

**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
2021	4.37		4.22

## 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)
	<b>The following is a list of the MRN420 final year projects that I have supervised:</b>			
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 Antoniades	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
C Warrens	Eddy current clutch	2021	Supervisor	1
D Schneider	Eddy current clutch	2021	Supervisor	1
M Reditis	Eddy current clutch	2021	Supervisor	1
ME Mnguni	Eddy current clutch	2021	Supervisor	1
SW Mncwango	Eddy current clutch	2021	Supervisor	1
NK McIntyre	ICE power comparison between petrol & LPG	2021	Supervisor	1
SW lindecke	ICE power comparison between petrol & LPG	2021	Supervisor	1
J Agnew	ICE power comparison between petrol & LPG	2021	Supervisor	1
W Briers	ICE power comparison between petrol & LPG	2021	Supervisor	0.5
SW Liversage	Firearm suppressor design & testing	2021	Supervisor	0.5
G Annandale	Firearm suppressor design & testing	2021	Supervisor	0.5
A Wessels	Firearm suppressor design & testing	2021	Supervisor	1
F Toua	Low profile vehicle load cell	2021	Supervisor	1
W Grove	Inertial display unit for experimental aviation	2021	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

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<b>3.2.2 Papers <i>accepted</i> for publication in refereed accredited journals</b>
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<b>3.2.3 Papers <i>submitted</i> for publication in refereed accredited journals</b>
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<b>3.2.4 Papers <i>presented and published</i> in national conference proceedings</b>
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<b>3.2.5 Papers <i>presented and published</i> in international conference proceedings</b> 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
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<b>3.2.6 Papers <i>presented and published</i> in refereed accredited conference proceedings</b>
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<b>3.2.7 Conference papers presented (<i>but not published</i>)</b>
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<b>3.2.8 Published reports</b>
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<b>3.2.9 Technical reports</b>
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<b>3.2.10 Books / Textbooks</b> 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
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<b>3.2.11 Chapters in books</b>
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<b>3.2.12 Registered patents</b>
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<b>3.2.13 Patents – pending</b>	
Application No.	2021/09992
Country	SOUTH AFRICA PROVISIONAL
In the name(s) of	UNIVERSITY OF PRETORIA
Title	A System and Method for Estimating a Mass of a Vehicle

### 3.2.14 Multimedia material

My Youtube channel where additional lecturing material is available to students:  
<https://www.youtube.com/channel/UCch7AoO6VtDG39uxTbi3eZg>

## 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)**