

**UNIVERSITY OF PRETORIA**  
**FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY**

**1. BIOGRAPHICAL SKETCH**

**1.1 GENERAL INFORMATION**

<b>Surname</b>	Meeser				<b>Maiden name</b>	-				
<b>First names</b>	Riaan Frederick				<b>ID Number</b>					
<b>Citizenship</b>	South African				<b>Title</b>	Mr	<b>Female</b>		<b>Male</b>	x
<b>Place of birth</b>	Pretoria				<b>Date of birth</b>	13 August 1985				
<b>Population group</b>	African		Coloured		Indian		White	x	<b>Other (Please specify)</b>	
<b>Marital status</b>	Married				<b>Direct Telefax No.</b>					
<b>Direct Telephone</b>	012 420 2194				<b>E-mail</b>	Riaan.meeser@up.ac.za				
<b>Residential address</b>					<b>Postal address</b>					

**1.2 LANGUAGE PROFICIENCY**

Afrikaans (read, write, speak)  
 English (read, write, speak)

**1.3 HIGHEST SCHOOL QUALIFICATION**

<b>INSTITUTION</b>	<b>SUBJECTS</b>	<b>DISTINCTIONS</b>
Hoërskool Zwartkop	Afrikaans English Mathematics Science Technical drawing Technical electrical	  x  x x

<b>1.4 ACADEMIC QUALIFICATIONS OBTAINED</b>					
Degree/ Diploma	Field of study	Higher education institution	Period	Year of graduation	Distinction
B.Eng	Mechanical	University of Pretoria	2004-2007	2007	
B.Eng (Hons)	Mechanical	University of Pretoria	2008	2008	
M.Eng	Mechanical	University of Pretoria	2012-2014	2015	Yes

<b>1.5 WORK EXPERIENCE TO DATE</b>		
Name of employer	Capacity and/or type of work	Period
University of Pretoria	Junior lecturer (part time)	01/2008-12/2008
University of Pretoria	Junior lecturer (part time)	01/2009-06/2009
University of Pretoria	Lecturer (Full time)	01/2010-present

## 2. TEACHING AND LECTURING DUTIES

<b>2.1 Courses/modules presented: UNDERGRADUATE</b>					
Course	Level (second year, etc.)	Academic Institution	Degree/ Diploma	Compilation of study guides (Yes or No)	Curriculum design (Yes or No)
MGC110 (13 times)	1	UP	B.Eng	Yes	Yes
MOW227 (5 times)	2	UP	B.eng	Yes	Yes
MVS311 (4 times)	3	UP	B.Eng	Yes	No
Mow122 (1 time)	1	UP	B.Eng	No	No
MOX410 (12 times)	4	UP	B.Eng	No	No
MSC/MRN412 (12 times)	4	UP	B.Eng	No	No
MSC/MRN422 (12 times)	4	UP	B.Eng	No	No
MPY 315 (5 times)	2	UP	B.Eng	No	No
MPY415 (5 times)	3	UP	B.Eng	No	No

<b>2.2 Courses/modules presented: POSTGRADUATE</b>					
Course	Level	Academic Institution	Degree/ Diploma	Compilation of study guides (Yes or No)	Curriculum design (Yes or No)
-	-	-	-	-	-

<b>2.3 Educational courses attended</b>
TLC_2009 (Training Teaching and Learning) Occupational health and safety (OHS representative course) Click Up (overview) First Aid responder level 1+2

## 2.4 Lecturer evaluation by students

Year:	MGC 110 (/5)	MOW 227 (/5)	MVS311 (/5)
2011	3.8	-	-
2012	3.8	3.7	-
2013	4.1	4.2	-
2014	4	4.3	-
2015	4	4.1	-
2016	4.0	4.4	-
2017	3.7	-	4.6
2018	4.1	-	4.3
2019	4.4	-	4.3
2020	N/A	-	N/A

## 3. RESEARCH

RESEARCH FIELD	SPECIALITY
Design Energy cycle optimization	Vehicles (for example: braking systems, aspiration, Valve timing, variable compression etc.)  Power transfer: clutches and clutch geometries  MR-fluid under compression, MR fluid dampers  Mechatronics  Hybrid vehicles Route identification underground Real-time GCM estimation Electric vehicle optimization

### 3.1 RESEARCH DUTIES

3.1.1 Former supervision or co-supervision (completed)				
Name of student	Degree/Title of dissertation/ thesis	Date	Supervisor/ Co-supervisor(s)	Duration of studies (years)
CJ Ryan	Study the effect of varying brake disk profiles	2010	Supervisor	1
RJ Dubber	Study the effect of MR fluid under compression	2010	Supervisor	1
MS Mahlangu	Study the effect of MR fluid under compression	2010	Supervisor	1
JHS Terblanche	Investigation into variable compression ratio implemented on an internal combustion engine	2010	Supervisor	1
GJ Giliomee	Control system for prevention of mobile crane tipping	2010	Supervisor	1
M de Wit	Pressurized dry ice storage container	2011	Supervisor	1
AK Chauke	Increasing MR fluid yield strength by imposing externally applied compression	2011	Supervisor	1
WA Christie	Feasibility study of using a vehicle's air conditioner system to cool down the charge air from a turbo	2011	Supervisor	1

GCJ de Bruyn	Determining optimal MR fluid film thickness for shear application	2011	Supervisor	1
FJ Potgieter	Research the ability of a laser displacement meter to be used in a 3d object scanner	2011	Supervisor	1
D van Greanen	Study into the feasibility of using a solenoid to actuate the valve of an internal combustion engine	2011	Supervisor	1
P Natorp	Study into the feasibility of using a solenoid to actuate the valve of an internal combustion engine	2011	Supervisor	1
BJ Zeeman	The design and testing of an insulated, pressurized dry ice storage container	2011	Supervisor	1
I Smith	The design and testing of an insulated, pressurized dry ice storage container	2011	Supervisor	1
N Steenekamp	Design and testing of an anti-lag system using an external combustor	2011	Supervisor	1
J Prinsloo	Design and testing of an anti-lag system using the bang-bang method	2011	Supervisor	1
NE Trollip	Gyroscopic stabilizer for a hunting rifle using an inertial method	2012	Supervisor	1
HF Pistorius	Gyroscopic stabilizer for hunting rifle using an actuator-gyro method	2012	Supervisor	1
MW Liebenberg	Computerized control of a conventional milling machine	2012	Supervisor	1
M Jeske	Design and testing of a planetary traction drive	2012	Supervisor	1
M Griffiths	Solar air compressor	2012	Supervisor	1
E Woods	Autonomous shooting paintball gun	2012	Supervisor	1
T Venter	Converting a manual lathe to a CNC lathe	2012	Supervisor	1
DR Cox	Investigating the influence in torque transfer by varying the profile of a clutch	2013	Supervisor	1
W van Rooyen	Investigating the influence in torque transfer by varying the profile of a clutch	2013	Supervisor	1
M Erasmus	Investigating the influence in torque transfer by varying the profile of a clutch	2013	Supervisor	1
LP Marais	Investigating the influence in torque transfer by varying the profile of a clutch	2013	Supervisor	1
ND Moodley	Investigating the influence in torque transfer by varying the profile of a clutch	2013	Supervisor	1
SC Kaiser	Evaluation of a traverse mechanism for UPLSWT	2013	Supervisor	1
JD Berry	Design and testing of a MR fluid damper for use in motorcycle steering	2013	Supervisor	1
CL van der Merwe	Robotic finger with human control	2014	Supervisor	0.5
DR Antoniadis	Robotic finger with human control	2014	Supervisor	1
L Campodonico	Robotic finger with human control	2014	Supervisor	1
CV Dennis	Binocular stabilizer using linear solenoids	2014	Supervisor	1
G Bufè	Binocular stabilizer using linear solenoids	2014	Supervisor	1
F van der Merwe	Image tracking system	2014	Supervisor	1
EC Keeve	Rifle stabilizer using linear solenoids	2014	Supervisor	1
K Buckley	Magneto-rheological rifle damper	2015	Supervisor	1
M Davis	Rifle stabilizer using linear solenoids	2015	Supervisor	1
B Herholdt	Converting a manual milling machine to CNC	2015	Supervisor	1
R Lopes	Converting a manual milling machine to CNC	2015	Supervisor	1
J de Wet	Paintball sentry gun	2015	Supervisor	1
D Szoke	Paintball sentry gun	2015	Supervisor	0.5
J du Plessis	Paintball sentry gun	2015	Supervisor	1
M Ortmann	Characterizing prop-shaft vibrations	2016	Supervisor	1
MAG Ferreira	Intake temp. isolation for increasing IC efficiency	2016	Supervisor	1
C Edwards	Intake temp. isolation for increasing IC efficiency	2016	Supervisor	1
V John	Deriving a topographic map from traction data	2016	Supervisor	1

WAF du Plessis	Deriving a topographic map from traction data	2016	Supervisor	1
L Jordaan v. Zyl	Deriving a topographic map from traction data	2016	Supervisor	1
S Mosala	Deriving a topographic map from traction data	2016	Supervisor	1
T Govender	Eddy current clutch device	2016	Supervisor	1
S Sadler	Eddy current clutch device	2016	Supervisor	1
L van der Merwe	Eddy current clutch device	2016	Supervisor	1
D van Niekerk	Eddy current clutch device	2016	Supervisor	1
JL Kampman	Eddy current clutch device	2016	Supervisor	1
D Bilankulu	Investigating the usability of low cost sensors	2017	Supervisor	0.5
WG Vos	Investigating the usability of low cost sensors	2017	Supervisor	1
DD Brown	Investigating the usability of low cost sensors	2017	Supervisor	1
IJ Jones	Investigating the usability of low cost sensors	2017	Supervisor	1
C Pienaar	Clay pigeon tracking and feedback to shooter	2017	Supervisor	0.5
P Robbertse	Clay pigeon tracking and feedback to shooter	2017	Supervisor	1
VV Holtzhauzen	Clay pigeon tracking and feedback to shooter	2017	Supervisor	1
CJ Coetzer	Clay pigeon tracking and feedback to shooter	2017	Supervisor	1
A Dollar	Binocular stabilizer using linear solenoids	2017	Supervisor	1
I Eitoukhy	Binocular stabilizer using linear solenoids	2017	Supervisor	1
JM Karp	Binocular stabilizer using linear solenoids	2017	Supervisor	1
S Lamminga	Binocular stabilizer using linear solenoids	2017	Supervisor	1
C Venter	Binocular stabilizer using linear solenoids	2017	Supervisor	1
D Klynsmith	Binocular stabilizer using linear solenoids	2017	Supervisor	1
J Bezuidenhout	Researching internal combustion engine modelling	2018	Supervisor	1
GJ Coetzee	Researching internal combustion engine modelling	2018	Supervisor	1
B de Kock	Researching internal combustion engine modelling	2018	Supervisor	1
DS Mitchell	Researching internal combustion engine modelling	2018	Supervisor	1
JM Spies	Researching internal combustion engine modelling	2018	Supervisor	1
S Leask	Two-plane electromagnetic actuator design+char.	2018	Supervisor	1
L Moja	Two-plane electromagnetic actuator design+char.	2018	Supervisor	1
AB Asharaph	Model rocket active stabilizer	2018	Supervisor	1
LC le Roux	Model rocket active stabilizer	2018	Supervisor	1
DvZ Steyn	Model rocket active stabilizer	2018	Supervisor	1
RT Bekker	AREND VTOL	2018	Supervisor	1
SJ Scholtz	AREND VTOL	2018	Supervisor	1
PL Fritz	Wheelchair frame improvement fatigue analysis	2018	Supervisor	1
B Harrison	Real-time vehicle payload measurement	2019	Supervisor	1
W Jackson	Estimating maximum turbocharger output	2019	Supervisor	0.5
T Molapo	Two-plane electromagnetic actuator	2019	Supervisor	0.5
A Bornmann	Automated paintball sentry gun	2019	Supervisor	1
C Botes	Automated paintball sentry gun	2019	Supervisor	1
I Ackermann	Automated paintball sentry gun	2019	Supervisor	1
H Chen	Automated paintball sentry gun	2019	Supervisor	1
MR Corin	Automated paintball sentry gun	2019	Supervisor	1
BS Ainsworth	Automated paintball sentry gun	2019	Supervisor	1
MC de Beer	SI engine knock reduction using water injection	2019	Supervisor	1
G Linde	Active model rocket stabilizer	2019	Supervisor	1
J Oates	VW Polo cup cooling optimization	2019	Supervisor	1
D Oates	VW Polo cup cooling optimization	2019	Supervisor	1
T Mosoeu	Real-time payload measurement	2020	Supervisor	0.5
A Gupta	Aircon power chiller series with intercooler	2020	Supervisor	1
C Potgieter	Aircon power chiller series with intercooler	2020	Supervisor	1
MO Tawildar	Aircon power chiller series with intercooler	2020	Supervisor	1
K Stratford	Aircon power chiller series with intercooler	2020	Supervisor	1
J Buys	Aircon power chiller series with intercooler	2020	Supervisor	1
H Vrey	Zig-zag clutch profile	2020	Supervisor	0.5
O Van der Merwe	Zig-zag clutch profile	2020	Supervisor	1

C Schneider	Zig-zag clutch profile	2020	Supervisor	1
MJ Mouton	Two-plane electromagnetic actuator	2020	Supervisor	1
N Whitehead	Two-plane electromagnetic actuator	2020	Supervisor	1
D de Villiers	Variable stiffness pneumatic actuator	2020	Supervisor	1
JA Smith	Rifle recoil damper	2020	Supervisor	0.5
R Basson	Rifle recoil damper	2020	Supervisor	1
D Dickson	Rifle recoil damper	2020	Supervisor	1
L Da Silva	Rifle recoil damper	2020	Supervisor	1
U van Gruting	Rifle recoil damper	2020	Supervisor	1

### 3.1.2 Current postgraduate students

Name of student	Degree enrolled for and date of first registration	Project title	Supervisor	Co-supervisor(s)	Year of registration
-	-	-	-	-	-

### 3.1.3 Obtaining research funds

Origin of research funds (e.g. contract research, THRIP, international funding organisations, other(s))	Title of research project or programme	Duration	Money allocated (R)
-	-	-	-

## 3.2 RESEARCH OUTPUT

### 3.2.1 Publications in refereed accredited journals

- 1 Meeser RF, Kaul S, Els PS; Investigation into the flow blocking ability of a novel magneto-rheological damper unit. American Society for Testing and Materials, Journal of Testing and Evaluation, Issue 5, Volume 45, September 2017. pp. 1601-1608, <https://doi.org/10.1520/JTE20160053>. ISSN 0090-3973

### 3.2.2 Papers *accepted* for publication in refereed accredited journals

### 3.2.3 Papers *submitted* for publication in refereed accredited journals

### 3.2.4 Papers *presented and published* in national conference proceedings

### 3.2.5 Papers *presented and published* in international conference proceedings

1. Meeser RF, Els PS, Kaul S; Magneto-Rheological (MR) Damper Design for High-Flowrate Suspensions, ASME 2013 International Mechanical Engineering Congress and Exposition, Volume 4B: Dynamics, Vibration and Control, ISBN: 978-0-7918-5625-3, Presented by Kaul S, San Diego, California, USA, pp. V04BT04A054, November 15–21, 2013

**3.2.6 Papers presented and published in refereed accredited conference proceedings**

**3.2.7 Conference papers presented (but not published)**

**3.2.8 Published reports**

**3.2.9 Technical reports**

**3.2.10 Books / Textbooks**

1. Meeser RF, Smith L; MGC 110: Graphical communication (For Mechanical and Industrial Engineers only), Wize Books Distribution (Pty) Ltd, ISBN 9781868714063, 2015
2. Meeser RF, Smith L; MGC 110: Graphical communication (Not For Mechanical and Industrial Engineers), Groover Wiley Custom, ISBN 9781119922001, 2015

**3.2.11 Chapters in books**

**3.2.12 Registered patents**

**3.2.13 Patents – pending**

**3.2.14 Multimedia material**

## **4 OTHER SCHOLARLY RESEARCH-BASED CONTRIBUTIONS**

**4.1 Participation in conferences, workshops and short courses - specify type of contribution:**

4.1.1 National

4.1.2 International

**4.2 Teamwork and collaboration with others (please specify):**

Other researchers (national and international)  
Other research institutions (national and international)  
Industry

**4.3 Membership of national and international bodies**

List all the scientific associations or societies to which you belong. Name your involvement, e.g. honorary member, founder member, full member, chairperson, president, secretary, and dates of such involvement.

**4.4 Visits to local and overseas universities or research institutes as guest professor or researcher**

## **5. MANAGEMENT AND ADMINISTRATIVE DUTIES (LEADERSHIP)**

**List your involvement in departmental activities (e.g. administrative functions), faculty (e.g. faculty committees) or other university activities**

Member of marketing committee  
Final year class representative

## **6. COMMUNITY SERVICE OR PROFESSIONAL SKILLS**

**6.1 Professional activities**  
(List project titles, institutions and communities involved, etc.)

**6.2 Professional service performed**  
(List the courses you presented, lectures at professional associations/clubs, radio or TV appearances, external expert or appointment committee, etc.)

**6.3 Professional societies**

**6.4 Involvement with other universities/scientific institutions**  
(e.g. external examiner, editor of journal, advisory council, CSIR, SA Council for Scientific Professions)

**6.5 Refereeing duties**  
(e.g. journals, dissertations/theses)

**6.6 Evaluation status as scientist**  
(e.g. NRF; first evaluation and date, subsequent evaluations and dates)

**6.7 Professional registration (e.g. Pr Eng)**