Higher education programmes to address ICT and software development skills needs

February 2014

‘ICT and Software Development Skills Programme’

Call for Proposals / Terms & Conditions
Important Notice

1. The Higher Education Authority (HEA) is making this document available to providers submitting a proposal for higher education and training courses under this ‘ICT and Software Development Skills Programme’. The document must not be used for any other purpose.

2. The Higher Education Authority has taken all reasonable care to ensure that the material set out in this Call for Proposals is true and accurate in all material respects as at the time of publication. However, no warranty or representation is given as to the accuracy or completeness of this material. The Higher Education Authority does not accept any liability or responsibility for the accuracy, adequacy or completeness of the information set out herein.

3. The Higher Education Authority will not be liable or responsible for any opinion, statement, or conclusion contained in, or any omission from this document or for any other written or oral communication made available during the course of the Call process. No representation or warranty is made in respect of such statements, opinions or conclusions.

4. The Higher Education Authority reserves the right to amend these documents and any information contained herein at any time by notice in writing to the candidates.

5. None of the information set out herein will constitute a contract, or part of a contract, or an offer to enter into a contract, between the Higher Education Authority and any provider. Nothing in these documents is, nor shall be relied upon as, a promise or representation as to the Higher Education Authority’s ultimate decision in relation to the award of the contract for the services.

6. However, the Higher Education Authority reserves the right to take such steps as it considers appropriate, including but not limited to: changing the basis of, or the procedures (including the timetable) relating to, the Call process; rejecting any, or all, of the proposals; abandoning the competition (or any part of it) at any time prior to a formal written contract being executed by and on behalf of the Higher Education Authority; procuring the services by alternative means if it appears that the services can be more advantageously procured.

7. No legal relationship or other obligation shall arise between any applicant and the Higher Education Authority unless and until a contract has been entered into.

8. Each applicant’s acceptance of delivery of the Call for Proposals constitutes its agreement to, and acceptance of, its terms.
9. Under no circumstances will the Higher Education Authority be liable for any costs, charges or expenses incurred by candidates as a result of participating in this Call process, however caused. Any costs associated with the submission of a proposal are the sole responsibility of the candidate and will not be reimbursed.

Statutory requirements

10. All providers making a proposal(s) for programmes to be supported through this initiative must confirm compliance with statutory requirements regarding their financial and legal status and be prepared to furnish any additional supporting documents as requested by the Higher Education Authority.

Introduction

11. In January 2012, in a direct response to specific skills shortages for people with high-level ICT skills, the Department of Education and Skills published a joint Government–industry ICT Action Plan aimed at building the supply of high-level ICT graduates.¹ Recognising that increased undergraduate ICT enrolments would take time to feed through to increased output, the Plan also provided for the immediate roll out of targeted reskilling and conversion courses through Springboard and the ICT skills conversion programme. The ICT skills programme offers intensive NFQ level 8 higher diploma courses delivered by higher education providers in partnership with industry. Almost 1,500 students have enrolled under the two phases of ICT Skills since 2012.

12. The ongoing implementation of the ICT Action Plan, including the roll out of Springboard and the ICT skills conversion programme was also incorporated into one of the seven Disruptive Reform proposals in the 2013 Action Plan for Jobs. The Disruptive Reform on ICT Skills aims to build Ireland’s ICT skills capability to the point that it acts as a beacon for mobile ICT investment and entrepreneurs to set up and grow ICT businesses in Ireland.

13. In recognition of the skills shortages that continue to exist for people with high-level ICT and software development skills, a third phase of the ICT Skills Programme is being now rolled-out, and the Higher Education Authority is requesting proposals from higher education providers for specialist programmes, to start from early summer 2014, aimed at addressing

identified ICT and software development skills gaps. In making an application under this scheme, higher education providers must clearly demonstrate a collaborative partnership with a relevant industry partner(s) for the design, implementation and provision of a targeted NFQ level 8 skills conversion programme. Enterprise Ireland and IDA Ireland will assist higher education providers in forging partnerships with industry by making their client-base aware of the opportunities that exist for them to partner with a provider in the submission of a proposal. Providers seeking the assistance of these state agencies should contact the HEA in the first instance (icts@hea.ie).

14. Providers submitting a proposal under this call must use the online proposals system at http://skillsdirect.hea.ie. As an aid in preparing to make an online submission, a sample application form is included with this document. However, providers wishing to make course proposals must register and submit completed proposals online through SkillsDirect only. The deadline for submission of proposals is 5.00pm on Wednesday 12 March 2014. The Higher Education Authority will not consider proposals received after this time.

Information to assist providers in making proposals

Objective

15. The primary objective of the ‘ICT and Software Development Skills Programme’ is to address ICT skills gaps through the successful level 8 conversion of talented graduates from non-computing/IT disciplines to meet identified ICT skills needs (see appendix 5). The Programme also aims to identify and address skills gaps through clearly stated collaboration and engagement between the enterprise sector and higher education providers in the design and delivery of higher education programmes, thereby meeting the on-going and future demand for qualified employees.

16. This Call document is accompanied by a guidance document prepared by Forfás for higher education providers on current and future skills needs of enterprise and available on the Higher Education Authority website (www.hea.ie).

Target cohort

17. The conversion programmes are targeted at jobseekers that have an honours degree in a cognate discipline, as well as the capacity and underlying aptitude to undergo an intensive
programme of study and work-experience to acquire industry-relevant ICT and software development skills at level 8 of the National Framework of Qualifications (NFQ).

18. In developing proposals providers should have regard to the most recent data and trends on the profile of people experiencing unemployment and, in particular, the priority accorded by the Government to supporting people who are more than 12 months unemployed.

Key features of the programme

19. Successful graduates of the programme will acquire an NFQ level 8 Higher Diploma in Science in Computing which will enable them to apply the transferable skills that they have obtained as part of their original degree to specific computing / IT skills in their chosen area of specialisation. While there should be an emphasis on providing a broad overview of the ICT landscape, particular attention should be given to technologies that are used heavily in industry (e.g. use of REST vs. SOAP for web services). In that way, courses should focus on openly transferrable and industry relevant skills rather than vendor specific frameworks and platforms. Successful graduates are expected to spend one year obtaining an award which will contain the following stages:

a. Immersion in computing knowledge
   In semester 1 participants will undertake a broad immersive set of modules in the fundamentals of computing covering software development, systems analysis & testing, databases, architecture, OS & networking, web design / user-experience. These modules will have to be separately taught to the general provision for computing students for two key reasons:
   - The participants will be graduates who have already obtained significant transferable skills by comparison with other undergraduate students,
   - The pace of delivery will have to be significantly higher than for normal undergraduate programmes to bring participants to an appropriate level in the timescale available.

b. Deepening and specialisation
   In semester 2 students are expected to take a specialisation which reflects their own strengths as demonstrated on the programme to date. This element is a focused set of
modules and project-work designed to bring candidates quickly to the industry entry standard for graduates in the chosen field of specialisation.

With appropriate resource-sharing this element of the programme can allow different specialisations to be delivered in different institutions and locations. Participants will be expected to select their specialisation based on their achievement in semester 1 and their own ambitions, and so should be in a position to progress quickly in their specialisation of choice.

c. Industry experience and professional development

A work-placement or internship with the associated industrial partners for a three to six-month period following successful completion of the taught material is a mandatory requirement of the programme. Internships or work placements are seen as crucial to providing graduates with the context and confidence in their new knowledge. Outputs expected from the work placement would include a work placement report (e.g. a reflective journal), a project ideally conducted in the work placement organisation and/or a professional certification or equivalent. It is expected that academic and industry partners will cooperate in the provision of appropriate academic supervision resources for the duration of this work placement activity. Building towards these placement opportunities, programmes could also include regular (e.g. once a month) peer to peer sessions (e.g. hackathons; coder dojo for adults) with software developers in industry as part of the programme.
Outline of programme proposal

Figure 1: Outline structure for Higher Diploma in Science in Computing

The programme will provide graduates with technical skills, knowledge, and competences in the fundamentals of computing, as well as with expertise in a range of specialisations.

Industry partnership

20. Applications must include the following input from industry partner/s:

- Articulation of the skills needs that will be addressed by the programme;
- Commitment to provide workplacements to participating students;
- An indication of the employment opportunities in the field that are likely to be available to graduates of the programme.

21. Industry partners who engage with this programme will also have an opportunity to put forward an in-house training programme for recognition. Employers could propose in-house training or professional certification preparation as a 5-credit ‘professional development’ element attached to the work-placement. Small and medium enterprises in particular may wish to support students to obtain professional accreditations. In this case it is expected that enterprise would support the participants on the programme towards obtaining the professional certification.
Specialisation

22. Specialisation, which will allow students to focus on their strong points, is a key element of the programme. It is not expected that providers would provide all specialisations on one site. However it is expected that providers should present solutions which encourage the efficient use of resources through co-operation in provision. Where possible it should be possible for an individual candidate to access the specialisation for which they are best-suited even though this may not be available from the higher education provider with whom they initially enrolled.

Progression

23. On successful completion of the programme it is expected that graduates will be of a standard to be eligible for entry into specialist computing M.Sc. programmes which are available through both full and part-time modes of delivery.

Eligible NFQ award types, levels, credits and design

24. The initiative will support specialist programmes provided by public, private and not-for profit higher education providers which lead to a higher education and training award that is included in the National Framework of Qualifications (NFQ) at Level 8, which is made by one of the following Irish awarding bodies:

a. Dublin Institute of Technology (DIT);

b. Quality and Qualifications Ireland (QQI), including combinations of modules from already validated programmes leading to a major award. (Note: combinations should be submitted to QQI for approval prior to or at the same time as submission to Springboard/ICT Skills to ensure adequate time for validation);

c. Institutes of Technology with delegated authority to make awards;

d. Royal College of Surgeons in Ireland; or

e. Universities.

25. Specialist programmes which will lead to a higher education and training award that is aligned with the Irish NFQ at level 8 may also be considered. These awards must be aligned with the Irish NFQ as at 01 January 2014.
26. Collaborative proposals from a group of providers will be especially welcome, however a lead provider must be clearly identified as part of the proposal, and the proposal must adhere to all requirements regarding quality assurance and the making of awards.

27. Proposals should be for full-time programmes of study which provide at least 60 European Credit Transfer System (ECTS) credits or equivalent per annum. Proposals which lead to an award of fewer than 60 ECTS credits or equivalent per annum will not be eligible for consideration. Proposals for programmes involving intensive attendance over a shorter duration may also be considered, for example 10–20 contact hours per week for a specified number of weeks.

28. Proposals should outline the teaching, learning and assessment methodologies that will be used to meet learner needs, for example flexible approaches and study skills/return to learning components. Available academic and pastoral supports should be referenced, including for example careers advisory services or work-placement supports. Information will also be required on progression opportunities that are available for participants on completion of a programme.

29. Providers should ensure that where a participant re-enters employment before completion of a programme they should be facilitated to gain the programme award on a flexible, part-time basis.

Fees and income support

30. Programme participants will not be required to pay fees

31. Arrangements in respect of potential participants who are in receipt of a Department of Social Protection income-support payment will be clarified in advance of programme start.

Costs

32. Providers are requested to submit details of all costs associated with the delivery of proposals in the format outlined in part A4 of the Call for Proposals. Funding to successful providers will be on an agreed basis subsequent to consideration of the estimated cost per student by the Higher Education Authority. Funding will be released in a number of tranches depending on the programme duration. It is intended that the first tranche of funding (an initial 40%) will be released on the basis of student acceptances to a programme. Further
payments (in the region of 40% and a final balance payment of 20%) will be made at stages over the course of the programme delivery.

Data requirements

33. Programme providers will be required to maintain data records on the AMS system, to promptly return data to the Higher Education Authority on programme activity and outcomes at regular intervals, and co-operate with an on-going monitoring and evaluation mechanism which will be determined by the Higher Education Authority in consultation with the Department of Education and Skills. Requirements will include maintaining a student-record for each programme participant, linking input data (e.g. education, employment history) with outcomes data (e.g. completion, award, employment by sector). Further details will be supplied as part of contract terms. On-going funding of programmes will be conditional on co-operation with the evaluation process and timely return of data.

34. The ICT Skills programme may be included in the next round of ESF-supported initiatives for education and skills for the period 2014-2020 (European Social Fund Operational Programme 2014-2020). Providers are asked to note that participation in ESF co-financed programmes is subject to specific requirements with regard to financial management and control and is subject to periodic audit by the EU and other bodies. In the event of the inclusion of ICT Skills in Ireland’s ESF-supported programme, providers approved for courses will be advised of their full financial management obligations. Details of financial control requirements are available on the ESF Website, [www.esf.ie](http://www.esf.ie).

35. Subject to demand and take-up of individual programme places, the Higher Education Authority may agree to re-allocate unfilled places to other programmes.

36. All providers of courses funded through ICT Skills will be required to use the online system at [www.ictskills.ie](http://www.ictskills.ie) to manage course information, applications and acceptances as well as return of data as set out above.

Application and assessment process

37. Applicants are required to complete a copy of the online application form via the proposals system at [http://skillsdirect.hea.ie](http://skillsdirect.hea.ie). A sample application form is provided below (pg. 33–44) as an aid to applicants.
38. Decisions on proposals to be funded will be made by an expert industry and academic panel convened by the Higher Education Authority. The membership of this panel will be published on the Higher Education Authority website (www.hea.ie) on completion of the assessment process.

39. Course proposals will be assessed initially in accordance with the criteria set out in Sections 2-4 of the online course proposal form and the associated marking scheme. Information included as part of proposals on outcomes from previous ICT Skills courses will be cross-referenced with outcomes data returned to the HEA via the online system. This outcomes data will be considered by the expert panel when recommending 2014 courses for approval.

40. Courses that fail to score a minimum of 50% of the marks available for each section will not be considered for approval. The final decision on courses approved through the Programme will also take into consideration the overall mix of courses with reference to ICT skills gaps as well as geographical spread.

41. It is planned that notification of approved courses will be sent to providers during the week commencing Monday 28 April 2014. In assessing applications to the ICT Skills programme the HEA may favour programmes which have earlier start dates, offer opportunities to participants sooner and therefore address skills gaps more swiftly. Contracts will be agreed between providers and the HEA shortly after notification of approved courses and planning and marketing of courses will begin. Uploading information on approved courses to the online system www.ictsskills.ie will be an important part of this process.

Freedom of Information

42. Information held by the HEA on the ICT Skills programme will be subject to the Freedom of Information Act 1997 (FOI Act), which was passed into law on 21st April 1997, The Act has applied to the HEA since the 1 October 2001. Policies and procedures on access to information is set out in the following link: http://www.hea.ie/en/freedom-of-information.
Submission of proposals

This Call for Proposals has issued on 4 February 2014. A briefing for higher education providers will take place on 6 February. Support documents include this Call document and Guidance for Higher Education Providers on Current and Future Skills Needs of Enterprise as provided by Forfás. The HEA will also operate a Frequently Asked Questions (FAQs) service. The Call and supporting documentation are also available on the HEA website [www.heai.ie](http://www.heai.ie).

I. Proposals must be submitted online via [http://skillsdirect.heai.ie](http://skillsdirect.heai.ie). A copy of the online proposal template is included in this document for information purposes, to assist providers in planning their response.

II. The closing date for submission of proposals is **5.00pm on Wednesday 12 March 2014**. The online application system will not accept proposals submitted after this deadline.

III. Any queries on the Call process for 2014 must be emailed to ictskills@heai.ie. Telephone queries cannot be accommodated, and any form of canvassing will disqualify. Relevant queries and the answers provided will be published on the HEA website as part of a Frequently Asked Questions (FAQ) document.

Indicative timetable 2014

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call for Proposals issues</td>
<td>Tuesday 4 February 2014</td>
</tr>
<tr>
<td>Briefing on call process</td>
<td>Thursday 6 February</td>
</tr>
<tr>
<td>Deadline for submission of proposals</td>
<td><strong>Wednesday 12 March, 5pm (GMT)</strong></td>
</tr>
<tr>
<td>Providers notified of approved courses</td>
<td>w/c Monday 28 April*</td>
</tr>
<tr>
<td>Contracts agreed with HEA, providers upload information for applicants to <a href="http://www.ictskills.ie">www.ictskills.ie</a></td>
<td>w/c Wednesday 14 May*</td>
</tr>
<tr>
<td>Launch of ICT Skills Conversion 2014 with applications open on <a href="http://www.ictskills.ie">www.ictskills.ie</a></td>
<td>w/c Monday 19 May*</td>
</tr>
</tbody>
</table>

*These dates may be subject to change
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Appendices 1–5

Sample structures and sample material for ICT and software development NFQ level 8 conversion programme
Appendix 1 – Sample Structures

A Higher Diploma (NFQ level 8 conversion) in Science in Software Development might look as follows:

<table>
<thead>
<tr>
<th>Sample Structure - Higher Diploma in Science in Software Development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Semester 1 – Core Computing</strong></td>
</tr>
<tr>
<td>OO Software Development 1 (10)</td>
</tr>
<tr>
<td>Information Systems (5)</td>
</tr>
<tr>
<td>Architecture, Operating Systems and Networks (5)</td>
</tr>
<tr>
<td><strong>Semester 2 – Software Development</strong></td>
</tr>
<tr>
<td>OO Software Development 2 (15)</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

A Higher Diploma (level 8 conversion) in Science in IT Infrastructure might look as follows:

<table>
<thead>
<tr>
<th>Sample Structure - Higher Diploma in Science in IT Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Semester 1 – Core Computing</strong></td>
</tr>
<tr>
<td>OO Software Development 1 (10)</td>
</tr>
<tr>
<td>Information Systems (5)</td>
</tr>
<tr>
<td>Architecture, Operating Systems and Networks (5)</td>
</tr>
<tr>
<td><strong>Semester 2 – IT Infrastructure</strong></td>
</tr>
<tr>
<td>IT Infrastructure (15)</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

A Higher Diploma (NFQ level 8 conversion) in Computing (Data Analytics) might look as follows:
### Sample Structure - Higher Diploma in Science in Data Analytics

#### Semester 1 – Introduction to Analytics

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programming for Big Data</td>
<td>10</td>
</tr>
<tr>
<td>Information Systems</td>
<td>5</td>
</tr>
<tr>
<td>Probability and Statistics</td>
<td>5</td>
</tr>
<tr>
<td>Project and Change Management</td>
<td>5</td>
</tr>
<tr>
<td>Data Analytics I</td>
<td>5</td>
</tr>
</tbody>
</table>

#### Semester 2 – Analytics for Business Support

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Databases</td>
<td>5</td>
</tr>
<tr>
<td>Data Analytics II</td>
<td>5</td>
</tr>
<tr>
<td>Data Analytics Case Studies</td>
<td>5</td>
</tr>
<tr>
<td>Project</td>
<td>10</td>
</tr>
<tr>
<td>Company Specific Training / Certification /</td>
<td></td>
</tr>
<tr>
<td>Additional Module</td>
<td>5</td>
</tr>
</tbody>
</table>

The above are indicative and other Higher Diploma (level 8 conversion) programmes which might help to address the skills needs as identified in appendix 6 (pg. 31 below) would also be considered.
Appendix 2 – Sample Material - Core Computing

Sample Material for ICT Level 8 Conversion Programme – Core Computing

OO Software Development 1 (10 credits)
On successful completion of this module the learner will be able to:

1. Design, develop, test and debug software applications using an object-oriented programming language utilising core object-oriented programming concepts
2. Implement basic algorithms and data structures using an object-oriented programming language

Content outline:
OO programming: types, variables and operators; control structures; objects and classes; methods; inheritance and polymorphism; exception handing; code style and quality
Data Structures and Algorithms: implement basic data structures and algorithms in an OO programming language e.g. stacks, queues, searching and sorting; analysis of algorithms

Information Systems (5 credits)
On successful completion of this module the learner will be able to:

1. Design and implement a relational database schema for a software application
2. Query a relational database using SQL
3. Evaluate and use non-relational data storage technologies

Content outline:
Relational Database design: ER diagrams and mapping to a relational schema, data normalisation, relational integrity, keys, indexes, database transactions
SQL: schema definition and data manipulation in SQL, SQL queries, an introduction to stored procedures
Non-relational storage: schema-less storage (no SQL); XML and XML Schema

Systems Analysis (5 credits)
On successful completion of this module the learner will be able to:

1. Complete an OO analysis and design using core UML features
2. Describe testing approaches for software applications
3. Apply project management principles to a software project

Content outline:
UML: user requirements capture; using core UML constructs to complete an OO analysis and an OO design e.g. user cases, classes diagrams, sequence diagrams etc.
Software Testing and Project Management

Web & UI Design (5 credits)
On successful completion of this module the learner will be able to:

1. Build an UI for a web application using appropriate UI design principles
2. Describe the architecture of the web and web applications
3. Introduction to client-side web applications

Content outline:
UI Design: HCl, UI design principles for web applications, event driven architectures (e.g. Node.js)
Web Architecture: HTTP and HTML, web servers and clients, security, web for mobile
Client-side web application development: intro to client-side scripting using Javascript, UI design, CSS

Architecture, Operating Systems and Networks (5 credits)
On successful completion of this module the learner will be able to:

1. Understand the basic architecture and operation (processing, storage and communication) of a micro-processor based system
2. Develop a conceptual understanding of the architecture of a typical operating system
3. Explain network models such as OSI and TCP/IP and the process of data encapsulation
4. Plan and test a network with the appropriate cables and device interconnections and develop an addressing & testing scheme.

Content:
CPU Components. BIOS configuration. Assembling a computer; Logic Gate functions to adders.
Discriminate and differentiate the processes by which operating system software manages resources, processes, I/O and storage, Utilise Unix scripting to implement simple problem solving tasks
OSI and TCP/IP models. Network traffic analysis, real and simulated networks, peer-to-peer networks. The process of data encapsulation.
HTTP, DNS, DHCP, SMTP/POP, Telnet and FTP. TCP and UDP. Network addressing and routing, configuring hosts to access the local network and exploring routing tables. Host configurations, ICMP (Internet Control Message Protocol)
Appendix 3 – Sample Material - Software Development Specialisation

Sample Material for ICT Level 8 Conversion Programme
– Proposed Module Content for Software Development Specialisation

OO Software Development 2 (15 Credits)
Student electing to take this stream will be equipped with the skills to become software developers/software engineers. In addition to the core material proposed below guest lectures from industry/academia on current topics (e.g. scalability & loading, the parallel paradigm, software process management, secure coding) will be encouraged.

On successful completion of this module the learner will be able to:

1. Concurrency:
   a. Implement advanced OO features in software applications
   b. Implement concurrency in software applications

2. Algorithms & Data Structures:
   a. Implement algorithms and data structures using an OO programming language

3. Platforms:
   a. Implement software applications and services on web, IaaS/PaaS cloud, and mobile platforms
   b. Implement a Service-Oriented Architecture using RESTful and to a lesser extent SOAP based web services
   c. Implement event driven server-side software systems and technologies such as Node.js

4. Code design:
   a. Apply well known style and design principles and patterns to a software application developed using an OO programming language
   b. Analyse source code using industry accepted code metrics
   c. Develop software using a test-driven development approach

Content outline:
Concurrency: Advanced OO programming e.g. inner classes, anonymous methods and classes, interfaces, collections, attributes/annotations; threading and concurrency, parallel extensions and platforms
Data Structures and Algorithms: Implement structures and algorithms in an OO programming language e.g. queues, trees, heaps etc.
Platforms: Web, Cloud, and Mobile: architecture of web, cloud (IaaS/PaaS) and mobile applications; development of basic applications for such platforms; persistence frameworks, project module to allow student to specialise in development for any of these platforms
Service-Oriented Architectures: SOAP, WSDL and the WS-* specifications; REST; web services; SOA design and implementation.
Code design: Code metrics, design patterns, style; test-driven development lifecycle, unit testing using a unit testing framework, code coverage, continuous integration, source code control systems

Software Development Project (10 credits)
On successful completion of this module the learner will be able to:

1. Undertake a significant software development project using a test-driven development approach
2. Conduct research as part of the project
3. Complete an OO analysis and OO design as part of the project
4. Implement the project, test it, and demonstrate it to peers
5. Use state of the art software technologies in a software application

Content outline:

Research, design and develop a significant software development project. Ideas will be taken from a list put together by and industry-academic steering committee. The project must use state of the art technologies for leading enterprise platforms e.g. web, cloud, or mobile. Students will develop specialist skills for specific software platforms as part of this module.

Deliverables:

1. research, analysis and design documentation
2. software implementation

Sample Projects:

1. Design and develop a novel web application using an industry standard web application development framework, encompassing a data source using a persistence engine, and an interactive web UI
2. Design and develop a web application or web service for an IaaS/PaaS cloud solution exploiting the storage and scalability features of such a platform
3. Design and develop a mobile app, test on a range of devices, release on an app store
4. Design and develop a computer game for a games console

Company Specific Training/ Certification/ Module (5)

This is intended to allow credit for specific company training and/or certification. Can be associated with placement. Should same not be available provision should be made for an additional academic module.
Appendix 4 – Sample Material - IT Infrastructure Specialisation

Sample Material for ICT Level 8 Conversion Programme
– Proposed Module Content for IT Infrastructure Specialisation

Student electing to take this stream will be equipped with the skills to become a Junior Network Engineer, LAN and IaaS (Infrastructure as a Service) Support Technician, Virtualisation Network Engineer, Junior Network Administrator and Network Support Analyst. In addition to the core material proposed below guest lectures from industry/academia on current topics (e.g. scalability & loading, the economics of clouds, computer forensics,) will be encouraged.

Network and Virtualisation Infrastructure (15 Credits)
On successful completion of this module the learner will be able to:

Routing Configuration and Deployment:
1. Explain the characteristics, operations and limitations of dynamic link state and distance vector routing solutions.
2. Describe and apply the benefits of VLSM along with CIDR.
3. Configure Security Firewall partitions

Optimised Secure LAN Design:
4. Design, build and troubleshoot a security switched VLAN network.
5. Evaluate link state concepts, operations, the Shortest Path First (SPF) algorithm and the operation of spanning tree protocols.
6. Configure advanced features of network routers and switches using the Cisco IOS command set.

Network Security:
7. Design, Build and manage a campus network campus spread across many locations.
8. Effectively manage a network using diagnostic tools and SNMP protocols.

Infrastructure as a Service & Virtualisation:
9. Describe the basic physical and virtual architecture of IaaS deployments and to evaluate the security implications of using Cloud-based services
10. Assess and implement the architectures, components, operation and tools of cloud computing

Content

Routing Configuration and Deployment:
Classless Routing, VLSM, RIP v2, OSPF concepts and configuration. WAN Technologies PPP, Frame Relay.

Optimised Secure LAN Design:

Network Security:
Enterprise security policies, VPN technologies, IPSec security protocols, Layer 3 Access control lists, Device hardening, Securing routing protocols
IP Addressing Services: Adv IP addressing, NAT, Port Address Translation, DHCP, IPv6 migration

Infrastructure as a Service & Virtualisation deployments:
Cloud benefits, deployment & data centre models, multi-tenancy security issues, cloud services delivery & service types SANs (Storage Area Networks) & Redundancy. Virtual Machines (VMs) and Hypervisors. Virtual Failover Clusters.

Network Infrastructure Project (10 credits)
On successful completion of this module the learner will be able to:
1. Undertake a state of the art network infrastructure design & implementation project
2. Conduct research as part of the project
3. Implement the solution, assess it, and make recommendations to peers
4. Deploy state of the art infrastructure technologies

Content outline:
Research, deploy and critically assess a state-of-the-art Network Infrastructure project. Ideas will be taken from a list put together by an industry-academic steering committee.

The project must use current network technologies in current key areas e.g. SAN, green energy savings, Virtualization overheads, Security assessments, Open source versus proprietary Cloud deployments. Students will develop specialist skills in specific network areas as part of this module.

Deliverables:
1. Research, analysis and conclusions documentation
2. Network test-bed implementation

Sample Projects:
1. Design and develop a virtualised failover-cluster infrastructure and test its capabilities.
2. QoS over LANs: investigate the QoS attributes of switches on real time voice, video and data transmissions. Areas of QoS that should be considered: Scheduling, Classification and Marking, Policing & Congestion Management.
4. Evaluate network management station applications that retrieve the hardware details of a selection of specifically configured network hardware via SNMP.

Company Specific Training/ Certification/ Module (5)
This is intended to allow credit for specific company training and/or certification. Can be associated with placement. Should same not be available provision should be made for an additional academic module.
Appendix 5 – Sample Material - Data Analytics

Sample Material for ICT Level 8 Conversion Programme – Data Analytics

In recent years the falling cost of digital storage, the increasing move towards online information processing and other related technological developments have made it possible for organisations to collect massive amounts of data about their customers, users and processes. Data analytics is the science of extracting actionable insight from large amounts of raw data in order to enable better decision making within an organisation. The following modules might be offered as part of a Level 8 Data Analytics conversion programme:

Programming for Big Data (10 credits)

*Based on an assumption of no prior computing experience, students taking this module will acquire the computer programming skills necessary to analyse and manipulate big data. This module will begin with an introduction to key programming concepts using programming languages designed specifically for data manipulation (e.g. Base SAS or R). Once students have developed a suitable grounding in these skills focus will turn to tools and techniques for handling big data, which in this context refers to datasets that are too large to be handled by the software tools commonly used to analyse and manipulate data within a tolerable elapsed time.*

On successful completion of this module the learner will be able to:

1. **Develop solutions for common data programming problems such as extracting, cleaning, merging, aggregating and integrating datasets.**
2. **Write programmes to analyse and report on the contents of datasets.**
3. **Clearly describe the characteristics of big data, and contrast the requirements for processing big data with conventional data.**
4. **Identify and illustrate the challenges of programming for big data, and evaluate contrasting methods for addressing these challenges.**
5. **Implement solutions to various big data programming problems using a range of state of the art tools and techniques, and evaluate the effectiveness of these solutions.**

**Content outline:**

*The following is indicative of the syllabus that would be covered in this module (suitable programming tools such as SAS, R or SQL will be used for each topic):*

- **Introduction to programming for big manipulation and analysis**
- **Data access programming**
  - Data structures for data analytics
- **Data manipulation programming**
  - Extracting, cleaning and aggregating datasets
  - Merging and integrating datasets
- **Data analysis and reporting programming**
  - Programming for descriptive statistics
  - Generating reports from data
- **Introduction to programming for big data**
  - What is big data?
  - How is programming for big data different?
- **Performing data access, manipulation, analysis and reporting for big data**
  - Approaches to handling big data
  - Big data programming patterns
Big data programming tools

- Distributed programming paradigms
  - Map, Reduce, and MapReduce
  - Distributed programming tools for data storage and data analysis (e.g. Hadoop, Mahoot, Pig)

Information Systems (5 credits)
This module provides the learner with fundamental skills to design information systems, focusing on the design and implementation of database systems.

On successful completion of this module the learner will be able to:
1. Design and evaluate a relational database schema for a software application
2. Devise and implement a set of relational tables and develop the relational database.
3. Query a relational database using SQL
4. Evaluate the use of relational and non-relational data storage technologies

Content outline:
The following is indicative of the syllabus that would be covered in this module:
- Relational Database Design
  - ER diagrams and mapping to a relational schema
  - Data normalisation
  - Relational integrity
  - Keys
  - Indexes
  - Database transactions
  - ACID properties
- SQL
  - Schema definition and data manipulation in SQL
  - SQL queries
  - Introduction to stored procedures
- Non-relational storage
  - Schema-less storage (no SQL)
  - XML and XML Schema

Probability and Statistics (5 credits)
This module will introduce students to the role of probability models and statistical inference in data analytics. Laboratory work will give the student experience in applying probability and statistical models to real data.

On successful completion of this module the learner will be able to:
1. Formulate probability models for continuous and discrete data.
2. Perform and interpret statistical hypothesis tests in a number of situations including tests applied to contingency tables.
3. Fit the multiple and logistic regression model using software and interpret the output from such models. Use regression type models for classification.
4. Use a statistical analysis software package.

Content outline:
The following is indicative of the syllabus that would be covered in this module:

- **Introduction and orientation**, motivation for formal statistical analysis.
- **Data summary**, measures of location and dispersion and their meaning, skew.
- **Probability and probability models** for data, calculating probabilities, discrete and continuous distributions, means and standard deviations of probability distributions
  - Bernoulli, binomial, hypergeometric, Poisson, Multinomial and Normal probability distributions.
  - Multivariate Distributions.
- **Hypothesis tests**
  - Statistical significance
  - p-values and their interpretation
  - Confidence intervals.
  - Tests applied to contingency tables.
- **Multiple linear and logistic regression models**
  - Predictions from regression models
  - Classification using regression type models.

**Data Analytics I (5 credits)**

Data analytics is an area of increasing importance and interest to organisations. Data analytics techniques offer huge potential in the creation of new knowledge products and services and the enhancement of existing products and services. Rather than focus on the details of specific data analytics techniques, this module addresses the application of data analytics techniques to real business problems and the preparation of data for these applications.

On successful completion of this module the learner will be able to:

1. Discuss the role of data analytics in an organisation
2. Develop appropriate data analytics solutions to business problems
3. Prepare data for data analytics projects
4. Discuss the role of data management in data analytics

**Content outline:**

The following is indicative of the syllabus that would be covered in this module:

- **Overview**
  - Introduction to data mining and applications of data analytics
  - Data, Information, Knowledge
  - Modelling an activity
  - Framing a business model
  - Developing a model
  - Deploying a model
- **Data Analytics Life Cycle**
  - Stages of a data analytics project
  - Outputs of each stage
  - Roles and responsibilities of people involved in data analytics
- **Data Management**
  - Introduction to Data Management
  - Role of organisations and stakeholders
  - Data architecture management
Project & Change Management (5 credits)
To be effective data analytics practitioners require an understanding of basic project management and change management concepts, tools and techniques. Furthermore, practitioners need an understanding of the nature of data analytics projects, the inherent risk and change management needed, and the ability to apply good project management skills to data analytics specific problems.

On successful completion of this module the learner will be able to:
1. Examine the fundamentals of the data analytics project and the factors involved in using a methodology in the context of project management.
2. Explain the risks, issues, and critical success factors associated with data analytics projects.
3. Create a project plan, including scope definition, risk assessment, task breakdown, team selection, estimates, communication mechanisms and progress evaluation and reporting using an appropriate project lifecycle.
4. Employ appropriate software for project planning, estimation, monitoring and control, communication and reporting.
5. Identify and analyse the causes of project success versus failure within data analytics projects.
6. Understand the importance of change management within data analytics projects.

Content outline:
The following is indicative of the syllabus that would be covered in this module:

- **Project Management overview:**
  - Nature of data analytics projects, project lifecycles and project stages
  - Organisational influence on projects
  - Role and skills of project managers
- **Managing people and organising teams**
  - Roles and responsibilities
  - Team Work
  - Managing decision making and conflict
- **Planning and Estimation**
  - Work break down structures, milestone identification
  - Estimation techniques
  - Expressing plan using appropriate tools
- **Monitoring and control**
  - Responsibility for monitoring and control within team and project;
  - Appropriate tools for tracking and monitoring;
  - Risk monitoring and mitigation
- **Change management**
- Types of change
- Mapping change
- Systems approach to change
- Organisation development

- Project Communication
  - Communication with stakeholders
  - Communication within teams
  - Presenting project outcomes.

- Project Evaluation
  - Success criteria and metrics, evaluation, customer satisfaction measurement, transition to operations.

- Project Management tools
  - Selection and use of appropriate, industry relevant project management tools and software.

**Advanced Databases (5 credits)**

Building on the Information Systems module, this module presents a detailed study of the advanced usage and functionality of SQL in an enterprise database environment using a suitable relational database management system.

On successful completion of this module the learner will be able to:

1. Write complex SQL using cursors, triggers, stored procedures and procedural SQL
2. Implement and use advanced data types in SQL
3. Incorporate and use XML in a relational database
4. Manage database security in a complex environment

**Content:**

The following is indicative of the syllabus that would be covered in this module:

- Advanced data types – structured, arrays, objects
- Advanced database design
- Triggers
- Cursors
- Query optimisation and performance tuning, stored procedures
- Procedural SQL
- Advanced SQL functions
- XML / SQL
- Data security and data management
- Distributed databases - concurrent access, locking, fragmentation and replication
- Standards - SQL:2003, W3C (XPath and XQuery), and OMG
- Emerging database technologies and application areas.

**Data Analytics II (5 credits)**

This module will build on the content covered in Data Analytics I focusing on analytics techniques and how these can be applied to specific business problems. The focus will be on breadth rather than depth - meaning that students will be introduced to, and made aware of, a wide range of data analytics techniques rather than covering a small number of techniques in great depth. The module will also cover the legal and ethical issues associated with data analytics. Finally, the
module will review the most widely used data analytics tools on the market and equip students with the tools to evaluate and select from these tools for specific projects.

On successful completion of this module the learner will be able to:

1. Understand the a range of different data analytics techniques and their data requirements
2. Analyse and evaluate the suitability of different data analytics techniques
3. Perform basic data analytics tasks using suitable data analytics tools (e.g. SAS Enterprise Miner)
4. Understand the legal and ethical issues associated with data analytics projects
5. Evaluate, assess and select analytics tools for different analytics tasks

Content:
The following is indicative of the syllabus that would be covered in this module:

- Data Analytics Techniques
  - Predictive modelling techniques (e.g. regression, nearest neighbour, decision trees, neural networks, support vector machines)
  - Pattern discovery (e.g. association rule mining, clustering, heuristic algorithms)
  - Data visualisation & evaluation
- Legal & ethical issues in data analytics
  - Data protection issues
- Data analytics tools
  - Data preparation tools
  - Data analysis tools
  - Data modelling tools
  - Evaluating tools for data analytics

Data Analytics Case Studies (5 credits)
The purpose of this module is to expand the student’s understanding of techniques employed in data analytics by exposing them to real world case studies. These case studies may be of approaches that organisations have taken to implement solutions to real problems in the field or based on scenarios which have no a priori solutions to allow the students to create their own approach and compare it with other students. One of the main goals of this module will be to expose students to the varied uses of data analytics in different industries.

On successful completion of this module the learner will be able to:

1. Read about, and intelligently discuss applications of data analytics within an organisation
2. Examine case studies of applications of data analytics and how they are implemented in the workplace
3. Identify issues in a range of disciplines that can be addressed by the application of data analytics
4. Explain the different contributions of people, organisational systems and technologies in organisations
5. Analyse and evaluate the ways in which data professionals contribute to an organisation
6. Critically assess data analytics solutions using a range of appropriate criteria.

Content:
The following is indicative of the syllabus that would be covered in this module:

- Case study techniques:
  - Types of Case Studies
Collecting Data for Case Studies
Designing and Conducting Case Studies
Analysing Case Study Evidence
Reporting Case Studies

- Innovation in organisations
- Varied case study content that may include the following industries or topics:
  - Telecommunications
  - Pharmaceuticals
  - Finance
  - Customer relationship management
  - Marketing
  - Digital media
  - Open source software
  - Ethical issues
  - Geographical Information Systems

Data Analytics Project (10 credits)

On successful completion of this module the learner will be able to:
1. Undertake a significant data analytics project
2. Conduct research as part of a significant project
3. Complete all steps of the data analytics project life cycle (e.g. business understanding, data understanding, data preparation, data modelling, evaluation, and deployment)
4. Conduct the data analytics project and communicate the generated insights to peers
5. Use suitable state of the art data analytics tools.

Content outline:
Research, design and undertake a significant data analytics project. Ideas will be taken from a list put together by an industry-academic steering committee. Or from an idea generated by the student themselves. The project must use state of the art data analytics technologies and students will be expected to develop specialist skills for this project beyond those covered in the core modules.

Deliverables:
1. Research, analysis and design documentation
2. Analytics artefacts (e.g. databases, models etc.)
3. Documented insights extracted from data.

Sample Projects:
The following are examples of possible areas that students might address in their projects:
1. Design, development and deployment of a predictive model for a specific business application.
2. Exploration of a specific social issue through the use of data analytics tools.
3. Undertaking a customer segmentation for a specific business (to include data analytics work as well as development of communication strategies and collateral)
4. The generation of a holistic data visualisation tool, for a set of disparate, but connected, data sources
5. The design and implementation of data collection and storage systems for novel data types.
Company Specific Training/ Certification/ Module (5 credits)
This is intended to allow credit for specific company training and/or certification. Can be associated with placement. Should same not be available provision should be made for an additional academic module.
Higher education programmes to address ICT and software development skills needs

4th February 2014

Appendix - 6

ICT skills demand for specific ICT and software development skill-sets
ICT skills demand for specific ICT skill-sets

Advice provided by the Expert Group on Future Skills Needs (EGFSN) has identified ICT skills demand for specific ICT skill-sets. In making an application to the ICT Skills Programme applicants should make specific reference to these skills needs as well recent ICT skills reports published by the EGFSN (www.egfsn.ie) including the advice provided in the publication Guidance for Higher Education providers on current and future skills needs of enterprise - Springboard 2014 / ICT Level 8 Conversion Programme.

Software Engineers for the design and development of applications & systems: Specific skill-sets required are:

- **Programming languages** - Java, JavaScript, C#, C++, C+++, Visual Basic; .Net; SQL data base; Perl, Ruby, Python, Objective-C, Objective – Orientated Programming (OOP);
- Java knowledge combined with experience in Spring and Grails Frameworks; PHP knowledge;
- **Web Development** - understanding of Web 2.0 development technologies, XML, Microsoft ASP.Net (web application framework to build sites, applications and services), Personal Homepage Tools (PHP), Microsoft Sharepoint family of software products, other web page development skills (HTML, CSS, XHHTML, Ruby on rails);
- **Games developers** with skills (both entry and advanced level) in web based architecture and technologies, Java, and game state management (GSM), as well as high level skills in 3D animation;
- **Enhancing end user experience** and usability (UX, UI, Tibco, Messagebroker), which are becoming increasingly important as businesses migrate to online platforms; and
- Knowledge of **operating platforms** – Windows, UNIX / Linux processing environment.

Computing architects and administrators, with skills and expertise in:

- Big Data analytics infrastructure and technologies (for big data developers: NoSQL, Java, JavaScript, MySQL and Linux combined with TDD, CSS and Agile; for big data architects: Oracle, Java, SQL, Hadoop, SQL Server and Data Modelling ETL);
- customer relationship management applications (Salesforce, Dynamics, Oracle, SAP, Advanced Excel); and
- SQL Server database administration.
Cloud computing specialists:

- cloud infrastructure skills (e.g. Python and open source technologies);
- VMWare and other virtualisation technologies know-how; and
- Expert support engineers (Windows, Linux, Redhat, Debian, Ubuntu).

Network specialists and engineers: e.g. Server Message Block (SMB), wireless sensor testing, collaboration functions, process management, search modules and document management platform, router configuration and management, experience with scripting language Java, C, C+ and network configurations.

Security experts: high level expertise in security, malware, digital forensics, web security, etc. Internet security and network security models and solutions - certified IT systems, architecture, engineering and management (e.g. Cisco information security systems), firewall configurations administration, authorisation mechanisms.

Telecommunications: Mobile technology applications developers (e.g. Apple iOS; Android (e.g. Honeycomb, Icecream, Sandwich); Windows Phone; Linux; Unix; open source tools; Software Development Life Cycle); the demand spans a range of levels but is particularly strong for high level skills.

IT Project managers with technical skills combined with program management, business analytics, or Agile/Scrum/Kanban and Prince II skill sets.

IT user support: Networking and PC maintenance experts with skills in Cisco CCNA and MS MCITP; there is also a demand for skills, even those with less experience, in Oracle, Comptia Linux+, Comptia A+, wireless networks and IP networking, especially, although not restricted to, the telecommunications and security industries.

IT testing and troubleshooting: performance testers; automation and manual testers (especially in the financial and telecommunications industries).
Personnel with **foreign languages skills and IT technical background**: To fill positions in IT technical support, accounting, marketing and business development; requirement for fluent oral and written French, German, Spanish, Dutch, Flemish and Swedish.

**Sales and Marketing personnel with IT technical background** and relevant industry knowledge: To support business development; Oracle and SAP business applications and services and other software solutions for specific business solutions.

Expert Group on Future Skills Needs (EGFSN) report *Guidance for Higher Education providers on current and future skills needs of enterprise - Springboard 2014 / ICT Level 8 Conversion Programme* has also identified specific ICT skill-set needs in respect of **Data Analytics** as follows:

**Data analytics, skilled professionals with data analytics skills.** Skills need identified include the need for supporting technology professionals, with the skills to develop, implement and maintain the hardware and software required to make use of Data Analytics including Big Data. Programme content to address such needs should include the following:

- Fundamentals of computing software development;
- Building, implementing and managing Hadoop environments;
- Mapreduce;
- Data base management and administration—SQL, MySQL, NoSQL;
- Social media technologies;
- Design/user experience skills;
- Communications, problem solving, Ethics and teamwork skills.
Higher education programmes to address ICT and software development skills needs

4\textsuperscript{th} February 2014

‘ICT and Software Development Skills Programme’

SAMPLE

Provider Registration & Application Form

This is a simple application form.

Applications should be submitted to the HEA via the online facility as set out in the Call for Proposals / Terms & Conditions.
Sample Provider registration [To be completed via skillsdirect.hea.ie]

Thank you for your interest in the Springboard/ICT Skills Conversion Initiative. In advance of making a submission(s) to participate in either call in 2014, each prospective course provider is required to have in place some core administrative, academic and pastoral supports. Provision of these supports will be part of any subsequent contractual agreement between the course provider and the Higher Education Authority.

Provider registration - Please complete and confirm the following details:

<table>
<thead>
<tr>
<th>Institute name (Name of provider):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Address:</td>
</tr>
<tr>
<td>Name of contact person (Please note a single point of contact for Springboard/ICT Skills Conversion is required for each provider):</td>
</tr>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>Contact email:</td>
</tr>
<tr>
<td>Contact telephone:</td>
</tr>
<tr>
<td>Information for registration [user name, password]:</td>
</tr>
<tr>
<td>Co-ordinator for online Application Management System (AMS):</td>
</tr>
<tr>
<td>Name:</td>
</tr>
</tbody>
</table>

Declaration

Name:

I confirm that my institute will deliver the following to Springboard/ICT Skills Conversion applicants and participants during 2014-2015:

- Staff available to respond to telephone and email queries from prospective applicants from May-October 2014 inclusive
- A pro-active policy on Recognition of Prior Learning (RPL) that includes recognition of the previous work experience of participants
- Tailored job readiness training that is an integral part of each course
- I confirm that my institute will collect and return to the HEA academic and employment-related outcomes data on Springboard/ICT Skills Conversion participants
2014 CALL FOR PROPOSALS - Template document
[To be completed via skillsdirect.hea.ie]

Please note, this published version of the template document is for information purposes: it must be completed online for each course proposed, and submitted via http://skillsdirect.hea.ie.

<table>
<thead>
<tr>
<th>Part A1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A1</strong></td>
</tr>
<tr>
<td>Provider name:</td>
</tr>
</tbody>
</table>

**Essential course information**

**Course title**
[freetext]

**Course Code**
[freetext]

**ISCED code**
[freetext]
For list of ISCED codes, please consult the following link: http://www.hei.ie/en/statistics/annual-statistical-return/isced-coding [to open in new tab if clicked]

**Course NFQ Level**
[Dropdown, but disable options for choosing anything other than Level 8]
Level 6
Level 7
Level 8
Level 9

**Award type**
[Dropdown]
Major award
Minor award
Supplemental award
Special purpose award

**Has this course been previously delivered by your institution under ICT Skills Conversion or in any other capacity?**
[Drop down]
If Yes, please provide the following outcomes data on the course cohort for the most recent year available. If employment data is not known, indicate as such.

<table>
<thead>
<tr>
<th>Year the course commenced</th>
<th>% of cohort graduating</th>
<th>% of cohort in employment within 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>[freetext]</td>
<td>[freetext]</td>
<td>[freetext]</td>
</tr>
</tbody>
</table>

Course Description to appear on ictskills.ie

Subject to funding approval, this description will provide prospective ICT Skills Conversion applicants with a concise overview of the content and objectives of the course, including employment-related objective(s). A 250 word limit applies [to be system-enforced]. [Freetext]

Select to which skills/industry category this course is most closely aligned

[Drop down menu]
Information and Communications Technology
Skills for International Trade
Manufacturing
International Financial Services
Cross-enterprise skills
Construction
Other

Awarding body for the course

Number of ECTS or equivalent credits attached to the course

Entry requirements (qualifications and/or relevant experience) for the course

Overview of your college’s policy on RPL for entry to the proposed course (max 200 words):
A pdf of the full policy should be uploaded to the site

Entry requirements (qualifications and/or relevant experience) for the course

How will the course be delivered?

[Drop down]
<table>
<thead>
<tr>
<th>Category</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online/distance education</td>
<td></td>
</tr>
<tr>
<td>On campus (including outreach centres)</td>
<td></td>
</tr>
<tr>
<td>Mix of online/distance and on-campus</td>
<td></td>
</tr>
<tr>
<td>Please state the planned duration of the course [Maximum 12 months]:</td>
<td>[Drop down]</td>
</tr>
<tr>
<td></td>
<td>1-4 weeks</td>
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<td></td>
<td>5-10 weeks</td>
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<td></td>
<td>11-20 weeks</td>
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<tr>
<td></td>
<td>21-40 weeks</td>
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<tr>
<td></td>
<td>41-52 weeks</td>
</tr>
<tr>
<td>Proposed start date of course</td>
<td>DD – MM – YY</td>
</tr>
<tr>
<td>Proposed end date of course</td>
<td>DD – MM – YY</td>
</tr>
<tr>
<td>Total number of contact hours proposed per week</td>
<td>Total number of contact hours proposed per week [Drop down]</td>
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<td></td>
<td>1-5 hours per week</td>
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<td>6-10 hours per week</td>
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<td></td>
<td>11-17 hours per week</td>
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<tr>
<td></td>
<td>18+ hours per week (accelerated courses only)</td>
</tr>
<tr>
<td>Number of on-campus hours proposed per week</td>
<td>[Drop down]</td>
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<tr>
<td></td>
<td>Distance learning – not applicable</td>
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<tr>
<td></td>
<td>1-5 hours per week</td>
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<td></td>
<td>6-10 hours per week</td>
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<td>11-17 hours per week</td>
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<td>18+ hours per week (accelerated courses only)</td>
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<tr>
<td>Period(s) during which on-campus contact hours take place</td>
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<tr>
<td></td>
<td>Distance learning – not applicable</td>
</tr>
<tr>
<td></td>
<td>Daytime only (9am-5pm)</td>
</tr>
</tbody>
</table>
Evenings only (5 – 10pm)
Weekends only
Mixture of daytime and evenings

**Overview of the job readiness component of the course [Max 200 words]**
[freetext]

**Target enrolment numbers (for ICT Skills Conversion cohort only) in 2014-15**
[number]

**Do you propose to have multiple intakes on this course?**
[Tickbox]

**If there are multiple intakes, please enter details in the box below:**

<table>
<thead>
<tr>
<th>Intake</th>
<th>Student numbers:</th>
<th>Start date:</th>
<th>End date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intake 1</td>
<td></td>
<td>dd-mm-yyyy</td>
<td>dd-mm-yyyy</td>
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<tr>
<td>Intake 2</td>
<td></td>
<td>dd-mm-yyyy</td>
<td>dd-mm-yyyy</td>
</tr>
</tbody>
</table>

[freetext]

**If this course is currently being offered as part of general provision, state the current tuition fee:**
€

**Should the course be approved, please confirm that participants will undertake placement/internship and provide details in the next section.**
[Drop-down]
Yes / No
(Note: must be an in-company placement for Yes to be chosen for this question)

**Please provide the following details for the planned work placement/internship:**

<table>
<thead>
<tr>
<th>Start date</th>
<th>Duration in weeks</th>
<th>Credit-bearing</th>
<th>Yes, indicate credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>dd-mm-yyyy</td>
<td>[number]</td>
<td>Y or N</td>
<td>[number]</td>
</tr>
</tbody>
</table>
### Part A2

#### A2: Course links with Labour Market Opportunities – 60 marks

Please confine each 30/30 mark answer to no more than 300 words

**How will the proposed course prepare participants to fill identified current/future skills needs?**

**Using the table below, provide details of industry sectors, skills areas and sample job titles that the proposed course is preparing participants for.**

<table>
<thead>
<tr>
<th>Main industry sector</th>
<th>Specific skills area(s)</th>
<th>Sample job title</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Additional industry sector(s)</th>
<th>Specific skills area(s)</th>
<th>Sample job title</th>
</tr>
</thead>
<tbody>
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<td></td>
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</table>

Your response should also include evidence of elements such as links between the course content, including transferable as well as technical skills and knowledge, and the job roles outlined in the table above. If the proposed course has been run previously, include further details of employment outcomes for participants.

[freetext]

30 marks

**Outline the nature of the collaboration that has taken place between your college and relevant employers/industry contacts:**

Your response should include information on the input of specific named employers/enterprise partners into the course content; arrangements for work placement (mandatory) for course participants provided by named employers/enterprise partners; the extent of commitments from employers regarding job opportunities or other inputs; commitments by named enterprise partners to support/promote the ICT Skills Conversion course.

[freetext]

Please include details of companies/organisations with whom collaboration has taken place on the course design, outcomes, work placement/employment components:
<table>
<thead>
<tr>
<th>Company name:</th>
<th>Upload letter of support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company name:</td>
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<tr>
<td>Company name:</td>
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</tbody>
</table>

[Click to add more companies]

30 marks
### Part A3

<table>
<thead>
<tr>
<th>A3</th>
<th>ICT Skills Conversion participant experience and support in getting back to work – 20 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Please confine each 10 mark answer to no more than 300 words</td>
</tr>
</tbody>
</table>

**How does your college plan to support entry to the proposed course, and what are the proposed teaching and learning methodologies to be used to support successful participation and completion for the target cohort?**

E.g. details of recruitment strategy; proactive use of RPL to reflect previous work experience of participants; provision of academic and pastoral supports for adults who have previous experience of employment; how participant feedback to-date has been incorporated into course provision; how participants who find full-time employment midway through are supported to complete their course. Please include a statement on your institution’s track record on academic completion in the provision of ICT Skills or similar targeted skills programmes.

[freetext]

10 Marks

**How does your college plan to support ICT Skills Conversion participants into employment in ICT?**

E.g. information on the content and structure of the job readiness training as part of the course; jobs fairs and other measures that will be taken to connect ICT Skills Conversion students and graduates with employers who have positions to fill. Please include a statement on your institution’s track record on employment outcomes in the provision of ICT Skills or similar targeted skills programmes.

[freetext]

10 Marks
### Cost and Value for Money – 20 marks

Please note that assessment of costs and value for money is competitive and will be made with reference to the costs for similar courses previously approved as part of the ICT Skills Conversion initiative.

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>a: Total cost of delivering course (€):</td>
<td>[number]</td>
</tr>
<tr>
<td>b: Enrolment target for course:</td>
<td>[number]</td>
</tr>
<tr>
<td>c: Number of ECTS credits awarded:</td>
<td>[number]</td>
</tr>
<tr>
<td>d: Cost per student (€):</td>
<td>[calculation]</td>
</tr>
<tr>
<td></td>
<td>(Divide a / b)</td>
</tr>
<tr>
<td>e: Conversion factor for 10-credit equivalence</td>
<td>[calculation]</td>
</tr>
<tr>
<td></td>
<td>(Divide c / 10)</td>
</tr>
<tr>
<td>Cost per student per 10 ECTS credits (€)</td>
<td>[calculation]</td>
</tr>
<tr>
<td></td>
<td>(Divide d / e)</td>
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<tr>
<td>Part A5</td>
<td></td>
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<tr>
<td><strong>Provider Details and Declarations</strong></td>
<td></td>
</tr>
<tr>
<td>Please note that assessment of costs and value for money is competitive and will be made with reference to the costs for similar courses previously approved as part of the ICT Skills Conversion initiative.</td>
<td></td>
</tr>
</tbody>
</table>

**Institute name (Name of provider):**

(This will be used for all documentation, tax clearance and invoice payments and must be the legal name of the provider)

**Business Address:**

**Name of contact person (Please note a single point of contact for Springboard/ICT Skills Conversion is required for each provider):**

Name:

Contact email:

Contact telephone:

**Declaration of Eligibility**

The Higher Education Authority may exclude from participation anywhere that provider:

- is bankrupt or is being wound up, where their affairs are being administered by the court, where they have entered into an arrangement with creditors, where they have suspended business activities or is in any analogous situation arising from a similar procedure under national laws and regulations;
- is the subject of proceedings for a declaration of bankruptcy, for an order for compulsory winding up or administration by the court or of an arrangement with creditors or of any other similar proceedings under national laws and regulations;
- has been convicted by a judgment, which has the force of res judicata in accordance with the legal provisions of the country of any offence concerning professional conduct;
- has been guilty of grave professional misconduct proven by any means, which the contracting authorities can demonstrate;
- has not fulfilled obligations relating to the payment of social security contributions in accordance with the legal provisions of the country in which they are legally established or with those of the country of the contracting authority;
- has not fulfilled obligations relating to the payment of taxes in accordance with the legal provisions of the country in which they are established or with those of the country of the contracting authority;
- is guilty of serious misrepresentation in supplying the information required under this section or has not supplied such information.

**Overall declaration of Eligibility**

We hereby declare that none of the grounds for exclusion listed above applies to our organisation. We declare that we have taken all reasonable measures to confirm that this information provided in this Declaration is true and accurate as of this date.

- We acknowledge that we have read and accept the conditions set out in the Higher Education Authority ICT Skills Conversion Fund Call for Proposals.
- We confirm that our Proposal(s) remain(s) valid for a period of six months from the Proposal return date.
- We confirm that the answers to the questions above are true and accurate and valid as to their contents. We understand that the provision of false or misleading information could result in our exclusion from the procurement process or the rejection of our proposal(s).
- We confirm that we are in possession of appropriate copyright/licences/permits for all computer software or other applications required for the programme(s).
- We confirm that we will adhere to all Higher Education Authority policies and procedures pertaining to this Call for Proposals.

<table>
<thead>
<tr>
<th>Signed:</th>
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<tr>
<td>Date:</td>
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(To be signed by Head of organisation)