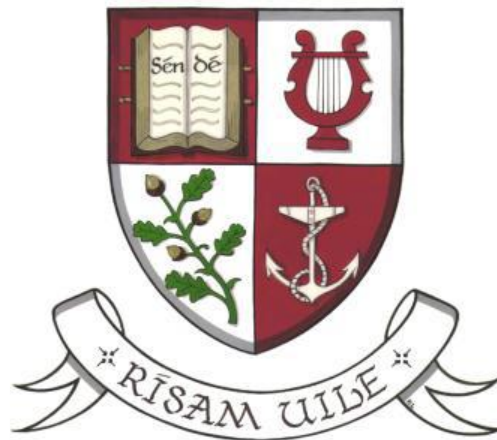


# **CORK INSTITUTE OF TECHNOLOGY**



**Faculty of Engineering and Science  
School of Mechanical, Electrical and Process Engineering**

**Programmatic Review 2013/14  
Response to Panel Report on Phase 2**

**Department of Electrical and Electronic Engineering**

*June 2014*

Panel Report Phase 2, Programmatic Review of Schools of Engineering,  
School School of Mechanical, Electrical and Process Engineering  
Department Department of Electrical & Electronic Engineering  
Date 29 – 30 April 2014

### **Programmes Submitted for Review**

The following programmes, validated in the previous Engineering Programmatic Review of 2007-08, are presented for re-validation:

#### **Major Awards:**

*Higher Certificate in Engineering in Electrical Engineering*  
*Bachelor of Engineering in Electrical Engineering*  
*Bachelor of Engineering (Honours) in Electrical Power Systems*

*Higher Certificate in Engineering in Electronic Engineering*  
*Bachelor of Engineering in Electronic Engineering*  
*Bachelor of Engineering (Honours) in Electronic Systems Engineering,*

*Postgraduate Diploma in Telecommunications Engineering*  
*Master of Engineering in Telecommunications Engineering*

*Postgraduate Diploma in Embedded Systems Engineering*  
*Master of Engineering in Embedded Systems Engineering*

#### **Special Purpose / Minor Awards:**

*NFQ 9 Certificate in Embedded Systems Engineering*

### **Department of Electrical & Electronic Engineering Sub-Panel**

Mr Albert Byrne  
Head of Department of Engineering Technology, Waterford Institute of Technology

Mr Shane Callanan, BEng CEng FIEI  
Director of Applications Engineering, Excelsys Technologies.

Mr Michael Farrell  
Assistant Head of School, Electrical & Electronic Eng., Dublin Institute of Technology

Mr Sean McGrath  
Director, M.J. McGrath Electrical Ltd.

Dr Stephen Cassidy  
Dean of Academic Quality Enhancement, Cork Institute of Technology

## **Programme Staff**

Mr Matt Cotterell, Head of School, School of Mechanical, Electrical & Process Engineering  
Dr Joe Connell, Head of Department, Department of Electrical & Electronic Engineering  
Dr Tom O'Mahony  
Dr Emmanuel Pican  
Mr Denis Collins  
Mr Michael Murray  
Mr Donal Neally  
Mr Paddy Collins  
Dr Martin Hill  
Dr Oliver Gough  
Mr Gerard Geaney  
Mr Sean McShera  
Dr Aine NiShé, Head of Department, Department of Mathematics  
Mr Joe Buckley  
Mr Fergus O'Reilly  
Mr John O'Sullivan

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## **Learner Representatives**

### **Electrical:**

James Boyle  
Sara McEvoy  
David Griffin

### **Electronic:**

Valerie Moloney  
Cian Barry  
Ronan Looney  
John Loftus

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## **Graduate Representatives**

### **Electrical:**

Brendan O'Mahony  
Tadhg O'Connor

### **Electronics:**

Michael Coade  
Ian Martin  
Colin Leslie  
Julien Pastel

## **Employer Representatives**

Noel Meehan, Automated Systems & Controls (ASC) Ltd.  
Brian Lee, Apple  
Tony O'Connell, Analog  
Michael Radley, CDGA Engineering Consultants  
Eddie Leahy, PM Group  
John Loughnane, Philips 666 (Whitegate Refinery)

## Requirements

- 1) The panel feels that a capstone project is an essential element for an undergraduate engineering degree. It therefore asks that the Department introduces a capstone project into the award year of the Bachelor of Engineering in Electrical Engineering.

*The 2<sup>nd</sup> year, 2<sup>nd</sup> semester Electrical Installation Project, ELEC6013(6030) has been moved to semester 2 of year 3. This is an individual project which can now have a higher specification due to enhanced learning. Project supervisors will be assigned as normal.*

*Advanced Computer Applications has moved from semester 5 to 4 and the new Energy Systems and Sustainability is moved from semester 6 to 5 to make room for the project.*

- 2) The panel requests that the Department should look at enhancing ties with industry through projects/placement/site visits and inclusion of guest speakers.

*The Electrical Installation Project module targets existing public and private buildings where the aim is to evaluate and provide electric power as a design exercise. This invariably involves dialogue between the student and the existing building maintenance provider. In addition, electrical engineering students visit ESB sites in Inishcarra and Lower Aghada and this has been expanded over the last number of years to include conferences and wind turbine sites. The electronic students engage with the Rubicon/Nimbus centres and 3<sup>rd</sup> year internships are available in the Summer period. The Dept. will endeavour to increase the number of guest speakers across both programmes and will continue to pass on placement/career opportunities to students as they come in. The Dept. also maintains its own website and a presence on LinkedIn.*

- 3) The panel requests that the Department complete the internal quality assurance in regard to module descriptors and programme schedules.

*The Dept. has completed changes to the phase 2 report as highlighted during the review session. It has also closed off on completing changes to module descriptors as recommended by the Module Moderator. An interim programme schedule for 2014-15 is in place for both electrical and electronic programmes which provides learning paths for groups progressing while taking into account modules moving between semesters and stages. A programme schedule for 2015-16 is also in place which contains all proposed changes by which time all stages will have migrated and stabilised. Locally, legacy facilities are in place for repeat students who have yet to pass existing modules which are no longer on offer in the new programmes. Our suggestion is that legacy repeats be offered for one year, 2014-15, and then only modules as scheduled on the programmes for 2014-15 can be offered.*

## Recommendations

The panel recommends to the Department the following:

- 1) The Department should look to develop a common first year on the Bachelor of Engineering in Electrical Engineering and Bachelor of Engineering in Electronic Engineering. The experience in other Higher Education Institutions is that this has been of benefit both in terms of student recruitment and programme efficiency.

*The Dept. has already done work on common modules between electrical and electronic 1<sup>st</sup> years on the grounds of efficiencies in the event of numbers falling even further. This work can be translated into a framework for a common first year quite straightforwardly. It must be said however that since 2007 there has never been a request from a 1<sup>st</sup> year to change from either programme to the other indicating that the difference is quite well understood before they arrive.*

- 2) The Department would actively pursue accreditation for its Honours degree programmes.

*The Dept. has already looked at professional bodies offshore, e.g. the IET, with a view to progressing its own level 8 accreditation. Level 8 accreditation is an issue for students and has led directly to level 7 electrical graduates moving to UCC initially and more recently to Edinburgh Napier University. It is an issue which will receive attention in the short term.*

- 3) The Department would introduce Arduino or a similar programming platform into the first year of its programmes to enhance the programming stream of modules.

*The Arduino is being introduced formally to year 2 of the electrical programme under the proposed changes. There is also an opportunity to use it in Electrical/Electronic Applications and the descriptors allow for this to happen; the situation will be monitored.*

- 4) Arising from analysis undertaken by the Department in relation to the progression of students with low Leaving Certificate mathematics grades, the Department should review the entry requirements of its programmes.

*The Dept. is well aware of the statistics surrounding 1<sup>st</sup> year performance versus LC Maths and there is clear argument for placing a minimum Maths requirement at 'C' or above. It is known that other colleges within the sector have done this but the Dept. is aware that there is a college dimension which will have to be considered also.*

- 5) The Department may wish to consider the introduction on a Project Management module into its programmes.

*The Electrical programme has a semester 6 module, Engineering Management, ELEC7009, which incorporates project management among other topics. The Electronic programme has explicitly a Project Management, ELTR7023, module in semester 6 which incorporates a supervised student project.*