UNIVERSITY OF PRETORIA

CURRICULUM VITAE - FULL
Mr Bradley Bock

1. BIOGRAPHICAL SKETCH

1.1 GENERAL INFORMATION

Surname	Bock										
First names	Bradley Denis					**ID Number**		----------			
Citizenship	South African					**Title**	Mr	**Female**		**Male**	X
Place of birth	East London, South Africa					**Date of birth**					
Population group	**Black**		**Coloured**		**Indian**		**White**	**X**	**Other** ***(Please specify)***		
Department	Mechanical Engineering					**Position**		Lecturer			
Direct Telephone	012 420 2195					**Direct Telefax**					
E-mail	bradley.bock@up.ac.za										
Date of appointment	1 July 2014					**Permanent full-time**		X	**Temporary full-time**		

1.1 ACADEMIC QUALIFICATIONS OBTAINED

Degree/ Diploma	**Field of study**	**Higher education institution**	**Year**	**Distinctions**
Matric	English 1st Lang, Afrikaans 1st Lang, Mathematics, Physical Science, Biology, Accounting	Fairbairn College	2004	5 Distinctions, 14th in Western Cape 2004 Matric Exams
B.Sc.(Eng)	Mechanical Engineering	University of Cape Town	2009	First Class Honours
M.Sc.(Eng)	Mechanical Engineering	University of Cape Town	2013	Not applicable

1.2 WORK EXPERIENCE TO DATE		
Name of employer	**Capacity and/or type of work**	**Period**
Spur Steak Ranches	Full-time Waiter	01/2005 to 12/2005
Sasol Synfuels	Candidate Engineer	01/2012 – 04/2013
Sasol Synfuels	Mechanical Engineer, Power Station Plant Support	05/2013 – 06/2014
University of Pretoria	Lecturer	07/2014 - Current
1.3 PROFESSIONAL REGISTRATION		
Candidate Engineer	ECSA (Engineering Council of South Africa)	2013 - Current

2. TEACHING ACTIVITIES

2.1 Courses presented			
Course	**Level *(e.g. second year, Masters)***	**Self developed *(Yes or No)***	**Class Size**
MJJ 210 - Professional and Technical Communication	2nd Year (2015 to Present)	Yes (Course coordinator)	350
MTX 221 – Thermodynamics	2nd Year (2020 to Present)	No	400 - 500
MOX 410 – Design Project	4th Year (2014 to Present)	No	10
MRN 412/422 - Research Project	4th Year (2014 to Present)	No	~15
MIA 320 – Engineering Impact and Groupwork	3rd Year (2016 to 2019)	Yes (Course coordinator)	850-750
MPY 315 and 415 – Practical Training	2nd year (2015)	No	360
MGC 110 – Graphical Communication	1st Year (2016)	No	1400
MUU 781 – Fossil Fuel Power Stations	4th Year/PostGrad (2016)	No	8

3. TEACHING OUTPUTS

3.1 Educational publications and products

MJJ 210 – Professional and Technical Communication – Course Notes

MIA 320 – Impact of Engineering and Groupwork – Course Notes

4 RESEARCH ACTIVITIES

4.1 Co-supervision of Interns

Name of student	Duration of studies	Topic	Position
Mahlatse Mothoa	12 months , 2015 - 2016	Calibration of transducers; Design of Heat Exchanger Equipment using enhanced tubes	NRF Intern
Jan Segmuller	3 Months 2019	Contact Angle of water droplets on various modified tube surfaces	Exchange student

4.3 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) *(Optional - exact amounts not required)***
University of Pretoria	UCDP – University Capacity Development Programme	1 year	

6 RESEARCH OUTPUTS

6.1 Publications in peer-reviewed or refereed journals

B. D. Bock, M. Bucci, C. N. Markides, J. R. Thome, and J. P. Meyer, **"Falling film boiling of refrigerants over nanostructured and roughened tubes: Heat transfer, dryout and critical heat flux,"** International Journal of Heat and Mass Transfer, vol. 163, 120452, 2020.

B. D. Bock, M. Bucci, C. N. Markides, J. R. Thome, and J. P. Meyer, **"Pool boiling of refrigerants over nanostructured and roughened tubes,"** International Journal of Heat and Mass Transfer, vol. 162, 120387, 2020.

B. D. Bock, J. P. Meyer, and J. R. Thome, **"Falling film boiling and pool boiling on plain circular tubes: Influence of surface roughness, surface material and saturation temperature on heat transfer and dryout,"** Experimental Thermal and Fluid Science,

vol. 109, 109870, 2019.

B.D. Bock, A. Bell, G. Floweday, "**Investigation into the influence of charge cooling and autoignition chemistry on the greater knock resistance of ethanol over iso-octane**," SAE Technical Paper 2013-01-2615, 2013

6.2 Published conference papers

Bock, B.D., Meyer, J.P. and Thome, J.R. "**Surface roughness effect of plain tubes during falling film boiling"**, Proceedings of the 10th International Conference of Boiling and Condensation Heat Transfer, Mar 2018, Nagasaki Japan

6.3 Technical reports

2012 – 2014:

Sasol:

Numerous technical reports delivered, focused on maintenance of boilers and project renewals

2014 – Present

University of Pretoria:

1. Falling Film Evaporation – Review of Literature including State-of-the-Art advances, June 2015
2. Wilson Plots in heat transfer research – Review of Literature including State-of-the-Art advances, June 2015
3. Uncertainty Analysis of Falling Film Rig Instrumentation System, Dec 2015
4. Falling Film Evaporation/Condensation Facility – Overview of Facility, Dec 2015

6 OTHER SCHOLARLY RESEARCH-BASED CONTRIBUTIONS

6.1 Membership in national and international bodies

- Engineering Council of South Africa (ECSA) Candidate Engineer
- South Africa Institute of Mechanical Engineers (SAIMechE), Member

6.2 Visits to local and overseas universities or research institutes as guest professor or research

- Visiting Scholar to MIT, June – July 2019
  - Topic: Investigation into nanocoating of tubes and influence on falling film boiling heat transfer

7 MANAGEMENT AND ADMINISTRATIVE DUTIES

7.1 Website –

- Management and Updating of up.ac.za/mechanical-and-aeronautical-engineering Website

7.2 Falling Film Rig – Management of Falling Film Rig in the Heat Transfer laboratories

- Installation and Commissioning of Falling Film Rig and related equipment
- Calibration of Falling Film Rig and related equipment

7.3 Project Coordinator : Harnessing unsteady phase-change heat exchange in high-performance concentrated solar power systems

- Project sponsored by Royal Society-DFID
- Coordinate between universities involved in the project, namely University of Lagos, Imperial College in London and University of Mauritius.

8 COMMUNITY SERVICE OR PROFESSIONAL SKILLS

8.1 Referee duties

Acted as peer reviewer of journal papers for “Applied Thermal Engineering”.

Acted as external examiner for UCT course “MEC2045S – Applied Engineering Mechanics”