

# Deepening the Skill and Knowledge base while maintaining the competitiveness of the Australian electrical apprenticeship programs



## **Robert Wain**

2013 Higher Education and Skills Group Overseas Fellowship

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# i. Executive Summary

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The current and very traditional apprenticeship program has produced a supply of skilled electricians who are trained and licensed to the level required by the government regulators and industry groups. The broad scope of knowledge and skills required from today's electrician, requires them to either gain increased skills and knowledge throughout their apprenticeship and/or have the opportunity to develop specialised skills and knowledge through post apprenticeship training.

Current apprentice training has not changed significantly over the last fifty years. Training packages are now developed and written in consultation with industry and all relevant groups in response to industry and government guidance. All apprenticeship training in Victoria is now based on a competency based training model. The consultation and approval process with vocational education and training (VET) providers and industry groups provides a significant delay before implementation is possible.

The Fellow visited Vocational Training Institutions in Norway, Germany and Scotland to review and appraise the securing of high retention rates, flexible apprentice programs, post apprenticeship pathways and the benefits of enhanced collaboration with industry.

The Hanover Messe (International Trade Fair) is recognised as a major international showcase for the Electrical industry. Access to the Hanover Messe and also to German manufacturers provided the Fellow with an insight into the German Electrical manufacturing industry perspective and an overview of new and emerging technologies.

This overseas experience has provided the Fellow with a valuable insight into European based apprenticeship systems and in particular the benefits to apprenticeships through the collaboration of apprentices, vocational providers, employers, government regulatory bodies and industry groups.

This Fellowship program has resulted in a number of recommendations being made for adoption to enhance the quality of Electrical apprenticeships. It was determined that an increase in the confidence of employers would ensure the Australian Electrical apprenticeship training could efficiently, and in a timely manner, deliver to the industry competent and highly skilled tradespersons.

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# ii. Abbreviations/Acronyms

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**AQTP**

Apprenticeship and Quality Training Program

**ATTN**

Apprentice & Trainee TAFE Network

**GEN**

Global Education Network

**HESG**

Higher Education Skills Group

**HOD**

Head of Department

**ISS Institute**

International Specialised Skills Institute

**Melbourne Polytechnic (formally NMIT)**

Northern Melbourne Institute of TAFE

**SME**

Small to Medium Enterprises

**TAFE**

Technical and Further Education

**TUHH**

Technische Universität Hamburg-Harburg (Technical University of Hamburg)

**VET**

Vocational Education and Training

# iii. Definitions

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## **Modern Apprenticeships**

"A job plus work based training = Modern Apprenticeships" is a short description given on the Scottish webpage [www.myworldorwork.co.uk](http://www.myworldorwork.co.uk)

# 1. Acknowledgements

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Robert Wain would like to thank the following individuals and organisations who gave generously of their time and their expertise to assist, advise and guide him throughout the Fellowship program.

## **Awarding Body – International Specialised Skills Institute (ISS Institute)**

The International Specialised Skills Institute Inc is an independent, national organisation that for over two decades has worked with Australian governments, industry and education institutions to enable individuals to gain enhanced skills and experience in traditional trades, professions and leading-edge technologies.

At the heart of the ISS Institute are our Fellows. Under the **Overseas Applied Research Fellowship Program** the Fellows travel overseas. Upon their return, they are required to pass on what they have learnt by:

1. Preparing a detailed report for distribution to government departments, industry and educational institutions.
2. Recommending improvements to accredited educational courses.
3. Delivering training activities including workshops, conferences and forums.

Over 200 Australians have received Fellowships, across many industry sectors. In addition, recognised experts from overseas conduct training activities and events. To date, 22 leaders in their field have shared their expertise in Australia.

According to Skills Australia's 'Australian Workforce Futures: A National Workforce Development Strategy 2010':

Australia requires a highly skilled population to maintain and improve our economic position in the face of increasing global competition, and to have the skills to adapt to the introduction of new technology and rapid change.

International and Australian research indicates we need a deeper level of skills than currently exists in the Australian labour market to lift productivity. We need a workforce in which more people have skills, but also multiple and higher level skills and qualifications. Deepening skills across all occupations is crucial to achieving long-term productivity growth. It also reflects the recent trend for jobs to become more complex and the consequent increased demand for higher level skills. This trend is projected to continue regardless of whether we experience strong or weak economic growth in the future. Future environmental challenges will also create demand for more sustainability related skills across a range of industries and occupations.

In this context, the ISS Institute works with Fellows, industry and government to identify specific skills in Australia that require enhancing, where accredited courses are not available through Australian higher education institutions or other Registered Training Organisations. The Fellows' overseas experience sees them broadening and deepening their own professional practice, which they then share with their peers, industry and government upon their return. This is the focus of the ISS Institute's work.

For further information on our Fellows and our work see <http://www.issinstitute.org.au>.

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## **1. Acknowledgements**

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### **Fellowship Sponsor**

The Victorian Government, Higher Education and Skills Group (HESG) formerly Skills Victoria, is responsible for the administration and the coordination of programs for the provision of training and further education, adult community education and employment services in Victoria, and is a valued sponsor of the ISS Institute. The Fellow would like to thank them for providing funding support for this Fellowship.

### **Supporters**

#### **Education and Training**

- Maurice Graham, Project Manager, EEoz Training Standards
- Andrew Giddy, former CEO, Melbourne Polytechnic
- David DelleVergin, HOD, Computer Systems & Electrotechnology, Melbourne Polytechnic

#### **Professional Associations**

- Dianna McGowan, President, Apprentice & Trainee TAFE Network (ATTN)
- Kym Anderson, Secretary, Apprentice & Trainee TAFE Network (ATTN)
- Peter Collins, Secretary, Victorian Electrotechnology Senate

#### **Industry**

- Shane Shepherd, General Manager – Products & Brands, NHP Electrical Engineering Products

# 2. About the Fellow

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**Name:** Robert William Wain

## **Qualifications**

- 'A' Grade Licensed Electrical Mechanic, 1983
- Diploma of Teaching (TAFE), Hawthorn Institute, 1989
- Certificate IV in Workplace Training & Assessment BSZ40198, 2004
- Bachelor of Education, Deakin University, 2004
- Certificate IV in Workplace Training & Assessment TAA, 2008
- Graduate Certificate in Leadership in Education and Training, 2009
- Certificate IV in Training & Assessment TAE40110, 2011

## **Membership**

- Current Treasurer, Apprentice and Trainee TAFE Network (ATTN)

## **Current Position**

AQTP Coordinator, Computer Systems & Electrotechnology Department, Melbourne Polytechnic

## **About the Fellow**

Over the last 25 years, Robert Wain has held positions as an Electrical Trades Teacher, Coordinator and TAFE Centre Manager. He has enjoyed working within the training environment and has always sought to engage apprentices with flexible, relevant and quality training.

One of the factors in applying for this Fellowship came from his previous involvement in national and international projects:

- **Moomba, South Australia** - Santos program
  - » Training and assessment delivered on site at Moomba South Australia and Jackson Queensland
- **Java, Indonesia** - Amco-Mitsui Project
  - » Mentoring, developing onsite assessments, dealing with cultural diversity and negotiating flexible program delivery
- **Hanoi, Vietnam**
  - » Conducting an AQTF audit of the extended campus, facilities, staff and resources
- **Calgary, Canada** - Southern Alberta Institute of Technology – Polytechnic (SAIT) Leading a group of students on a Global Education Network (GEN) short term exchange, mapping Canadian apprenticeship curriculum to Australian curriculum
- **UK, India, Sri Lanka**
  - » As a member of team, visit and appraise College training facilities in Scotland, Birmingham, Mumbai and Colombo for Skilled Migration program assessment.

The Fellow has maintained a passion for training and in particular working and teaching in the Electrical Trades area. Whether teaching apprentices or adult learners, he continues to maintain a positive outlook, a flexible and innovative approach and a passion to provide engaging programs.

# 3. Aims of the Fellowship Program

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The Fellowship provided the opportunity to explore, assess and observe electrical apprenticeship training and explore new and innovative industrial electrical products within the international arena. The key aims were to:

- Identify the key factors that assist in securing high retention rates with the approach to apprenticeship training by training institutions and industry bodies.
- Explore methods of program delivery flexibility that are currently incorporated in electrical apprenticeship training, and thereby develop ideas around how greater flexibility of delivery can be incorporated into the current Australian electrotechnology apprenticeship training system.
- Observe apprenticeship programs and training pathways beyond apprenticeship training that can equip an apprentice with the skills and knowledge to become a higher skilled tradesperson.
- Evaluate the collaboration of industry (SME and large industry) in the provision of an Electrical Apprenticeship training program designed to address the lack of higher skilled and experience tradespersons. Appraising how the industry involvement and provision training pathways can provide the outcome of an electrical tradesperson/engineer that meets the needs of the manufacturing and engineering sectors.
- Visit the Hannover Messe - International Trade Fair and several German and United Kingdom manufacturing plants to investigate current technologies, and in particular leading edge technologies, that can be incorporated into current Victorian electrotechnology apprenticeship and post apprenticeship programs.

# 4. The Australian Context

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The electrotechnology industry impacts all aspects of construction, manufacturing and engineering in Australia. The industry includes the installation, servicing, repair and maintenance of electrical and electronic equipment for industrial, commercial and domestic purposes. It comprises communications, distribution and transmission, electrical generation and computer data and communications cabling systems and sustainable/renewable energies.

The primary electrical tradesperson is an A Grade electrician, who has completed a four year apprenticeship, with a combination of on the job training and the relevant off the job training; and has passed the Licensed Electrician Assessments (LEA).

The rate of technological change within the electrotechnology industry is very high and will continue to grow, with the introduction of smart technologies, home automation and manufacturing control technologies.

The current and very traditional apprenticeship program has produced a supply of skilled electricians who are trained and licensed to the level required by the government regulators and industry groups. The broad scope of knowledge and skills required from today's electrician however, requires them to either gain increased skills and knowledge throughout their apprenticeship and/or have the opportunity to develop specialised skills and knowledge through post apprenticeship training.

Current apprentice training has not changed significantly over the last fifty years. Training packages are now developed and written in consultation with industry and all relevant groups in response to industry and government guidance. All apprenticeship training in Victoria is now based on a competency based training model. The consultation and approval process can provide a significant delay until implementation is possible. The current training package and training program is not developed with a view to the economic environment or the changing industrial setting.



*Australian apprentices wiring*

The delivery of the programs is traditionally one day a week attendance for three years of a four year apprenticeship or eight one week blocks during each of the three years. Employers are required to release the apprentice for training at a regular interval, which does not always coincide with the work programs.

The possibility of greater flexibility is an area to be investigated to encourage the employer to actively adopt apprenticeship training for a component of their work team.

Australia's manufacturing sector, already burdened in a shrinking economy, may find it hard to attract skilled tradespersons. The opportunity to receive higher salary levels in the lucrative mining fields of Western Australia and Queensland will continue to draw a certain number of skilled tradespersons out of our key manufacturing states.

# 5. Identifying the Skills and Knowledge Enhancements Required

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There are examples of areas in Australian industries where there are weaknesses in innovation, skills, knowledge, experience, policies and/or formal organisational structures to support the ongoing successful development and recognition of individuals and the particular sector.

The focus of all ISS Institute Fellowships is on applied research and investigation overseas by Australians. The main objective is to enable enhancement and improvement in skills and practice not currently available or implemented in Australia and the subsequent dissemination and sharing of those skills and recommendations throughout the relevant Australian industry, education, government bodies and the community.

The areas of applied research for this Fellowship are therefore defined as follows:

**Skills/Knowledge Enhancement 1:** Low retention and completion rates within apprenticeship programs.

## Goals

- Report on the identified factors that increase apprentice retention and completions for engineering and manufacturing apprentices to be submitted to TAFE institutes, industry skills councils and Higher Education and Skills Group, Victoria.

**Skills/Knowledge Enhancement 2:** Lack of flexibility of Electrical apprenticeship program delivery.

## Goals

- Observe and identify flexible techniques that are able to be incorporated in the current apprenticeship training system.
- Implement flexible techniques within the Fellow's own TAFE for trialling within a pilot program.
- Present flexible techniques for adoption by other TAFEs through the Apprenticeship and Traineeship TAFE Network (ATTN) and the Victorian Electrotechnology Senate.

**Skills/Knowledge Enhancement 3:** Engagement and encouragement of apprentices during training to become a skilled tradespersons who are equipped to meet the identified needs of industry, with access to streamlined pathways in a post apprenticeship environments (e.g. engineering degree pathways).

## Goals

- Observe and identify training programs that provide for a broader and higher skilled Electrical tradesperson that meets the needs of industry.
- Seek to establish post apprenticeship pathways as observed and identified, that can further equip tradespersons to meet the higher skills requirements of industry.

## **5. Identifying the Skills and Knowledge Enhancements Required**

**Skills/Knowledge Enhancement 4:** Greater links and collaboration between industry and the relevant training bodies to achieve the highest standard outcomes.

### **Goals**

- Appraise the effectiveness of established links and how greater collaboration between industry and training organisations can achieve the highest standard of outcomes.

**Skills/Knowledge Enhancement 5:** The ability to identify and introduce new, leading and relevant technologies into apprenticeship training within a suitable period.

### **Goals**

- Appraise methods utilised within international apprenticeship training systems and the workplace that could incorporate leading edge technologies and practices into Victorian electrotechnology apprenticeship programs.

# 6. The International Experience

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The overseas study program was structured to provide access to vocational institutions, vocational teacher training institutions, manufacturers employing apprentices and an International Trade Fair.

The countries visited (Norway, Germany and Scotland) were chosen as they conduct apprenticeship training programs similar to the Australian model. These countries offered the Fellow the opportunity to observe and research how the identified skills enhancement areas are responded to over a range of international vocational institutions.

The Fellowship research included meetings with institute staff, vocational teacher trainers and program developers, electrical industry personnel within manufacturing sales, management, human resource departments and with electrical apprentices.

## Destination: Sogn Vocational College

**Location:** Oslo, Norway

**Contacts:** Kristin Skare – International Coordinator and Rolf Petter Larsen – Coordinator Electricity and Electronics Network

**Objective:** To gather information as to the operation of the two-year Norwegian Vocational program within a Vocational College. Gain an insight into the Norwegian apprenticeship pathway with a one-year program (Vgs1) of general vocational studies and a year two (Vgs2) program leading into an apprenticeship for a further two years. The program also differs from the Australian model in the opportunity to participate in work placements for seven weeks in the second year. The overall objective of this visit was to assess the program's ability to contribute to a higher retention and completion rate of apprentices.

**Outcomes:** As the Coordinator for the Electricity and Electronics Network (Network members include four schools and local industries) in Northern Oslo, Larsen was able to present the program, explain its function and its outcomes. The Network model commenced in 2008 and has been successful in contributing to higher retention rates and increased completions. One of the key contributing factors is the work placements; introducing students to the industry and potential employers to students who fit the employer staff profile.

## Destination: Oslo and Akershus University College of Applied Sciences

**Location:** Oslo, Norway

**Contacts:** Professor Trine Deichman-Sørensen, Faculty of Education and International Studies and RennuagLyckander Head of Studies, Department of Vocational Teacher Education Faculty of Education and International Studies

**Objective:** To compare vocational teacher training ranging from initial vocational teacher training to a Master of Vocational Training program. Discuss the key challenges in vocational education in upper secondary schools with a teacher in a new role, expert and guide, as well as a learning consultant and facilitator.

**Outcomes:** From our discussions, the Fellow believes the Norwegian vocational teacher training still has a strong link to the academic orientated training programs and although a more relevant and integrated program has been proposed, the current system is reluctant to adapt or change quickly in response to the challenges within vocational training.

## 6. The International Experience

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### Destination: Hanover Messe 2013 – International Trade Fair

**Location:** Hanover, Germany

**Objective:** The Hanover Messe is an International Trade Fair with over 6,000 exhibitors and over 200,000 visitors. The size and participation within this event makes it a unique gathering of industries and technologies. The objective of the Fellow's visit to the Hanover Messe was to observe and appraise the new technologies, industry trends and training developments.



*Robotics display Hanover MESSE*

## 6. The International Experience

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*Automotive display Hanover MESSE*

**Outcomes:** The exhibits, presentations and information supplied were all unique, informative and inspiring. Attending this event was insightful, as new and current technologies were observed. The opportunity was also available to establish links with international training and industry organisations.

### **Destination: Wago manufacturer factory visit**

**Location:** Minden Germany

**Contact:** Shane Shepherd, General Manager – Products & Brands, NHP Electrical Engineering Products – Australia

**Objective:** The objective in visiting Wago, was to tour and observe a medium size electrical equipment manufacturing plant. The particular emphasis of visiting this site was to observe the plant's electrical production and quality process. The company has maintained steady growth over the last few years of economic hardship and is confident and optimistic of its prospects of growing further when the economy it picks up.

Discussions around the company's apprentice program (it employs approximately 200 apprentices) were also conducted. Wago, is located in Minden, a regional town, and although an established employer, it has trouble recruiting sufficient suitable apprentices to the area. The apprenticeship program is a dual vocational model similar to the Australian apprenticeship format. Apprentices work with the employer for three days then they are released for training for two days per week or in a block format.

**Outcomes:** Observation of Wago's manufacturing processes incorporating current technologies and quality processes was valuable in reflecting on the high standards and skills required from tradespersons

## 6. The International Experience

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working within these industries. The apprenticeship program is still a productive program to meet the high standards required for today's manufacturing and engineering sector.

### Destination: Steute manufacturer factory visit

**Location:** Lohne, Germany

**Contact:** Bernd Vollriede, Technical Sales

**Objective:** Steute is a small electrical equipment manufacturer, manufacturing and assembling electrical control equipment. They have a specialised market in medical and dental control devices.

The objective was to participate in tour of the manufacturing plant with the Australian NHP group and identify new technologies being developed at Steute to appraise their apprenticeship training program.

**Outcomes:** Although a much smaller manufacturer to Wago, it was interesting to compare the manufacturing outsourcing and quality programs utilised by both companies. The training of apprentices was still a major component of both companies to meet their demand for specialised and higher skilled tradespersons.

### Destination: Hamburg University of Technology

**Location:** Hamburg, Germany

**Contact:** Henning Klaffe, Professor Doctor Sonke Knutzen, Vice President, Technische Universität Hamburg-Harburg (TUHH)

**Objective:** Observe and appraise Kompetenzwerkst software package produced by Bremen University and TUHH for the Electrical Trades.

The Kompetenzwerkst concept description, taken from their website, is outlined below:

<http://www.kompetenzwerkst@tt.net/konzept>

“The Kompetenzwerkst@tt is a concept that helps teachers and trainers to improve vocational training in enterprises, vocational school and in-company training centers and more effective. The competence of this workshop provides assistance and suggestions as well as easy-to-use instruments.

The Kompetenzwerkst@tt can be in all areas of industrial and technical training to use - in preparation for a vocation in the training and in continuing education.

The concept of Kompetenzwerkst@tt has been and is being tested and developed in research projects. It is also an integral part of the vocational teacher training at the Universities of Bremen and Hamburg.”

The Kompetenzwerkst package was identified as a significant electrical resource for electrical apprenticeship training. The collaboration of between the apprentice training colleges and universities is also worthy of investigation.

**Outcomes:** The Kompetenzwerkst program was developed three years ago by the University of Bremen, in collaboration with the TUHH. The program was funded by a government research grant. Over the three years the program has been implemented within vocational institutes and amended to provide a high quality program that is easily adopted by apprentices and trainers.

## 6. The International Experience

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The program developers presented their holistic and didactic method within the Kompetenzwerst concept. They also discussed initiatives that are providing a more trainer and learner friendly program.

Two examples of the program being learner and Trainer friendly is the use of USB keys and the PowerPoint format. Each Learner is given a USB stick with the program preloaded, this allows the Learner the opportunity to work through the program without requiring online access. The Trainer is able to observe and mend the program in the PowerPoint format, a widely expected and utilised Microsoft program.

### Destination: North Glasgow College



*North Glasgow College*

**Location:** Glasgow, Scotland

**Contact:** John Kinlay, Deputy Faculty Director, Construction and Engineering Technologies

**Objective:** To compare Electrical apprentice training in Scotland with the Australian model in order to seek ideas and innovations that are currently used and therefore could be utilised within the Australian Electrical training program.

**Outcomes:** From the discussions with the Deputy Faculty Director and the Electrical Program Coordinator, it was identified that the delivery of the Scottish Electrical program and the Electrical Licence program are very similar to the current Victorian Electrical apprenticeship program. The Scottish program requires the completion of an external licence assessment during the final stage of their apprenticeship. It was noted that the Scottish VET Sector is undergoing a number of Mergers, and therefore will be looking forward to developing their more relevant and adaptive programs in the future. The current apprenticeship delivery will be adapted to suit the needs of the changing training, industry and economic environment.

## 6. The International Experience

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### Destination: Terasaki Electric (Europe) Ltd

**Location:** Clydebank, Scotland

**Contacts:** Liz O'Hare, Human Resource Manager and Georgie Smith, Business Unit Manager

**Objective:** To visit an established SME employing electrical apprentices and appraise the relationship between the apprentice, employer and training institutions and how they achieve high retention rates and successful completions.

**Outcomes:** Discussed the Terasaki apprenticeship and post apprenticeship training program offered to apprentices in collaboration with the local apprentice training institution and university. (See Attachment 1 for an outline of Terasaki's apprentice training and development strategy.) Post apprenticeship training is offered to apprentices in collaboration with a local university. These programs are funded by the company, which also allow students time to meet the demands of the course.

The Fellow met with apprentices for a site tour to discuss the program and how it develops a strong career prospect for apprentices within Terasaki. All apprentices are rotated through departments to maintain an understanding of the manufacturing, sales and service areas.

The apprentice program is benefiting the employees and employers by providing an established and visible career path for apprentices. Succession plans are embedded within Terasaki to meet the future demands within the company. The collaboration between employers, apprentice training institutions and universities has major benefits in addressing retention and the completion of apprenticeships and assists in succession planning.

### Destination: BAE Systems

**Location:** BAE Systems Maritime - Naval Ship Yards Ltd., Scotsboun, UK

**Contact:** Charles Murphy, Senior Training Officer/ Site Lead, Xchanging Maritime – Naval ships limited

**Objective:** To visit an established large employer of electrical apprentices, and appraise the relationship between the apprentice, employer and training institutions and how they achieve high retention rates and successful completions.

**Outcomes:** The Fellow attended a presentation by the Apprentice Training Manager, who outlined BAE's apprentice training program, selection program and their ongoing monitoring of apprentice progression.

BAE's annual appraisal and apprentice progress report system provides a more complete view of the apprentice's progression and assists them and their employer in identifying obstacles that are impeding the progress of the apprentice through their training program. Any issues identified in the workplace or within their training are addressed and documented. This model should address issues during their development or before they can escalate causing withdrawals or unsatisfactory progress.

### Destination: Clydebank College

**Location:** Clydebank, Scotland

**Contact:** Stephen Craig, Workbased Learning Coordinator

**Objective:** To compare Electrical apprentice training in Scotland with the Australian model, in order to seek ideas and innovations that are currently used and therefore could be utilised within the Australian

## 6. The International Experience

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Electrical training program.

**Outcomes:** The Fellow gained an overview of the Scottish apprenticeship program. It was also observed that the Scottish Institutions visited are currently undergoing a merger with 12 institutions merging to become four institutions. Many of the institutions have common programs and therefore it is expecting to result in better efficiencies developed with the new structure.

### Destination: University of West Scotland

**Location:** Paisely, Scotland

**Contacts:** Dr Hugh Ferguson, Senior Lecturer, School of Engineering and Lindsay Mc Donald, Careers Advisor

**Objective:** Appraise the post trade options offered to electrical apprentices by the University of West Scotland.

**Outcomes:** The University is working with vocational training organisations and industries to provide pathways and credits to higher educational qualifications. These pathways are benefiting apprentices seeking to increase their skills and knowledge and employers wishing to maintain a skilled workforce.

### Destination: Cardonald College, Glasgow

**Location:** Glasgow, Scotland

**Contacts:** David Innes, Head of Faculty, Technology & Business and David Garden, Senior Lecturer, Electrical Engineering

**Objective:** To compare Electrical apprentice training in Scotland with the Australian model, in order to seek ideas and innovations that are currently used and therefore could be utilised within the Australian Electrical training program.



*Electrical Cubicles*

## **6. The International Experience**

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**Outcomes:** The Scottish apprenticeship training program titled Modern Apprenticeships has a number of similarities in structure to the Australian program. The Modern apprenticeships four apprenticeship stage program has a similar Licence assessment at the end of the apprenticeship, to achieve a electrical trade licence. Delivering a quality program in collaboration with industry, and the achievement of higher completion rates are also a key concern within the Scottish Modern Apprenticeships program. A website Modern Apprenticeships [www.skillsdevelopment.co.uk](http://www.skillsdevelopment.co.uk) is maintained to provide a valuable resource for Employers Trainers and apprentices. The site also provides statistical results, apprentice and employer survey outcomes.

# 7. Knowledge Transfer: Applying the Outcomes

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The Fellow will seek greater communication with manufacturing and engineering and Electrical industry apprentice employers through site visits and consultation with employers to discuss their current apprenticeship programs and how in collaboration with an RTO, their apprentices' skills and knowledge can be further developed.

Use networks to develop the opportunities for industry persons to discuss their apprentice requirements with prospective apprentices (pre-vocational students). Implement a program providing access for workplace visits, by prospective apprentices looking to gain employment within the industry.

Identify relevant higher education providers that could collaboratively appraise the possibility of pathways and credits for apprentices towards higher education qualifications.

Promote higher education pathways to apprentice employers as a means of meeting specialised skills requirements and to develop a succession plan within the industry.

The Fellow has delivered a presentation of the ISS Fellowship program at the 2013 ATTN Conference and the ongoing promotion of ISS Institute Fellowships to all apprenticeship stakeholders.

# 8. Recommendations

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## Industry and Business

The Fellow makes the following recommendations to industry and business organisations:

### **1. The establishment of stronger links between Registered Training Organisations (RTOs) and industry/ industry groups.**

*Enhance pre-vocational programs.*

Modify current vocational programs to incorporate construction and industrial site visits, guest speakers from industry and vocational taster days. Establish taster days where industry persons are invited to meet with vocational trainers and pre vocational students. The program would benefit employers with the access to potential apprentices for selection and would provide the pre apprentice with greater insight into industry sectors, in particular the direct workplace environment and requirements.

### **2. The establishment of greater industry interaction through collaborative groups and projects.**

Establish greater bonds with industry and vocational providers to increase the collaboration between industry and vocational providers (TAFE). The outcomes of the established bonds are:

- » Vocational trainers will have more opportunities for industry placements to maintain and update their industry skills and knowledge
- » Skilled and specialised persons in the industry will have the opportunity to deliver short blocks of training in vocational institutions.

### **3. A higher degree of engagement by employers in the delivery of apprenticeship training.**

Industry groups should be offered the opportunity provide greater feedback into the apprenticeship programs, with vocational institutions given more freedom to alter programs in response to the identified requirements and needs of industry.

## Education and Training – Universities, TAFEs, Schools

### **1. Post Trade pathways**

In collaboration with higher education institutions, determine possible credits towards a range of degree programs. The indentified credits would be promoted to completing trades persons to enable them to engage in further training that will enhance their long-term career prospects. The completion of a suitable degree can also assist in maintaining a reliable succession planning for a company.

The Terasaki (Europe) model has successfully retained staff and met a number of succession issues, with a strong initial selection process and with employees assisted in further training and a rotation program that provide experience in a range of departments within Terasaki (Europe).

### **2. E learning products**

There is to increase development of e learning products designed specifically for the requirements of industry groups within the vocational sector. These products should provide easy, effective and engaging access to training by apprentices through multiple media.

The Kompetenzwerkst@tt program observed at Hamburg Technical Institute demonstrated the need for e learning materials developed with a vocational focus and a holistic and didactic method. The

## ***8. Recommendations***

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program was funded by a Government grant and developed in collaboration with Technical Universities and Vocational Institutions. The Fellow recommends the appraisal of established vocational e learning programs such as the Kompetenzwerks@tt program to capture an effective and successful a methodology for e learning delivery.

# 9. References

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- Modern Apprenticeship Employer Survey – 2012, SDS Evaluation and Research, March 2013 ([www.skillsdevelopment.co.uk](http://www.skillsdevelopment.co.uk))
- Modern Apprenticeship Outcomes – 2012, SDS Evaluation and Research, January 2013 ([www.skillsdevelopment.co.uk](http://www.skillsdevelopment.co.uk))

# 10. Attachments

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## **Small Electrical Manufacture/ Importer - Apprenticeship Scheme.**

*NOTE: This attachment is included in this report, to highlight the work done and calibre of Apprentice training specified and undertaken by a selected Scottish organisation.*

As an employer, apprenticeships ensure that our workplace through following a recognised training route will have practical skills and qualification our organisation needs both now and in the future. The training both “off and on the job” a high percentage of hands on training given to the apprentice adds to our productivity while gaining skills and experience valuable to the trainee and our organisation. Training is specific to our industry and also relevant to our business needs.

Our company the luxury of having low turnover of staff, we view the modern apprenticeships scheme as an avenue which will help us balance the demographics of our workforce. The scheme benefits us both with skills shortages and recruitment enabling us to offer a route to harness fresh talent. By taking on apprentices we can develop the specialist skills we need to keep pace with the latest technology and working practices in our sector.

Some of the benefits of employing an apprentice:

- Increased productivity
- Improved competitiveness
- Increase customer satisfaction
- Commitment and motivation
- Highly trained workforce with skills and training essential to their role.
- Retaining valued employees as they follow clear career path
- Address any skills gaps now or in the future.

### **Job Profile:**

#### **Apprentice Technical Engineer / Apprentice Business Management**

Hours of work: 38.5 per week

Monday – Thursday 8.00am – 5.00 pm (8.5 Hours) Friday 8.30 – 12.30 (4.5 Hours)

Permanent contracts of employment are applicable to all apprentices. Salaries are paid monthly with salary increases awarded in line with an agreed training programme and established milestones.

Both Technical and Business Apprentices are assigned very routine functions at the commencement of their apprenticeship; as the program progresses and their knowledge and skills are developed, assignments become more difficult requiring employees to use progressively more judgement in the performance of work.

Continuing employment depends on satisfactory progress and completion of a prescribed 3 year apprenticeship training program, during which the progress of each apprentice is periodically evaluated. Employment may be terminated if any apprentice does not progress satisfactorily in either apprenticeship training or performance on the job. This is assessed by an in house appraisal system and performance updated from college and training provider.

## 10. Attachments

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The Apprentice will work in the following departments for a minimum period of 3 months, in each department:

### **Technical Engineer:**

- Shop Floor: Assembly processes, Test Area, Warehouse, incoming goods and despatch processes.
- Technical / Engineering Department
- Marketing Department
- Internal & External Sales,
- Direct Response (Service and maintenance of our products)
- Quality Assurance
- Health and Safety.

### **Business Apprentice:**

- Shop Floor: Assembly processes, Test Area, Warehouse, incoming goods and despatch processes.
- Technical / Engineering Department
- Marketing Department
- Internal & External Sales,
- Direct Response (Service and maintenance of our products)
- Human Resource Department
- Logistics/supply chain management
- Quality Assurance
- Health and Safety.

Both positions will include a vocational qualification either in Electrical Engineering or Business Administration

## **Apprentice Process Map**

### **Advertising:**

- Adverts are placed in local schools, college's and issued to training providers. The local job centre can be considered.

### **Selection:**

- Application forms received direct from applicants, training providers and local college.
- Human resources, select candidates for interview, by assessing each application against a set of criterion. Recruitment:
  - » Candidates selected will be interviewed by HR and Line manager. Interviews consist of 3 sections.
    1. Written assessment
    2. Group work based scenario
    3. One on one discussions

### **Induction:**

- Induction into the company covers contracts of employment, legislative Health and Safety, Company policies and procedures issued, and introduction to colleagues along with a tour of premises.

### **1st Year Training:**

- Working in all production and assembly areas, warehousing, incoming goods and despatch.
- College either one or two days per week covering a period of 30 – 36 weeks.

### **2nd Year Training:**

- College either one or two days per week covering a period of 30 – 36 weeks
- Internal departmental training with a minimum of 3 months in each department.
- Departments covered, Technical, Marketing, Engineering, Internal and External Sales, Direct Response, Finance, Human Resource, and Supply chain / logistics

### **3rd Year Training:**

- College either one or two days per week covering a period of 30 – 36 weeks
- Internal departmental training with a minimum of 3 months in each department.
- Departments covered, Technical, Marketing, Engineering, Internal and External Sales, Direct Response, Finance, Human Resource, and Supply chain / logistics

### **4th – 6th Year Training:**

This training is optional depending on the apprenticeship course and the trainee. It covers university degree course on day release and or evening classes. The subjects studied are advanced courses typically covering Engineering Management. During this time the trainee will either be assigned work based projects, Internal departmental training with a minimum of 3 months in each department.

Departments covered, Technical, Marketing, Engineering, Internal and External Sales, Direct Response, Finance, Human Resource, and Supply chain / logistics

Projects, or be in a permanent work placement in agreed department.