

**UNIVERSITY OF PRETORIA**  
**CURRICULUM VITAE**

**EVALUATION DATE:** *(Office use only)*

## 1. BIOGRAPHICAL SKETCH

### 1.1 GENERAL INFORMATION

<b>Surname</b>	Van Vuuren									
<b>First names</b>	Dirk Johan			<b>ID Number</b>	8912135110086					
<b>Citizenship</b>	South African			<b>Title</b>	Dr	<b>Female</b>	<input type="checkbox"/>	<b>Male</b>	<input checked="" type="checkbox"/>	
<b>Place of birth</b>	Krugersdorp, Gauteng			<b>Date of birth</b>	1989/12/13					
<b>Population group</b>	<b>African</b>	<input type="checkbox"/>	<b>Coloured</b>	<input type="checkbox"/>	<b>Indian</b>	<input type="checkbox"/>	<b>White</b>	<input checked="" type="checkbox"/>	<b>Other (Please specify)</b>	
<b>Department</b>	ENGAGE			<b>Position</b>	Lecturer					
<b>Direct Telephone</b>	012 420 5269			<b>Direct Telefax</b>	n/a					
<b>E-mail</b>	dirk.vanvuuren@up.ac.za									
<b>Date of appointment</b>	January 2020			<b>Permanent full-time</b>	<input type="checkbox"/>	<b>Temporary full-time</b>	<input checked="" type="checkbox"/>			

### 1.2 ACADEMIC QUALIFICATIONS OBTAINED

Degree/ Diploma	Field of study	Higher education institution	Year	Distinctions
B.Eng	Mechanical Engineering	University of Johannesburg	2013	5
M.Eng	Mechanical Engineering	University of Johannesburg	2017	Cum Laude
PhD in Engineering	Engineering Management	University of Johannesburg	2019	n/a

### 1.3 WORK EXPERIENCE TO DATE

Name of employer	Capacity and/or type of work	Period From mm//yy to mm//yy
Eskom (Matla power station)	Engineering student vacation work	2012/12/01 – 2013/01/31
University of Johannesburg	Researcher and assistant lecturer	2014/06/01 – 2016/03/15
UJ Energy Movement (part-time)	Mechanical engineer – Mechanical design	2015/01/01 – 2015/06/30

	engineer on UJ solar car	
Hypervision (part-time)	Mechanical engineer – Mechanical design engineer on UJ Shell-Eco Marathon car	2016/01/01 – 2016/03/15
Solareff (Pty) Ltd.	R&D Mechanical engineer - design engineer and project management of solar PV projects	2016/03/15 – 2017/03/31
Profound Engineering (Pty) Ltd.	Mechanical engineer – design engineer of various mechanical related problems	2017/04/01 – 2018/01/31
University of Johannesburg	Researcher towards a PhD	2018/02/01 – 2019/12/31
University of Pretoria	Lecturer for ENGAGE program	2020/01/01 - present

#### 1.4 Membership of national and international bodies

ECSA – Professional Mechanical Engineer (Pr. Eng)  
SAIMechE – South African Institute of Mechanical Engineers (full member)  
SAIT – South African Institute of Tribology (full member)

## 2. TEACHING ACTIVITIES

### 2.1 Courses presented

Course	Level (e.g. second year, Masters)	Self developed (Yes or No)
Thermal Systems 4A (UJ)	4 <sup>th</sup> year engineering degree (mechanical engineering) assistant lecturer	No
Fluid Dynamics 3A (UJ)	3 <sup>rd</sup> year engineering degree (mechanical engineering) assistant lecturer	No
Science of Materials 2B (UJ)	2 <sup>nd</sup> year engineering degree (mechanical engineering) tutor	No
JPO 113 (UP) Lecturer and coordinator	2 <sup>nd</sup> year augmented engineering degree lecturer	No
JPO 125 (UP) Lecturer and coordinator	2 <sup>nd</sup> year augmented engineering degree lecturer	No

## 3 TEACHING OUTPUTS

### 2.1 Course Presented

Course	Level (e.g. second year, Masters)	Academic Institution	Degree/Diploma	Self-developed (Yes or No)	Compilation of study guides	Curriculum design
Thermal systems	4 <sup>th</sup> year assistant lecturer	University of Johannesburg	B.Eng (Mechanical)	No	No	No
Fluid dynamics	3 <sup>rd</sup> year assistant lecturer	University of Johannesburg	B.Eng (Mechanical)	No	No	No
Additional statics	2 <sup>nd</sup> year	University of Pretoria	B. Eng (all disciplines)	No	Yes	No
Additional graphical communication	2 <sup>nd</sup> year	University of Pretoria	B. Eng (all disciplines)	No	Yes	No

## 5 RESEARCH ACTIVITIES

### 5.1 Former/current supervision or co-supervision

Name of student	Degree/Title of dissertation/ thesis and date	Supervisor	Co-supervisor(s)	Duration of studies (years)
S. Rana	Masters degree; An environmental impact assessment process for concrete reservoirs construction; 2018-2020	Prof A Marnewick	Dr DJ van Vuuren	3 years - Finished
N. Ngobeni	Masters degree; A proposed parametric design process for automatic structural design and 3D modelling of box culverts; 2019-2020	Prof A Marnewick	Dr DJ van Vuuren	2 years - Finished

## 6 RESEARCH OUTPUTS

### 6.1 Publications in peer-reviewed or refereed journals

- D. J. van Vuuren, A. Marnewick, and J. H. C. Pretorius, "A proposed simulation-based theoretical preconstruction process: The case of solar photovoltaic technology in South African shopping centres," *Renew. Sustain. Energy Rev.*, vol. 113, no. July, p. 109295, 2019, doi: 10.1016/j.rser.2019.109295.
- D. J. van Vuuren, A. Marnewick, and J. H. C. Pretorius, "A Financial Evaluation of a Multiple Inclination, Rooftop-Mounted, Photovoltaic System where Structured Tariffs Apply: A Case Study of a South African Shopping Centre," *Energies*, vol. 14, no. 6, p. 1666, 2021, doi: <https://doi.org/10.3390/en14061666>.
- D. J. van Vuuren, A. Marnewick, and J. H. C. Pretorius, "Validation of a Simulation-Based Pre-Assessment Process for Solar Photovoltaic Technology Implemented on Rooftops of South African Shopping Centres," *Sustainability*, vol. 13, no. 2589, 2021, doi: <https://doi.org/10.3390/su13052589>.
- N. Ngobeni, A. L. Marnewick, and D. J. Van Vuuren, "A parametric design process model for box culverts," *J. South African Institution Civ. Eng.*, vol. 63, no. 3, pp. 29–42, 2021.

### 6.2 Published full-length conference papers/keynote addresses

- D. J. Van Vuuren and R. F. Laubscher, "Surface Friction Behaviour of Anodized Commercially Pure Titanium Screw Assemblies," *Procedia CIRP*, vol. 45, pp. 251–254, 2016, doi: 10.1016/j.procir.2016.02.332.
- D. J. van Vuuren, A. Marnewick, and J. H. C. Pretorius, "A Theoretical Pre-Assessment of Solar Photovoltaic Electrical Production for Commercial Retail Centers," in *18th IEEE EEEIC International Conference on Environment and Electrical Engineering*, 2018, p. 5, doi: 10.1109/EEEIC.2018.8494550.

### 6.4 Technical reports

I generated full technical reports for the solar systems I designed and managed during my time at Solareff (Pty) Ltd. The reports included the design specification of the systems, followed by information such as warranty conditions (SLA), commissioning dates and data, etc.