



International Conference on Sustainable Materials Processing and Manufacturing, SMPM 2017,  
23-25 January 2017, Kruger National Park

## Industrial Secondment as a Tool to Enrich Engineering Education in Southern Africa

Tauyanashe Chikuku<sup>a,\*</sup>, Simon Chinguwa<sup>b</sup>, Tawanda Mushiri<sup>c</sup>

<sup>a</sup>University of Zimbabwe, Department of Mechanical Engineering, Box MP 167 Harare, Zimbabwe, +263 733 684 152

<sup>b</sup>University of Zimbabwe, Department of Mechanical Engineering, Box MP 167, Harare +263, Zimbabwe

<sup>c</sup>University of Johannesburg, Department of Mechanical Engineering, South Africa, +Johannesburg, RSA

---

### Abstract

Research determined that Southern Africa lacks engineering capacity. This is attributed not only to low numbers of qualified engineers but insufficient skills and experience held by some of the few local engineers. This is compounded by the fact that the majority of institutions that offer engineering training in Southern Africa have outdated equipment and machinery for training of students. Engineering lecturers spend most of their time in universities and little time in industry; hence, they are behind in requisite knowledge of current technological advances and this cascades into their delivery of teaching, producing a graduate who may not be in tandem with industrial needs. This paper explores the benefits of secondment as a tool for enriching engineering education in Southern Africa. It also highlights case studies of academic staff in the UK and the University of Zimbabwe who have been on industrial secondment and finally recommends a way forward to enrich engineering education.

© 2017 Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the organizing committee of SMPM 2017

*Keywords:* engineering education; industrial secondment; Royal Academy of Engineering; student projects; knowledge transfer.

---

### 1. Introduction

The industrial secondment is the attachment of academic staff to industry thereby providing a valuable opportunity for teaching staff in higher education institutions to work on collaborative projects with industry. The secondment also allows the academic to gain up-to-date knowledge and first-hand experience of current industry

---

\* Corresponding author

E-mail address: [tauyanashec@yahoo.co.uk](mailto:tauyanashec@yahoo.co.uk)

working practices, enabling them to improve the quality and industrial relevance of their teaching. While on secondment the academic may pursue a research project to further enhance knowledge transfer between industry and academia.

Secondment to industry is sometimes viewed from different perspectives. According to Boulton [1] secondment is, in the eyes of many in the university and corporations, viewed as an extended stay, typically for three months or longer, virtually full-time, where the secondee is working alongside the host's staff, effectively a member of their team. Buried within this concept lies a number of variations that can be designed and managed to make 'secondment' more effective as a means of knowledge and technology transfer (KTT). There is value in maintaining some ambiguity in use of the term to allow such variations to be used constructively. Secondment also has a flavour of personal and professional development for the secondee; indeed, in many instances this is the primary purpose and knowledge transfer may not be mentioned. Hence for some, using the label 'secondment' can impose a presumed purpose of training, which can be seen as unhelpful. The 'secondment' label can also be unhelpful in the face of a company's perception that good people are too valuable to lose for long periods of time, expressed as "if we can do without you for six months, then we can do without you altogether". Knowledge transfer labelled as secondment can also attract the attention of institutional HR departments that, although well-meaning, are perceived as a source of delay, formality and bureaucracy that is almost always unhelpful. This perception comes from both academic and industrial sides.

Many company-funded fellowships allow academics the opportunity to spend considerable time working in the collaborating company, but few regard this as a 'secondment', and many dislike the label, seeing the time spent with partners as just part of the job.

Other labels bring their own connotations; for example, 'internship' causes confusion with the practice of unpaid placements as a route to employment, or as the domain of the inexperienced, needing considerable coaching and management. Internship is also often related to students. Boulton [1] also states that 'visiting scientists' may work as a label in science-led companies but not in corporate cultures that favour pragmatism and engineering over rigour and pure science.

## **2. Examples of organizations that offer industrial secondment schemes.**

### *2.1. Royal Academy of Engineering of the UK*

It sponsored academic staff in the UK and Sub-Saharan Africa in 2013-2015. The sponsorship in Africa covered expenses incurred by the seconded staff during the period. The University of Dar es Salaam in Tanzania and the University of Zimbabwe were the regional hub of the programme.

### *2.2. NEF Fellowship scheme in the UK*

The scheme provides science, technology, engineering and math (STEM) lecturers in the UK with opportunities to spend time with industry. The scheme also covers costs incurred in replacing the lecturer during the secondment period and the costs incurred by the seconded staff.

### *2.3. Cambridge University and its industrial partners*

Some universities have policies of seconding their academic staff to industry as a policy for example Cambridge University and its industrial partners exchange staff. Industry also seconds their staff to Cambridge University. Boulton [1]

## **3. Benefits attributed to secondment**

Secondment of staff to industry has achieved some of the following benefits according to the NEF Industrial Fellowship Scheme of the UK. [2]

Download English Version:

<https://daneshyari.com/en/article/5129130>

Download Persian Version:

<https://daneshyari.com/article/5129130>

[Daneshyari.com](https://daneshyari.com)