary evidence. Such complaint may be made anonymously.

(b) In cases where it is suspected that a member of staff has committed plagiarism, the case will be facilitated by the chairperson of the department. If the member of staff who pointed out the plagiarism is also the departmental chairperson, another member of staff in the department concerned has to be involved in the process.

(c) The departmental chairperson will make enquiries at the Legal Services Division to determine whether any previous offence with regard to plagiarism has been reported. This information is taken into account in the further handling of the case.

(d) Action against a member of staff is subject to the provisions of the Disciplinary Code for Staff. A first offence, if of a less serious nature, is handled by the dean of the faculty. All complaints of alleged serious (second or further) offences by a member of staff will be dealt with in terms of the provisions for serious offences in the Disciplinary Code for Staff.

3.2 ALLEGED OFFENCE(S) BY STUDENTS

(a) Where it is suspected that a student has committed a form of plagiarism, the matter will be handled further by the chairperson of the department and the lecturer concerned. If the lecturer who pointed out the plagiarism is also the departmental chairperson, another lecture in the department concerned should be involved in the process.

(b) The student shall be informed in writing that he/she has allegedly committed an offence and that, in terms of the rules of the University, the case can at the sole discretion of the student directly be referred to the CDC, that the process before the CDC is formal and that, among others, the student has "a right to legal representation" (in terms of the Disciplinary Code for Students). The student's attention should also be drawn to the possible sanctions that can be imposed by the CDC.

(c) The departmental chairperson will make enquiries at the Legal Services Division to determine whether any previous offence with regard to plagiarism by the student concerned has been

reported. This information is taken into account in the further handling of the case. (See (d) and (e) below).

(d) **In the case of a Category 1 or 2 offence:**

i. Category 1 cases are handled in the department and repeated cases of Category 2 are referred to the Central Disciplinary Committee for students (CDC).

ii. A first Category 2 offence can be dealt with at the departmental level. However, the student has to make an informed decision on the possibility of the case being handled internally, in which case there can be specific sanctions (e.g. that a mark of nil is allocated, that the assignment has to be redone, etc.). In the case of action at the departmental level, the student's "right to legal representation" falls away, as does the right to have a process conducted before the CDC. The decision taken by the student must be put in writing, on the prescribed form that can be obtained from the Legal Services Division.

iii. The minimum sanction by a department is a verbal warning.

(e) **In the case of a Category 3 offence:**

i. Die departmental chairperson must refer to case to the Manager: Student Discipline, who will handle the case in terms of the CDC protocol.

ii. The decision of the Central Disciplinary Committee (CDC) on action against the student is put in writing.

iii. The Legal Services Division is informed of the case in writing on the prescribed form that can be obtained from Legal Services.

3.3 RECORD KEEPING IN ORDER TO ENSURE THE CONSISTENT HANDLING OF PLAGIARISM

3.3.1 Departmental chairpersons must report all cases of alleged plagiarism to the Legal Services Division. This is also done for cases where the person concerned was found not guilty, for the record.

3.3.2 The following information should accompany all reports:

i. Plagiarism: Departmental handling (form as prescribed in Addendum 2)

ii. Written complaint that was submitted

iii. Alleged documentary evidence that was submitted

iv. Names of people who were involved in the investigation/hearing

v. Proof that the alleged offender, in the case of students, exercised his/her choice regarding whether or not the case should be referred directly to the CDC.

vi. Verdict, with the sanction, where applicable.

vii. Proof that the alleged offender has been informed of the decision.

3.3.3 The Legal Services Division must standardise all cases on an annual basis – the reason being to ensure consistent action at the institutional level and to determine a median punishment. In

cases where it is clear that a particular department is imposing penalties beyond the median, the department concerned should be informed accordingly and be provided with a copy of the latest guidelines.

3.3.4 Appeals are dealt with according to the existing protocols and procedures.

3.3.5 All cases should be dealt with in the strictest confidence.

4 IMPLEMENTATION

4.1 It is the responsibility of departments to ensure that all students and staff are aware of the policy and to make sure that the processes contained therein are implemented consistently.

4.2 It is compulsory for all students to sign the Plagiarism Declaration (as attached in Addendum 1) and to attach it to any relevant study assignments, as prescribed by the department concerned. Furthermore, it is essential that members of staff are aware that they are also subject to this declaration as employees of the University.

4.3 The University has a development instrument (Turnitin software) that is available for students to check their documents as part of the learning process. Lecturers are also encouraged to make use of it. The Centre for Teaching and Learning can assist you with training where required. The University's Library and Information Service also provides information literacy sessions that address plagiarism.

4.4 In the case where a thesis/dissertation/mini-dissertation is examined for plagiarism, the item must be withdrawn from SUNScholar for the duration of the investigation, as should any other online forms of the document (e.g. on departmental websites). If no form of plagiarism can be found, the document may once again be made available.

4.5 Departments should endeavour to ensure the greatest possible measure of consistency in the implementation of the policy with regard to the handling of plagiarism, in order to ensure fairness for all staff and students.

4.6 This policy takes preference over all other arrangements that faculties and departments might make with regard to dealing with plagiarism, and the necessary adjustments should be made to such faculty and departmental arrangements to ensure that they are in line with this policy.

4.7 The responsibility for supporting those involved in dealing with plagiarism is assigned to the Division for Research Development, which support will take place in consultation with other appropriate support service divisions, such as the Legal Services Division and the SU Library and Information Service.

4.8 The Legal Services Division keeps a record of all instances of plagiarism that are reported by the department concerned or by the relevant disciplinary committees.

R Full-time studies: Research agreement

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IE Postgraduate Research Contract: Obligations with regards to full-time studies

Student			
Student number			
Study leader			
Degree enroled for		☐ MEng	☐ PhD
Research Group			
Starting date of research study			
Validity period of this agreement	**01/02/2016**	**to**	**01/12/2017 (or upon satisfactory completion of all of the requirements of the MEng degree)**

This agreement sets out the mutual obligations of the student towards the Department of Industrial Engineering at Stellenbosch University (the Department) and of the Department towards the student.

1. **The Department (as represented by the study leader) undertakes (where applicable) to:**
   - 1.1 supervise the student's work formally on an agreed-upon basis;
   - 1.2 allow the student reasonable access to all facilities necessary for the completion of the project;
   - 1.3 liaise with the student's main project sponsors and industrial contacts; and
   - 1.4 make all reasonable efforts to enable the student to fulfil his/her contractual obligations towards the Department and towards outside sponsors.

2. **Validity and extent of this agreement:**
   - 2.1 In the case of MEng studies, this agreement is concluded for the duration of the MEng studies, a period normally not exceeding 24 months, starting on the first day of the validity period of this agreement. This agreement is terminated when the student obtains the MEng degree.
   - 2.2 In the case of PhD studies, this agreement is concluded for the duration of the PhD studies, a period normally not exceeding 36 months, starting on the first day of the validity period of this agreement. This agreement is terminated when the student obtains the PhD degree.
   - 2.3 If a student receives bursaries or scholarships other than those listed in Section 3 of this agreement, these bursaries or scholarships are not subject to the terms set out in this agreement.

3. **Other agreements between the study leader and the student:**

(This section of the agreement is unique for each study leader and each student, tick the clauses that are applicable and complete the details of these clauses.)

3.1 Bursaries: The Department undertakes to pay to the student a study bursary, as agreed upon between the student and study leader:

☐ **Anglo bursary** Total amount: R_____

Year 1, Semester 1 instalment:	R_____	Year 1, Semester 2 instalment:	R_____
Year 2, Semester 1 instalment:	R_____	Year 2, Semester 2 instalment:	R_____
Year 3, Semester 1 instalment:	R_____	Year 3, Semester 2 instalment:	R_____

(Year 3 payments are only applicable to PhD studies.)

First semester payments take place in March, second semester in August.

☐ **Research allocation bursary** Total amount: R_____

Year 1, Semester 1 instalment:	R_____	Year 1, Semester 2 instalment:	R_____
Year 2, Semester 1 instalment:	R_____	Year 2, Semester 2 instalment:	R_____
Year 3, Semester 1 instalment:	R_____	Year 3, Semester 2 instalment:	R_____

(Year 3 payments are only applicable to PhD studies.)

First semester payments take place in March, second semester in August.

☐ _____ **bursary** Total amount: R_____

Year 1, Semester 1 instalment:	R_____	Year 1, Semester 2 instalment:	R_____
Year 2, Semester 1 instalment:	R_____	Year 2, Semester 2 instalment:	R_____
Year 3, Semester 1 instalment:	R_____	Year 3, Semester 2 instalment:	R_____

(Year 3 payments are only applicable to PhD studies.)

First semester payments take place in March, second semester in August.

3.2 Articles: The Department undertakes to pay to the student the following incentives for article(s), as agreed upon between the student and the study leader:

☐ **Article submission incentive**:

If a journal article has been submitted to an accredited journal, and the study leader has signed off on the submission on or before 1 December of Year 2, an incentive payment will be made. The following incentives apply:

- Local accredited journal: R_____
- International accredited journal: R_____
- ISI accredited journal: R_____
- DHET accredited journal: R_____

This amount must be approved by the supervisor and the payment of this amount will be based solely on his/her discretion. This incentive is available for a maximum of ____ articles.

☐ **Article acceptance incentive**:

If a journal article has been submitted to an accredited journal on or before 1 December of Year 2, and is ultimately accepted by that journal, an incentive payment will be made. The following incentives apply:

- Local accredited journal: R_____
- International accredited journal: R_____
- ISI accredited journal: R_____
- DHET accredited journal: R_____

This amount must be approved by the supervisor and the payment of this amount will be based solely on his/her discretion. This incentive is available for a maximum of ____ articles.

3.3 Other incentives: The Department undertakes to pay to the student the following incentives for specific agreements between the student and the study leader:

☐ **Early graduation incentive:**

If the thesis is approved for examination and submitted for examination on or before 1 September of Year 2, and the student proceeds to graduate in December of Year 2, an early graduation incentive of R_____ will be paid to the student. This amount must be approved by the supervisor and the payment of this amount will be based solely on his/her discretion.

☐ _____

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☐ _____

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4. **Progress reports:**

4.1 MEng students are required to submit a total of three progress reports during their studies, whilst PhD students are required to submit a total of five progress reports.

The first report is due on 20 July of Year 1, the second report is due on 20 February of Year 2, the third report is due on 20 July of Year 2, the fourth and fifth reports (only applicable to PhD students) are due on 20 February of Year 3 and 20 July of Year 3;

4.2 These reports must be written by the student and signed off by their study leader before being submitted to the Postgraduate Administrator by the deadlines given in 4.1;

4.3 The required contents of these reports are described in Appendix A;

4.4 The progress reports are reviewed by the Postgraduate Co-ordinator before the list of students approved for bursary payments are released to the Departmental Officer;

4.5 **No bursary payments are made unless the progress report has been approved by both the study leader and the Postgraduate Co-ordinator.**

5. **The student (undersigned) undertakes to:**

5.1 **register as a full-time student for the programme MEng (Research) or PhD** (as indicated on page one of this document) **and thereby commits to at least 1800 hours to undertake the MEng or 3600 hours to undertake the PhD in the Department;**

5.2 **not engage in full-time employment elsewhere unless agreed to by the study leader in the Department;**

5.3 **be at the Department as agreed to by the study leader;**

5.4 agree with the Department on a research proposal detailing the title, background, rationale, preliminary literature study, objectives, methodology, outline and timetable;

5.5 submit a thesis to the University for examination to be awarded either and MEng degree no later than two years after these studies were begun, or a PhD no later than three years after these studies were begun, with a work content of at least **1 800 hours for the MEng or 3600 hours for the PhD;**

5.6 adhere to all the normal University and Departmental rules and regulations over and above those referred to in this contract;

5.7 adhere to the code of conduct included in Appendix B;

5.8 **pay back any funds received from and costs incurred by the Department at the prime interest rate calculated on the daily outstanding balance, within two years of breach of contract. The student must request in writing from the Department the details of the bank account to which the funds are to be paid back and must pay the funds into such bank account;**

5.9 serve in the Department during his/her postgraduate studies, in accordance with the mentor/tutor/assistant programme as run by the Department as part of the Faculty of Engineering (this is not required of PhD students); and

5.10 receive no moneys from any industrial or research partner of the Department for the duration of this contract, unless the receipt of each and every amount received from said partner is agreed to in writing by the Department.

Signed on this date _____, at Department of Industrial Engineering, Stellenbosch.

STUDENT	*FOR DEPT INDUSTRIAL ENGINEERING (COMPANY STAMP)*
SUPERVISOR *DEPT INDUSTRIAL ENGINEERING*	*CO-SUPERVISOR* *DEPT INDUSTRIAL ENGINEERING*

APPENDIX A

CONTENTS OF POSTGRADUATE PROGRESS REPORT

The progress report should be a **one to two page document** describing the path from the date of the progress report to the planned graduation date. The document must include at least the following:

- A list of subject(s) completed (if applicable) to date and the mark(s) scored for every subject;
- A list of subject(s) that will still be taken and their planned date(s);
- A description of the progress made with the thesis including the thesis title, level of completeness of the literature study, experiments that have been completed, data that has been collected, etc. Also, very importantly, the anticipated hand-in date of the thesis must be indicated.
- An indication of any obstacles that may be preventing progress with the degree;
- A description of what the Department can do to assist with overcoming these obstacles;
- Any specific arrangements that have been made with the Department with regards to subject exchanges, research visits, etc.
- The document must contain a specific heading called "**Deviations**". All deviations from the previous progress report (where applicable) must be clearly described. Include the reason for each deviation as well as a description on how the deviation will be overcome.

The document above has to be **signed and dated by both the student and the study leader(s).** This document is placed on record and is used to evaluate future progress reports. Should there be insufficient progress or should there be significant unexplained deviations in the game plan, the student may be called in for an interview with the postgraduate committee to discuss their future with the Department.

APPENDIX B

CODE OF CONDUCT FOR THE RELATIONSHIP BETWEEN SUPERVISOR AND RESEARCH-BASED POSTGRADUATE STUDENT

The following set of guidelines is proposed as a code of conduct for ensuring that the nature of the relationship between the supervisor and the research-based postgraduate student is conducive to successful postgraduate studies at Stellenbosch University (SU):

1 The candidate (with the necessary input from the supervisor) undertakes to remain up to date with regard to the infrastructure and related rules of the specific department.

2 SU undertakes not to select a student for a specific project unless the faculty concerned gives prior written confirmation that the project can be undertaken. Responsibility with regard to the required funding and applicable infrastructure will be indicated specifically.

3 The candidate, with the help of the supervisor, will acquaint him-/herself with the guidelines for keeping a record of research according to what is generally acceptable within the relevant discipline.

4 The candidate confirms that he/she has the necessary computer skills to complete the project satisfactorily.

5 The necessary preparatory study, as required by SU, should be completed within an agreed period of time.

6 A work programme must be compiled for the candidate, in collaboration with the supervisor, within a reasonable period of time (usually not exceeding 60 days) after the start of the project. The programme must indicate target dates, for example those for the submission of a project protocol, the completion of a literature survey, the completion of specific chapters and the submission of progress reports. Times of absence (study leave, university vacations, etc.) must also be noted.

7 Appointments between the candidate and the supervisor must be arranged to take place at regular and predetermined times throughout the academic year.

8 The supervisor must give the departmental chairperson/postgraduate coordinator/dean annual written feedback regarding the progress of studies.

9 The supervisor must comment on and return all submitted work to the candidate within a reasonable time, not exceeding 60 days for a full thesis.

10 When the project nears completion, the candidate must make the necessary submissions according to the specific requirements for graduation within the discipline concerned. (Special attention must be paid to SU's Calendar, as set out in the *General Prospectus Part 1*, to ensure that there is sufficient time for the rounding off and examining of the thesis/dissertation, bearing in mind the scheduling of the various graduation ceremonies in December and April of each year.)

11 The candidate undertakes to deliver the relevant outputs (e.g. publications, patents and academic papers) as discussed with the supervisor. The candidate must acquaint him-/herself with the conventions regarding authorship that are relevant to the specific discipline.

12 Where applicable, the candidate and supervisor must acquaint themselves with the regulations applicable to intellectual property within the relevant environment.

THE SUPERVISOR'S RESPONSIBILITIES

The supervisor has the responsibility to:

- be acquainted with procedures and regulations;
- establish a stimulating research environment;
- establish a relationship between supervisor and student;
- advise on the choice of project and planning;
- discuss issues related to intellectual property and publishing;
- ensure that the appropriate facilities are available;
- provide training in research;
- consult with the student, monitor progress continuously and provide structured feedback;
- remain aware of the student's situation and needs; and
- arrange for guidance during periods of absence.

THE STUDENT'S RESPONSIBILITIES

The student has the responsibility to:

- be familiar with SU regulations regarding postgraduate studies, and adhere to such regulations;
- undertake research with commitment;
- develop initiative and independence;
- keep thorough records of all research findings;
- establish a relationship with the supervisor;
- obtain feedback by means of reports and seminars, and apply such feedback;
- undertake a literature survey and remain aware of new, relevant information;
- benefit from the research environment;
- inform the supervisor of non-academic problems;
- prepare and write the thesis/dissertation; and
- prepare and write publications, patents and reports.

S Global course schedule

Admissions Week	28 Nov – 1 Dec 2016
Admissions Exam	2 Dec 2016
Registration	until 20 Jan 2017 (new registrations) until 31 Mar 2017 (continuning students who have no outstanding modules)

Module dates

Analytics and Synthesis	23 -27 Jan 2017; 9-10 Feb 2017 (exam)
Technology Management	20-24 Feb 2017
Management Fundamentals for Engineers	6-14 Mar 2017; 24 Mar 2017 (exam)
Research Methodology	27-30 Mar 2017

Research agreement due on Sunlearn 1 February 2017

Interruption/discontinuation of studies due 30 April 2017

Progress report due (every year of study) 31 July 2017

Masters Thesis due dates

December 2017 graduation	1 September 2017
March 2018 graduation	23 November 2017

PhD Dissertation due dates

December 2017 graduation	1 August 2017
March 2018 graduation	23 October 2017