

# Teaching & Learning Innovations

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Blanchardstown  
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## FOREWORD



Larry McNutt

The demands on and the expectations of the Irish higher education sector have never been greater. This coupled with an increasingly diverse student cohort and an economic imperative for greater flexibility and responsiveness places ITB at the nexus of a unique opportunity. This has echoes of the roar of the Celtic Tiger which heralded the establishment of the campus in 1999, a call to increase the supply of qualified graduates in key disciplines. Many of these graduates now face the daunting challenge of investing once more in their key skills and competencies and in unison with our CAO entrants are seeking guidance, support and a safe space to tap into and develop their potential. To meet this challenge requires a commitment to fostering and supporting an optimal learning environment for all our students - the heartbeat of a vibrant higher education campus.

This publication acknowledges the creativity and response of the staff within ITB who strive to respond to these changing circumstances. Within these pages you will encounter a myriad of engagements, initiatives and innovations within the teaching and learning domain that are now the hallmark of many aspects of campus life. Modest changes in how we approach the design and delivery of our programmes can often result in significant improvements for our learners. Perhaps the early identification of a person's learning style could be the awakening of a fresh approach to learning; the provision of drop-in clinics may be the appropriate intervention that targets a specific challenge and contributes to enhancing the learner's confidence; alternative approaches to assessment could provide the positive feedback that all learners need or the use of a virtual learning environment could provide the flexibility that enables participation.

At the core of all these endeavours is the increasing recognition of the importance of the practice of teaching and learning in higher education. Ongoing support for these activities is a fundamental component in securing ITB's place in the evolving higher education landscape in the greater Dublin region. I would like to acknowledge the support to date from the Higher Education Authority through the Strategic Innovation Fund (SIF 1 and SIF 2), the National Digital Learning Repository (NDLR) and the IT Investment Fund for these projects.

At a local level could I thank all the contributors and in particular to Daniel McSweeney our e-learning co-coordinator for their continued energy and enthusiasm.

*Larry*

Larry McNutt | Informatics and Engineering





## Introduction

The last 24 months has seen the emergence of a number of key challenges facing third level institutes of technology, particularly in the areas of teaching and learning. Some of the key challenges facing the Institute of Technology Blanchardstown include:

- Large increases in student participation in third level.
- Reduction in levels of student funding in real terms.
- Reduction in levels of other sources of funding (SIF etc).
- Differential growth and decline in enrolments across departments.
- Maintaining and assuring the quality of teaching and learning in the institute.
- Maintaining a commitment to widen participation through the inclusion of non-standard entrants.
- Increases in demand for part time and flexible courses, particularly in response to the growing economic problems faced by the Dublin 15 region and beyond.

The institute of Technology Blanchardstown has responded to some of these challenges by placing a greater emphasis on:

- Curriculum reform with greater emphasis on learning outcomes
- Greater focus on core competencies
- Initiatives to promote engagement and retention
- New and innovative approaches to the management of large classes
- Increasing the effective use of educational technologies
- Initiatives to promote improvements in teaching and learning.

As ITB increases its student population there is a greater demand for electronic course resources and flexible delivery of course content. ITB is responding to these challenges and continuing to strive for excellence.

This report aims to provide a snapshot of some of the successful teaching and learning initiatives being carried out at the institute and provides an insight into the positive impact they have had on both staff and students.

## Role of the eLearning coordinator

In 2007, the Institute recognised the growing role of eLearning within the institute and created the role of eLearning coordinator. The eLearning coordinator is responsible for the management of eLearning technologies at the Institute. The post holder is responsible for:

- Management of the Institutes VLE system (moodle)
- Management of online classroom systems (Adobe Connect)
- Management and support of eLearning tools and technologies for staff and students
- Staff training development in the areas of eLearning technologies
- Input into the development of eLearning strategies for the Institute

The role is currently held on a part time basis by Mr Daniel McSweeney, lecturer in informatics and Digital Media.

## Contributors

The following staff contributed to the creation of this report

- |                    |                     |                  |                   |
|--------------------|---------------------|------------------|-------------------|
| - Larry McNutt     | - Richard Gallery   | - Pat O'Connor   | - Brian Nolan     |
| - Daniel McSweeney | - Robert Hickey     | - Geraldine Gray | - Niall Campbell  |
| - Martin Kennedy   | - Joanie Cousins    | - Ben Toland     | - Maria Kenneally |
| - Aiden Carthy     | - Colm McGuinness   | - Damian Cox     | - Dave Carroll    |
| - Mary Ann Kenny   | - Margaret Kinsella | - Cormac McMahon | - Nathalie Cazaux |





## Initiatives in Learning

### Delivery of online courses

In 2008, the Department of Engineering first registered around 15 students onto a BEng (Ord.) in Mechatronics, the first programme to be delivered in ITB via the worldwide web. The delivery format involved broadcasting lectures 'live' online to students using the online classroom software 'Adobe Breeze' and then bringing students into ITB three times per semester, to complete any practical work. Assignments and tutorials were also offered online via Moodle. All broadcasts were recorded and available to be viewed by students at their convenience. The students had their first lecture in a lab in ITB to familiarise themselves with the software packages. These students, 10 of whom remained on the programme, are presently completing the remaining 3 modules, including a final year project, with the hope of graduating this year. A second cohort started this September, numbering approximately 24. They are currently completing their second semester and will take a further module over the summer with the aim of completing the programme in June, 2011.

In addition to being the first programme to be fully delivered online in ITB, this programme was also the first to recognise the cohort of trades' qualified people who were looking to upskill to enhance their career prospects. Both years saw applications from trades such as Electricians and Fitters, where their apprentice qualification together with a number of industrial experiences allowed them entry to this programme. To enable entry these students took additional bridging modules during the first semester.

The online experience has been mainly positive for both lecturers and staff. It allows students in companies such as Intel the flexibility to complete their studies at a convenient time for them. The practical days allow the lecturers and the students to resolve any queries. It gives them an opportunity to meet their peers and enables them to get practical experience of the subject material. As with any part-time programme there have been a number of students who have dropped out for various reasons, but we believe that the flexibility of this programme has helped us to retain many of them. Other part-time programmes in Engineering including the Higher Certificate in Mechatronics is also adopting this technology for the delivery of lectures, while still providing the practical sessions in ITB weekly. This has enabled these students to progress with an additional module per semester without taking any extra time off work.

This semester saw significant upgrades to our line classroom systems as well as the rollout of applications for the iPhone and iPod, allowing students to attend classes while mobile. In the future, and as a result of Programmatic Review, we hope to roll-out an additional add-on Level 8 online programme in Engineering using this methodology.

All enquiries related to the initiative should be directed to Daniel McSweeney at [daniel.mcsweeney@itb.ie](mailto:daniel.mcsweeney@itb.ie) or Niall Campbell at [niall.campbell@itb.ie](mailto:niall.campbell@itb.ie)

## Learning Styles

Profiling was offered to all 1<sup>st</sup> year students during induction, Sept 2009. Students were invited to complete two online questionnaires, one of which gave feedback to students on their learning style; the other tool gave students feedback on their learning strengths and weaknesses. Where responses highlighted significant weaknesses in the areas of reading & spelling, social & communication, coordination & planning or concentration & attention, students were invited to meet with an educational psychologist from the National Learning Network, based on campus at ITB. The increased numbers of students profiled resulted in a significant increase in the number of students accessing the services at NLN.

An online learning styles profiler was developed over the summer of 2009, and is available online for staff to use with their classes. As well as giving students feedback on their learning style, the lecturer can access a summary of the range of learning styles present in the class group.

Recordings of workshops run as part of the project are available to staff on the project's moodle page. These include workshops on: Cognitive Processing & the importance of the first lecture, Specific Learning Difficulties, Learning Styles, Mindmaps and other visual techniques, Active Learning, Assistive Technology, Effective use of colour, Disability awareness (open to all staff).

The project concluded in Dec 2009. Sustainability of work done include the continuation of first year profiling as part of induction, the on going available of project resources on moodle, and our online learning styles profiler.

All enquiries related to the learning styles project should be directed to Geraldine Gray at [geraldine.gray@itb.ie](mailto:geraldine.gray@itb.ie).

## Problem Based Learning

For the last three years, ITB has been leading the Problem Based Learning (PBL) strand of ContinueIT, an initiative funded under SIF cycle 1. Our main focus has been the integration of PBL methods into the delivery of our Engineering programmes. PBL is an approach to structuring a module, course or curriculum which exposes students to problems from practice, as a stimulus for learning. Typically the students work in groups to solve problems and carry out projects that are designed to support the learning outcomes of the subject they are studying. It seeks to move away from the traditional educational model where the role of the lecturer is to disseminate information to the students, to one where the role of the lecturer is to act as a facilitator to the students' own learning and development.

We see many advantages to this approach: students become accustomed to working in groups; students are required to take responsibility for their own learning; key skills such as problem solving, communication and research are nurtured; students get to work on real-world practical problems specifically designed to stimulate their learning; and students are exposed to a more varied and engaging educational experience. It is particularly effective at developing team-working skills, at nurturing the ability to carry out self-directed learning, and at familiarising the students with the issues involved in working in multidisciplinary environments. At present eight modules within Engineering are delivered in this fashion with more coming on stream each year.



The SIF project has also allowed us to carry out research on best practice in delivery, problem design, assessment, and many other areas related to PBL. We have also built a network of PBL practitioners around the sector and host regular workshops by educational experts in this area. As mentioned already, a full postgraduate certificate in Enquiry Based Learning commences at ITB in October 2009 and twelve of our staff members have now signed up for this. In 2010, ITB will host a symposium on Problem Based Learning to disseminate and share our experiences with the wider academic community.

All enquiries related to the SIF ContinuelT Problem Based Learning project should be directed to Hugh McCabe at [hugh.mccabe@itb.ie](mailto:hugh.mccabe@itb.ie).

### Certificate in Enquiry Based Learning

In October 2009, ITB commenced their first delivery of a new Certificate in Enquiry Based Learning (EBL). This is aimed at lecturing staff, from ITB and other third level institutions, who wish to gain the skills, knowledge and competencies needed to incorporate this exciting technique into their teaching practice. EBL encompasses a range of pedagogical approaches, including Project and Problem Based Learning (PBL), whose common characteristic is that learning is driven by a process of enquiry on the part of the learner. A typical approach is that the learners are divided into groups and asked to collaborate on projects or problems. The facilitator helps them to address their learning needs, identify suitable lines of enquiry, and collaborate effectively to reach a conclusion.

The course is delivered by means of blended learning, and consists of a mixture of face-to-face workshops, online activities and independent study. A range of acknowledged experts from around the Irish third-level system have engaged to facilitate the workshops. It has been developed under the auspices of the LIN Accredited Professional Development (APD) initiative and forms part of a suite of modules on teaching and learning that are being rolled out around the sector.

All enquiries related to the course can be directed to Hugh McCabe at [hugh.mccabe@itb.ie](mailto:hugh.mccabe@itb.ie).

### Apprentice Education

Apprentice education in the institute has experienced an upsurge in the use and creation of eLearning materials. One excellent example is the work being carried out by Mr. Robert Hickey, lecturer in brick and stone. Robert identified a problem with phase six apprentice bricklaying students achieving psychomotor learning outcomes, mainly due to high student numbers and limited available workshop time. In response to this, Robert has developed an excellent set of eleven short instructional video demonstrations, which could be stored and accessed by the students on their own mobile phones. Videos were created using a Nokia N95 mobile phone which produced good quality up-close demonstrations.

Results from the Roberts work showed that 75% of the students viewed the videos both at home and in the workshop on their mobile phones. 55% watched them before they built the arch and 80% watched them while building the arch. Only one student watched the videos while travelling to college. 80% watched them at least twice and 25% more than twice. All of the students viewed the videos by themselves.

Ninety percent (90%) of them said they would like to use these types of video demonstrations out on site.

All enquiries related to this initiative can be directed to Robert Hickey at [robert.hickey@itb.ie](mailto:robert.hickey@itb.ie).

## Mathematics

Colm McGuinness has taken a leading role in the development of initiatives to improve the teaching of mathematics in the school of Business and Humanities. He has developed a web site ([www.colmmcguinness.org](http://www.colmmcguinness.org)) to provide a range of maths supports. The site is very popular with students and delivers documents, videos, and interactive (exam style) question and answer computer software.

Colm has also established Maths clinics for students who need assistance with mathematical concepts and coursework. Open sessions are set aside to allow students drop-in at any time (during the specified slots) to ask questions, or to study in the supervised environment.

All enquiries related to the initiative can be directed to Colm McGuinness at [Colm.McGuinness@itb.ie](mailto:Colm.McGuinness@itb.ie).

## Universal Design

Funded by the AIB dormant account fund, this project aims to develop a toolkit of learning resources to provide learners with knowledge of the important conceptual, theoretical, social, technical and design issues associated with universal design. The project work plan incorporates four key components:

1. Developing Audio & Video recordings
2. Developing Universal Design content
3. Creating Learning Resources/Assets
4. Participating in Workshops and Projects

The product has so far resulted in the creation of a series of high quality audio visual recordings and learning assets. The project has been a direct influence on the design of several modules during the most recent phase of programmatic review and courses such as digital media now delivers a dedicated module on universal design to students.

All enquiries related to the course can be directed to Margaret Kinsella at [margaret.kinsella@itb.ie](mailto:margaret.kinsella@itb.ie).

## Entrepreneurship Education

SIF Entrepreneurship: “Accelerating Campus Entrepreneurship (ACE), is a collaboration between ITB, DKIT, NUIG, CIT and ITS that aims to embed entrepreneurship education into IoT’s and Universities. The project commenced in May’08 and the research phase is now complete. This was underpinned by interviews with key roles across the HEI sector and a survey of 300 undergraduate technology



students, 50 post-graduates and 33 campus-incubator and industrial-partner companies. It also included a benchmark of international best-practices, such as: the Northern Ireland Centre for Entrepreneurship (NICENT), UK National Council for Graduate Entrepreneurship (NCGE), campus entrepreneurship in US universities such as Babson ,MIT and Berkeley and examples of good-practice in Ireland. Initial findings of the research have been presented at the HETAC Entrepreneurship Educators Conference (Feb'09).

The development phase for pilot initiatives under ACE are now coming to an end and pilot programmes are being rolled out across partner institutes over the coming months. ITB hired its first Entrepreneurship Intern in September 2009. The function of the intern is to promote an entrepreneurial culture amongst their peers on campus. As part of the development, ITB has launched its MSc in Technology Entrepreneurship, starting in September 2010. Also starting in September 2010 is a one-year Level 8 add-on entrepreneurship degree for engineering and informatics students. ACE recently rolled-out its train train-the-trainers programme in Cork IT for academics wishing to get involved in the field.

All enquiries related to the course can be directed to Cormac McMahon at [cormac.mcmahon@itb.ie](mailto:cormac.mcmahon@itb.ie).

### Retention Initiatives for First Year Engineering Students

Over the last few years the Department of Engineering has implemented a number of initiatives in an attempt to help retain first year Engineering students not only in passing from semester 1 to semester 2 but also from 1st year to 2nd year. One aspect that the department felt needed to be addressed was the interaction between people coming from various different backgrounds and not having met each other previous to taking up a course at ITB. The initiative started by enabling the students to get to know each other in a more social environment by organising football tournaments and other group events, particularly during first year induction, which included a number of activities to give them a positive experience in ITB in their first two days on campus. Staff also began delivering the Engineering Practice module in block format which helped with this social interaction and kept the interest and attention of the students during the first two weeks of college.

- An attendance system was set up so that all lecturers could input attendance and CA data which was monitored closely by the course coordinators on a weekly basis.
- A number of motivational activities were organised. These included inviting speakers from relevant companies to come to ITB and present and past students of ITB to discuss the course and the opportunities it provides in an informal environment and had demonstrations of research carried out by the postgraduate students of ITB.
- Staff ran focus groups with the students and the marketing department and the course coordinators chatted with each student individually to gauge what the student expected from the course and where they saw themselves at the end of their study.
- The students were brought on a tour of the library and shown how to search the necessary journals and publications. Each student was screened for individual learning styles and/or learning difficulties by the National Learning Centre and a report was given to each one.
- A Department of Engineering Support Centre was set up to provide extra help in difficult modules. The initiative started off with just Mathematics and now has support sessions running for three modules per semester.

So far the department reports positive feedback from the students with regards to the initiatives they have introduced and the in semester 1 of this academic year has seen an improvement in the overall retention rate.

All enquiries related to the initiative can be directed to Richard Gallery at [richard.gallery@itb.ie](mailto:richard.gallery@itb.ie).

### **Programming Clinics in JAVA**

Margaret Kinsella has taken a leading role in the development of initiatives to improve the teaching of JAVA in the department of Informatics.

Margaret has established programming clinics for students who need assistance with programming concepts and coursework. Open sessions are set aside to allow students drop-in at any time (during the specified slots) to ask questions, or to study in the supervised environment.

All enquiries related to the initiative can be directed to Margaret Kinsella at [margaret.kinsella@itb.ie](mailto:margaret.kinsella@itb.ie).

### **Emotional Intelligence**

Aiden Carthy is currently conducting research pertaining to emotional intelligence. The principle aims of this research are to explore more fully, the impact of embedding aspects of emotional competency in the curricula of Irish first year undergraduate students and to assess the reasons why students may choose not to engage with such coaching. As well as quantitative analyses of the impact of emotional competency coaching on student attrition rates and grade point averages and of the similarities and differences between cohorts of students who choose to participate in emotional competency coaching workshops and those who do not, a qualitative analysis will be conducted to explore students perceptions of the usefulness of emotional competency coaching and reasons for engagement or non-engagement with coaching. Results should be available for release from September 2010.

All enquiries related to the course can be directed to Aiden Carthy at [Aiden.carthy@itb.ie](mailto:Aiden.carthy@itb.ie).

### **Teaching of Spanish through Drama**

Maria Kenneally is involved in the teaching of Spanish through Drama. This project, titled 'El teatro y el español' is funded by the Dormant Account Fund and targets approximately 80 students in the primary school sector. It is divided into 4 stages, and each stage involves a 8 week programme of language learning which is undertaken by 20 pupils. While 7 weeks are given over to the actual learning of Spanish the final 8<sup>th</sup> week focuses on performance. There is therefore an emphasis on both process and product, and not only on language skills but also on personal, interpersonal, and non-verbal communicative skills. The entire programme takes place here at ITB.

All enquiries related to the initiative can be directed to Maria Kenneally at [maria.Kenneally@itb.ie](mailto:maria.Kenneally@itb.ie).

## Language Learner Support

The ITB online Language Learner Support was created in 2007 and is currently accessible to all students and staff in ITB. Using the well known and well used Moodle virtual learning environment as interface, ensured the ease of use for our students.

The idea was to develop a multimedia interactive and individualised language learner centre online. The rationale behind the project was that using CALL (computer assisted language learning) would help to develop a student centred strategy, which would promote language learning but also self-paced and autonomous learning. It was envisaged that this centre could be used as reinforcement of what had been learned in class as well as bringing additional remedial material to help struggling learners with limited (and limiting) language proficiency.

At one level, the language Learner Support is meant to supplement face-to face interaction during class time and reinforce language use in a concrete and authentic manner in addition to the language seen in class settings.

Advantages are many fold: a learner-centred approach with individual attention, the development of language awareness and autonomy resulting on the increase of motivation. Additional advantages are the freedom and ease of use without any time or space constraints, as the environment can be accessed from anywhere and at any time. It can also be used by anybody wanting to brush up their language skills outside formal class time.

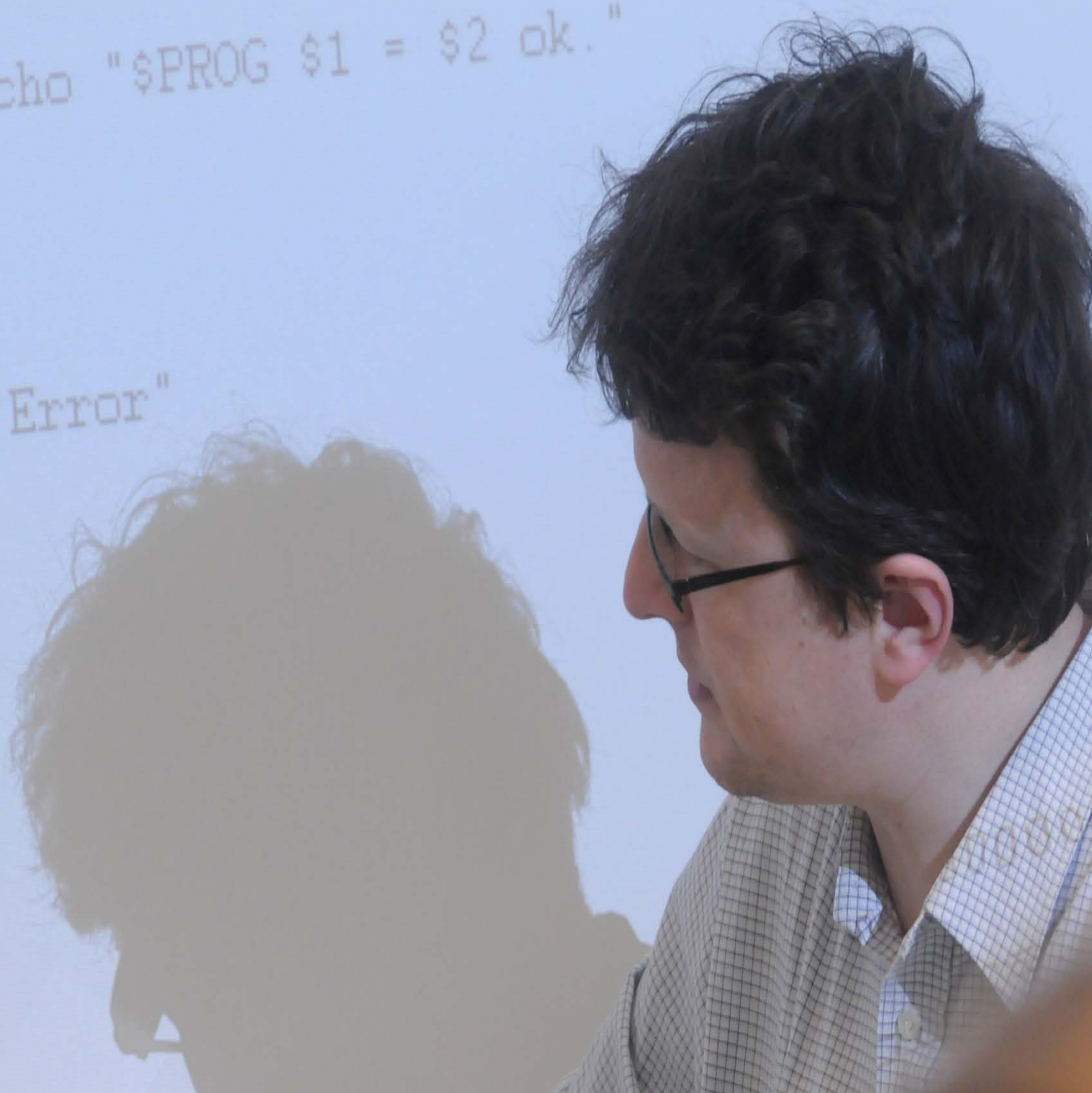
Regarding language learning, one of the key positive outcomes of using a virtual learning environment is the creation of a community through synchronous and asynchronous communication (mainly chats and forums but also the possibility of posting advertisements to the community). This vision came from existing websites and online communities such as [www.wordreference.com](http://www.wordreference.com) which give students a chance to experience language in the community (the emphasis being on using the language) and take ownership of their learning through the participation in forums of users. In its third year of use, the language learner support remains an additional open resource and tool for anybody on campus wishing to improve their language skills.

All enquiries related to the initiative can be directed to Nathalie Cazaux at [nathalie.cazaux@itb.ie](mailto:nathalie.cazaux@itb.ie).

I

```
$PROG $1`  
result" != "$2" ] ; then  
echo "error: $PROG $1 = $result ? [ $2 ]"  
num_errs=$((num_errs+1))  
echo "$PROG $1 = $2 ok."
```

```
r"  
" "Error"  
"
```



## Initiatives in Assessment

### Enhancement of Assessment

Two active research projects are underway at ITB investigating a range of techniques to reposition the processes and practices of assessment to enhance student engagement through creative and inclusive modes of assessment. Projects include service learning, developing skills in video assessment, use of weblogs in language teaching and best practice guidelines for academics utilizing electronic assessment tools. This collaborative project, led by Carlow IT and funded under SIF Cycle 2, aims to develop a portfolio of case studies based on the results of over twenty projects across four institutes of technology including Blanchardstown, Carlow, Dundalk and Tallaght IT.

All enquiries related to the initiative can be directed to Geraldine Gray at [geraldine.gray@itb.ie](mailto:geraldine.gray@itb.ie).

### Computer Assisted Assessment

The introduction of the Moodle VLE has seen a rise in the levels of computer aided assessments, particularly in the area of computer delivered multi choice quizzes. This allows academics to create question banks for quiz generation which can be combined in deliberate or random order and delivered in computer labs. Grading and feedback is automatic and reduces the time taken to manage and administer tests. The use of these types of assessments has proven popular with both staff and students across a wide range of subjects and disciplines.

All enquiries related to the initiative can be directed to Daniel Mcsweeney at [daniel.mcsweeney@itb.ie](mailto:daniel.mcsweeney@itb.ie).

### Portfolio, blog and diary based Assessment

Staff such as Niamh O'Hara (Creative Digital Media), Mary Ann Kenny (Languages) and Pat O'Connor (Business), are all working in the area of portfolio, blog or diary based assessment. In this model, students are asked to document their work during semester and to post this in a portfolio or blog. This incremental building of progress and reflection allows a student to gain appreciation of their own progress while also allowing an instructor to gain an excellent understanding of the students workflow and achievements.



## Electronic submission, plagiarism detection and mark-up

Technology has played a significant role in the management of assessment in the institute. Since the introduction of the moodle based VLE, staff can now create, manage and grade assignments online. Students can upload assignments electronically and receive feedback and grades privately through their moodle account. The system has offers a number of key advantages over traditional approaches

- CA announcements can be made online via forums.
- Students are sent email notifications of assignment requirements.
- Assignment submission dates appear in students online calendars.
- Students can submit assignments on or off campus in electronic form, cutting down on paper and printing requirements.
- Academics can access and grade assignment submissions from anywhere.
- The system keeps a complete log of students who have submitted and the time they submitted.
- Academics can grade submissions online and send student feedback on assignments. Feedback can be in the forms of written text or response files such as audio, video or documents.
- Students can view grades and feedback online via their private moodle account.
- Academics can set assignments up so that all submissions are checked automatically for plagiarism by the integrated TurnItIn service.
- Students and academics can receive detailed reports on a submission possible levels of plagiarism. Reports highlight levels of non original content and sources.
- Academics can leave electronic comments and markup on papers submitted to the TurnItIn system.

All enquiries related to the initiative can be directed to Daniel Mcsweeney at [daniel.mcsweeney@itb.ie](mailto:daniel.mcsweeney@itb.ie).



## Initiatives in Learning Technology

### Virtual learning Environment - Moodle

The Institute of Technology Blanchardstown possesses a broad range of knowledge and expertise in the area of learner support and course delivery technologies. At present the Institute deploys a moodle based course management system (CMS) which supports the running of 400 active course modules and 1500 active students. The moodle environment was chosen because of its open source architecture (under the GNU public license) and its significant user base. The system is administered by the e-learning coordinator and maintained by the Institutes IT Support department. The system provides both lecturers and learners with a number of key benefits

- Access to course materials from anywhere: As moodle is a web based system, academics and learners can interact with the system from anywhere with an internet connection.
- Communication: Users can easily communicate with each other via forums, chats, blogs and instant messaging. The system facilitates a variety of synchronous and asynchronous communication methods.
- Assignment Submission and management: Moodle allows academics to manage the publication of assignments, assignment submissions and assignment grading within the online environment. Learners can submit electronic based assignment submissions via the moodle interface and receive private feedback and grades in a secure environment. The system also supports the creation of online quizzes with automated results, feedback and grade publishing.
- Rich feature set: Moodle supports a rich set of features designed to ease the process of course management and delivery and assist in learner support. Some of these include
  - Enrolment tools
  - E-mail integration
  - Course calendars and announcements
  - Usage and access reporting
  - Integration of 3<sup>rd</sup> party e-learning content
  - Use of WIKI's and workshops
  - Distribution of rich media (podcasts, video, breeze lectures etc)

Usage for moodle is now at an all time high. An analysis of moodle traffic from the January 1<sup>st</sup> 2010 to April 26<sup>th</sup> 2010 revealed the following key statistics:

- Students logged into moodle 158,803 times during the semester
- During that time they generated over 1 million page views (1,025,750)
- The site currently contains over 67,000 learning resources

### Online Classroom Environment – Adobe Connect

Adobe connect software is used to create information and general presentations, online training materials, web conferencing, learning modules, and user desktop sharing. The product is entirely Adobe Flash based. The Institute of Technology Blanchardstown has been a user of this software since 2004 and has used the system to create a wide array of learning resources for students across a variety of courses. The system can be used to create synchronous or asynchronous learning sessions. Its key features include

- Unlimited and customizable meeting rooms
- Multiple meeting rooms per user
- VoIP
- Audio integration
- Meeting recording
- User management, administration and reporting
- Polling
- Central content library

The system is currently in use in the delivery of several online engineering courses. The system is administered by the full time e-learning coordinator and maintained by the Institutes IT Support department.

### Plagiarism Detection Software

Ensuring academic standards in students work is of vital importance to the institute. One of the key areas of quality control is in ensuring that students are made aware of plagiarism, its drawbacks and the systems that are in place to assist students in preventing accidental or misuse of others work. In 2009, ITB invested in TurnItIn (turnitin.com). Turnitin originality checking allows educators to check students' work for improper citation or potential plagiarism by comparing it against continuously updated databases. Every originality report provides instructors with the opportunity to teach their students proper citation methods as well as to safeguard their students' academic integrity.

- Encourages Proper Citation
- Over 12 Billion Web Pages Crawled & Archived
- Over 100 Million Student Papers
- Over 80,000 Major Newspapers, Magazines & Scholarly Journals
- Thousands Of Books Including Literary Classics
- Printable Reports

The software is approaching the end of its pilot phase in ITB and has proved popular with academics and students!

## Learning Technology Hardware

Through funding sources such as the NDLR (National Digital Learning Repository) and SIF II, ITB has been able to make some key investments in learning technology. Notable acquisitions in the last 36 months include

- New DELL server for Moodle VLE
- Adobe connect online classroom software
- New blade server for Adobe Connect online classroom
- Screen capture software for staff (Camtasia studio)
- Tablet PC's for creation of learning objects
- Digital Voice recorders
- Microphones
- Cameras
- eLearning software.

## Sports Management and Coaching

The Sports Management and Coaching Course have invested in three pieces of technology that will greatly enhance the quality of the modules we provide for the students at ITB.

The first piece of technology is Dartfish Video Analysis System - it enables ITB staff to analyse the performance of the students, the athletes and clients they are coaching/training as well as analysing our own performance as educators/lecturers

The 2<sup>nd</sup> piece of technology is the SmartSpeed and SmartJump system. It is the world's first Reactive Training, Coaching and Testing System. Unlike typical measurement only sports technology, it can actually enhance coaching, training and practice session, as well as improve the quality of data collected in testing and research environments. This will greatly enhance the Sports Management and Coaching students experience of physiological testing – speed, strength and power testing will be brought to a whole new level.

The final piece of equipment technology is the Hosand heart rate telemetry system which enables us to test and monitor the work rates, fitness levels and cardiovascular performance of up to 10 athletes at a time. It gives the student coach an invaluable insight into how players or athletes are responding to a particular training or practice stimulus.





## Funded Initiatives, external activities and collaborations

### National Digital Learning Repository

NDLR is a national online service for Irish Universities and Institutes of Technology supporting the collaboration and sharing of learning and teaching resources. A key impact of the online NDLR service is to support greater collaboration in developing and sharing of digital teaching resources and associated teaching experience across all subject disciplines and communities of academics and to promote good practice use and re-use of existing resources. By being empowered by the support of communities of academics, staff from different disciplines can share effort and expertise as they raise the bar collectively for how they support their students learning, embed research in their teaching and potentially embracing partnerships with research and industry, both in Ireland and Internationally.

Through NDLR funding, ITB staff have engaged in a wide range of projects resulting in the creation and use of digital learning resources within ITB. Key projects and initiatives include

#### Project 1: Creation of electronic resources for module support

Commenced: 2007 | Status: Ongoing

This ongoing project is developing a series of learning objects (LO's) for assisting staff new to the Moodle VLE. It is hoped that upon completion, 50+ LO's relating to use of the VLE will be uploaded to the repository. LO's are in flash format.

#### Project 2: The PodCast project

Commenced: 2008 | Status: Ongoing

This projects aims to increase the level of Podcast resources being used as part of module delivery within ITB. Initiative supported by workshops developed by Paul Gormely (NUIG)

#### Project 3: Tablet PC initiative

Commenced: 2007 | Status: Ongoing

This initiative involves the use of three tablet PC's which have been acquired directly from NDLR funding. Used in combination with CamTasia, the project aims to produce a series of learning objects for mathematics, programming & data mining

#### Project 4: Reusable assessment objects

Commenced: 2007 | Status: Ongoing

Academic staff within the institute have also been encouraged to share assessment items and in particular banks of electronic questions. Created in moodle there are now over 60+ modules which provide a range of sharable assessment objects for academic staff.

#### Project 5: Moodle Content Filter

Commenced: 2009 | Status: Ongoing

ITB's Course page Content Filter for Moodle is being piloted this semester with computer science students. The aim of the filter is to facilitate searching through the linear list of learning objects typically associated with a module page using a range of filtering criteria such as file type; content adapted to a particular learning style; overview versus detailed objects; learning objects not yet viewed, mandatory objects versus additional reading, and searches based on keywords.



#### Project 6: Reusable assessment objects for Photoshop

Commenced: 2010 | Status: Ongoing

This initiative involves the development of over 70 learning resources for allowing students to study the use of Photoshop software.

#### Project 7: Learning Objects for Data Mining

Following a successful request for funding to the NDLR Community of Practice (CoP) Fund in June 2009, ITB is currently developing a suit of 60 learning objects to support the delivery of business intelligence and data mining related modules at levels 7, 8 and 9. This is a collaborative venture with the open-source, data mining specialists Rapid-I.

### Dublin Regional Higher Education Alliance

The Dublin Region Higher Education Alliance (DRHEA) is a strategic alliance of the Higher Education sector in the wider Dublin city-region. It includes four Universities and their linked Colleges (TCD, UCD, DCU and NUIM) and four Institutes of Technology (DIT, IADT, ITB and ITT Dublin). The Dublin Region Higher Education Alliance (DRHEA) has been awarded funding under the Higher Education Authority's Strategic Innovation Fund Cycle II (SIF II). The eight members of the Alliance have identified four strands of activity where collaborative action will lead to efficiencies and increased capacity for development:

1. Enhancement of Learning
2. Graduate Education
3. Internationalisation
4. Widening Participation

The Enhancement of Learning (EOL) Strand, convened by Dublin City University (DCU), is one of four component strands of the Dublin Region Higher Education Authority (DRHEA) EOL is the largest strand, involving all 8 of the collaborating institutions and it comprises a number of projects organised into four major areas:

1. The Dublin Centre for Academic Development
2. Transforming the Curriculum/Learning Outcomes
3. Teaching for Engagement and Retention
4. Enabling E- and Blended learning

ITB staff have been involved with the eLearning Network of Excellence. The main objectives of the eLearning Network of Excellence are to:

1. Establish a co-coordinated elearning and instructional design network across the DRHEA.
2. Implement online collaboration and develop peer-learning tools to support the teaching of large groups and the delivery of a flexible curriculum with trans-institutional graduate and doctoral programmes.

In a audit of the following strengths and challenges in the environment were identified

- Generally, there is a high-level sponsorship of elearning (usually a Vice-President or Director) in the institutions and elearning functions as an element of learning/teaching development initiatives. All institutions recognise the importance of having a progressive elearning strategy as part of the overall institutional strategy; however it has not been fully embedded in the smaller institutions (including ITB).
- All institutions have a VLE, which is used for electronic information distribution, course management and elearning. Most VLEs, with the exception of TCD, are integrated with the IT systems/student database. In the majority of cases, all modules on the institutional database have a space in the VLE and although use of the VLE is not mandatory for teaching purposes, in reality the level of use by both staff and students is extremely high and growing. However, in the majority of modules, the VLE is used primarily for electronic information distribution rather than elearning.
- There are 26 people in total employed to support elearning across the eight institutions. However, there can be significant demands on support due to high expectations among staff and students, especially at the start of term.
- A 'working relationship' with each institution's Information Systems Services is the norm (i.e. non-formal). However, most DRHEA partners noted that IT departments within institutions are not always in a position to implement new learning-technology application rollouts. This leads to outsourcing of support/hosting, thus generating additional costs to expanding elearning support and provision.

ITB staff are currently involved in the convening of the DIT eLearning summer school 2010. The theme of the summer school is "Fostering Collaboration" and several ITB academic staff will be in attendance.

### **Supported Flexible Learning (Bluebrick.ie)**

The Lifelong Learning/Up skilling strand - Supported Flexible Learning was successful in attracting over 8 million in SIF 2 funding. The project involves partnerships between all Institutes of Technology and DIT. In keeping with current government and market need, the IoT's and DIT commit to mainstreaming supported flexible learning within and between their institutes as an innovative and complementary mode of delivery. This flexible learning system aims to expand the number of people in the workforce engaged in education and development.

As a result of project funding, the Institute has been in a position to develop courses which are being offered in flexible mode. These include:

BN903 - Higher Certificate in Engineering in Mechatronics

BN306 - Bachelor of Engineering in Mechatronics

BN039 - Bachelor of Science in Sustainable Electrical and Control Technology

BN509 – Higher Diploma in Science in Computing

BN512 - Master of Science in Computing

BN518 - Masters in Computing in Information Security & Digital Forensics

BN523 - Master of Science in Technology Entrepreneurship

### **SIF2 - DEAF STUDIES PROJECT - ITB and TCD**

Deaf people are the most under-represented at third level of all marginalised groups. Additionally, there is a serious shortage of appropriately qualified signed language interpreters, which aggravates their situation in society. On this SIF2 funded three year project the Institute of Technology Blanchardstown (ITB) - Dept of Informatics is the key partner with the Centre for Deaf Studies in TCD. With innovative use of IT and elearning and blended learning, we will provide progression pathways and further access to education for a marginalized group and through the strengths of the two partner institutions: TCD for research-led teaching of Deaf Studies, ISL/English Interpreting and ISL Teaching nationwide over the life of the project, and ITB for elearning, blended learning, and rich digital media learning objects.

The project programme will provide a progression pathway to an NQF Level 8 qualification, and beyond, to postgraduate awards and facilitate access to higher level qualifications for deaf and hard of hearing people, who are currently the most under-represented group of disadvantaged people at third level. It will also, for the first time, facilitate a 'training of trainers' programme in this area. The project is using a mix of elearning and blended learning approaches with rich digital media to deliver some courses online, ensuring that there is Irish Sign Language provision of content as well as text based options (e.g. by providing video-podcasts of live lectures).

The implementation of this programme will also facilitate our understanding of what constitutes successful elearning/blended for Deaf and hard of hearing people, and an exploration of to what extent a signed language can be taught in these innovative modes.

Elearning with a focus on deaf and hard of hearing learners has not been explored in Ireland in any aspect of tertiary education to date despite the fact that there are significant barriers to participation in tertiary education for this group. Using state of the art technologies and pedagogical approaches developed and piloted by CDS/TCD and ITB, we are delivering blended and elearning content at 3<sup>rd</sup> level. This will create the possibility for a significant increase in the number of appropriately qualified ISL teachers and ISL/English interpreters – both of which are crucial in developing appropriate nationwide access to employment, education and general participation by



deaf people (see the recent NCSE report on Deaf Education). The project plan requires that ITB concentrate on the research and elearning deliverables and doctoral level activities with two postgraduate students are now underway.

Chief investigators: Dr. Brian Nolan ITB and Dr. Lorraine Leeson TCD

### **SECASE – Software Engineering Case Studies**

ITB has been a partner on the SECASE project, a Leonardo funded initiative to improve the effectiveness of third level computer science and software development education by giving teaching staff access to up-to-date and business relevant case study material provided by the software industry. Partners included Association of Northern Ireland Colleges (ANIC) (lead partner) (UK) , Institute of Technology Blanchardstown (Ireland), Fredrick Institute of Technology (FIT Cyprus), Momentum (UK) , Irish Software Association (Ireland) , Cyprus Computer Society (Cyprus), and Aries Formazione (Italy) .

ITB developed a case study in the field of mobile gaming, using a legacy game made available by Eirplay Games, a leading web and wireless games publisher, and in addition developed and hosted the project website ([www.secase.eu](http://www.secase.eu)). Further case studies were in the areas of software for Human Resource Management (FIT), Software Testing (ANIC), and Software Development Life Cycle (ANIC). Multimedia educational material designed around the case studies, in the form of videos, assignments, lecture notes and software, is available through the project website for use by educators.

### **VOCAL – Vocationally Oriented Culture and Language**

ITB has been a partner on the VOCAL project (Vocationally Oriented Culture and Language: [www.vocalproject.eu](http://www.vocalproject.eu)), which is a Leonardo da Vinci Transfer of Innovation project and part of the Lifelong Learning Programme. Partners included Plovdiv University (Bulgaria), Omnia (Joint Authority of Education in Espoo Region in Finland), Leonardo-Office Saxony-Anhalt (Germany), University of Miskolc (Hungary), SINTESI (Italy), Kaunas University of Technology (Lithuania), TecMinho (Portugal), Slovak University of Technology (Slovakia) and the Swiss Occidental Leonardo (Switzerland).

The VOCAL project is based on preparation for student mobility placement abroad. The preparation offered is on the level of both practical language skills and cultural awareness related to vocational training settings. This linguistic and cultural preparation is achieved by means of a virtual journey which can be undertaken by prospective mobility students accessing the materials on the user-friendly website.

ITB has been the technical partner on this project and is responsible for the technical outputs of the project. It has worked closely with all of the VOCAL partner institutions and recently launched the VOCAL project website ([www.vocalproject.eu](http://www.vocalproject.eu)) which consists of a huge range of online bilingual resources in 13 languages on a range of topics including Travel, Accommodation, Socialising, Emergencies, At Work, Business, Tourism, Banking & Services and Engineering .



## Staff Training and Development

A number of training workshops have been delivered in ITB in the areas of learning and teaching technologies. They include

### Using moodle

This workshop is designed to encourage academics to use e-learning technologies via moodle. The session consists of an overview of basic course management operations in moodle as well as download and integrating resources from learning repositories. The session then looks at some of moodle's more advanced features including assignment management, forums, grading, wiki's etc.

### Using learning objects and digital media for teaching

This workshop is designed to encourage academics to use combine their use of the moodle VLE with learning objects from the NDLR and other repositories. It also demonstrates adding rich media such as mp3, video etc to VLE resources.

### Creating learning objects using Camtasia and Tablet PC's

This workshop provides a demonstration of available tablet PC's as well as an introduction to Camtasia Studio. It introduces the academic to the possibilities of capturing whiteboard sessions and exporting them as useful learning objects. Applications include math's, accounting, physics, engineering etc.

### Creating e-learning resources for online and flexible learning

This session examines a series of tools and technologies for creating online teaching materials for use in online and flexible learning.

### Introduction to the NDLR

This workshop is intended to introduce new academic staff to the activities of the NDLR.

### The NDLR – copyright and IP

This workshop is intended to provide an overview of IP and copyright issues associated with using digital repositories.

### Creating Podcasts

This workshop introduces academic staff to the range of digital audio recorders which are now available for use within the institution. The session will provide an overview of the operations of the

digital audio recorders as well as an overview of the process required in making the podcast/mp3 files available to students.

### Using TurnItIn

This workshop introduces academic staff to the TurnItIn plagiarism detection system. The session examines moodle integration, assignment creation and management, originality checking and marking.

### Learning Styles

To support learning styles profiling, a series of 10 workshops on learning and teaching methodologies have been recorded, and are available to staff via moodle.







## The LinC at ITB

The role of the Learning and Innovation Centre at ITB is to support economic growth in our catchment area, thereby creating employment and wealth. It has been given a separate brand identity, The LinC, to allow it to be a visible and active link between the Institute, the wider business community, and semi-state organisations concerned with trade and industry. By providing Enterprise support, Research and Development links and Education and Training programmes, we enable the creation or expansion of business ventures in Fingal and the Greater Dublin area, in particular in the high technology 'knowledge economy' for which Blanchardstown is well known.

### Enterprise Support

The LINC supports start-up companies through the provision of incubation spaces; the provision of Enterprise Support Programs such as the M50 Enterprise Platform programme and the Enterprise Start program; Virtual Offices; Mentoring and Coaching and access to ITB facilities, research communities, graduates and students for placements and recruitment.

During the summer of 2009 the LINC significantly expanded its incubation space and together with an enhancement of its networking space, the capacity to foster new businesses will increase dramatically in early 2010. This expansion has been funded through Enterprise Ireland under the National Development Plan 2007-2013.

### Research and Development

The LinC acts as the liaison between the research community in ITB and local industry, supporting the development of partnerships through funds such as Enterprise Ireland's Innovation Voucher and Innovation Partnership programs, the Department of Education Strand 1 programme, HEA programmes, the Leonardo programme, the Marie Curie Fellowship fund, IRCSET and IRCHSS. ITB has research groups in the areas of Graphics and Gaming; Elearning; Computer Forensics and Networking; Clinical and Bio-engineering; Intelligent Transport Infrastructure and Systems; Computer Linguistics, Computer Vision, Computational Intelligence and Data-mining; Language Education and Entrepreneurship.

Enterprise Ireland's Innovation Voucher scheme links local SMEs with third level researchers to work on innovative projects to develop their business. Since the scheme opened ITB has completed eighteen projects with small companies and is currently working on an additional six.

### Education and Training Programmes

The LinC and the have been heavily involved in the development of bespoke training programmes and special purpose awards, from the School of Informatics and Engineering and the School of Business and Humanities, to meet specific industry needs such as Ericsson Ireland, Damovo Ireland, CMAE Ireland, Intel, IBM and the HSE. As an example, ninety students from Damovo Ireland and Ericsson Ireland received dual accreditation from ITB and either CompTIA or CISCO.

The LINC has also hosted seminars for SMEs, agencies such as Fingal County Council, the Fingal County Enterprise Board and Enterprise Ireland and other Institutes including “Diversity in the Workplace”, “SMEs and the local community” and “Technology Transfer and Licensing”. For further details of any these programs or initiatives at the LINC please contact Assumpta Harvey 018851186 or [linc@itb.ie](mailto:linc@itb.ie)



## Staff Experiences and Feedback

### Coupling of Lecture and Lab sessions

*"I have had a lot of success in the past few years by requesting all my classes be scheduled in the labs rather than split between lecture theatres/class rooms and labs. I find this gives great flexibility and allows me to stop after discussing a key point and do some immediate practice while the information is still fresh in the students' minds."*

Ben Toland – Lecturer in Engineering

### Experiments with Social Media

This initiative was concerned with **communication skills** which are necessary across the field of social care. One communication medium being currently used by over 400 million people worldwide is **Facebook**. As this is currently one of the many social networking sites most of our students are familiar with, it seemed appropriate to get students studying the fundamentals of communication to use this medium for their Continuous Assessment. Students worked in randomly chosen groups of four to carry out this project.

*"The feedback from students on the project was extremely positive. They gained confidence in the use of a social networking site, working in a randomly chosen group, communicating their findings on the chosen subject to their class group via their facebook page and they had fun doing it. "*

Joanie Cousins – Lecturer in Social Studies

### Investments in Learning Technology for Sports Management and Coaching Students

*"All if these technologies are used worldwide in Institutes of Sport, professional sports teams and organisations as well as in research centres and academies in universities and health centres.*

*Now, the Sports Management and Coaching students of ITB will have the opportunity to work with and learn how to use these technologies to improve both the performance of the people they coach, as well as developing and improving their own performance as coaches."*

Martin Kennedy – Lecturer in Sports Management and Coaching

### Blog Based Assessment

*"Each student created a personal Weblog using blogger.com. Weekly blog tasks were set by the instructor relating to topics covered in class which would subsequently be examined in an oral examination at the end of the semester. Students were required to make postings to their blogs integrating text, image, sound and video. A range of Web 2.0 and other applications was used for this purpose: PowerPoint, Voki, Voice Thread and Movie Maker. The blog comment feature was used by the instructor to provide formative feedback to students on their postings. Students were encouraged to read and act on this feedback during class time."*

Mary Ann Kenny – Lecturer in Languages

### Portfolio Based Assessment

*On a personal note, sometimes somebody says or does something to make you realise why you get out of bed in the morning. Here's a quote from one of the portfolios I looked at yesterday.*

*"I am no longer just doing this course just to say that I have a degree, but I am doing this course to learn, achieve, gain insight and confidence which I know will transpire into my personal and academic development and will have a positive impact on my professional career."*

Pat O'Connor – Head of Department of Business Studies







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