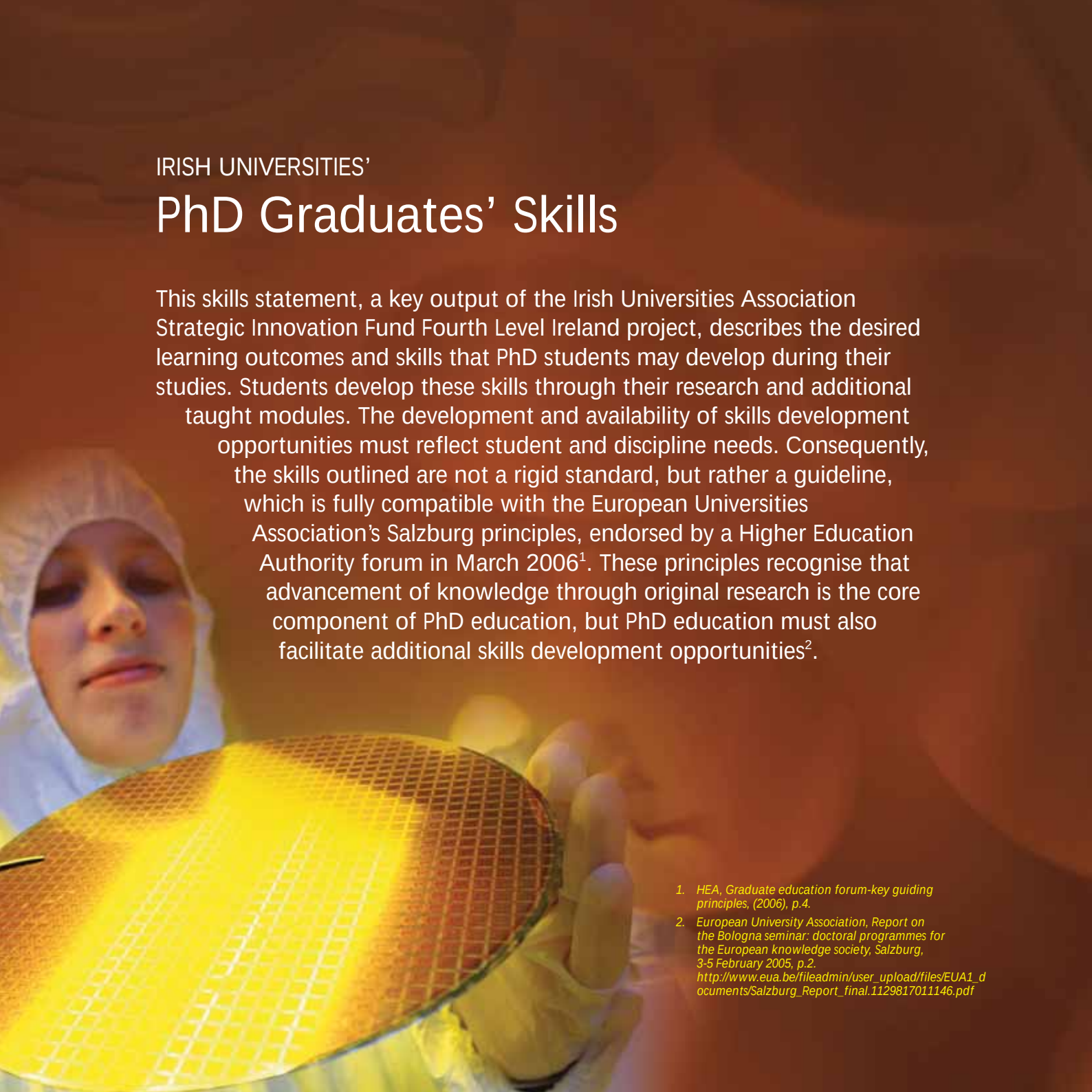


IRISH UNIVERSITIES' PhD Graduates' Skills



A person wearing a white cleanroom suit and hairnet is holding a large, circular, yellowish-gold silicon wafer. The wafer has a grid of small squares on its surface. The background is a warm, orange-brown gradient.

IRISH UNIVERSITIES'

PhD Graduates' Skills

This skills statement, a key output of the Irish Universities Association Strategic Innovation Fund Fourth Level Ireland project, describes the desired learning outcomes and skills that PhD students may develop during their studies. Students develop these skills through their research and additional taught modules. The development and availability of skills development opportunities must reflect student and discipline needs. Consequently, the skills outlined are not a rigid standard, but rather a guideline, which is fully compatible with the European Universities Association's Salzburg principles, endorsed by a Higher Education Authority forum in March 2006¹. These principles recognise that advancement of knowledge through original research is the core component of PhD education, but PhD education must also facilitate additional skills development opportunities².

1. HEA, *Graduate education forum-key guiding principles*, (2006), p.4.
2. European University Association, *Report on the Bologna seminar: doctoral programmes for the European knowledge society*, Salzburg, 3-5 February 2005, p.2.
http://www.eua.be/fileadmin/user_upload/files/EUA1_documents/Salzburg_Report_final.1129817011146.pdf

The structure of PhD education in Ireland is under consideration from many perspectives. The government's Strategy for Science Technology and Innovation, the Irish Universities Quality Board *National guidelines of good practice in the organisation of PhD programmes* in Irish universities and the Higher Education Authority support the objective of developing PhD graduates with the skills necessary to develop and manage their careers across a broad range of employment sectors, including academia. To achieve this, universities are providing more structured support for students, incorporating research and generic skills development opportunities, empowering them to make a significant impact in their chosen career and contribute to the development of Ireland's 'Knowledge Society'. This support will aid students in the successful completion of their studies.

This skills statement aims to:

1. Communicate to students, supervisors and employers the skills and attributes of a PhD graduate.
2. Aid students, Graduate Schools, Graduate Programmes and other advisory committees in establishing students' skills development needs.
3. Inform the development of further skills development opportunities for all PhD students.



In fulfilling these aims the skills statement further expands on the National Qualifications Authority of Ireland (NQAI) National Framework of Qualifications PhD descriptors, which are as follows:

PURPOSE: This is a multi-purpose award-type. The knowledge, skill and competence acquired are relevant to personal development, participation in society and community, employment, and access to additional education and training.

KNOWLEDGE-BREADTH: A systematic acquisition and understanding of a substantial body of knowledge which is at the forefront of a field of learning.

KNOWLEDGE-KIND: The creation and interpretation of new knowledge, through original research, or other advanced scholarship, of a quality to satisfy review by peers.

KNOW-HOW AND SKILL-RANGE: Demonstrate a significant range of the principal skills, techniques, tools, practices and/or materials which are associated with a field of learning; develop new skills, techniques, tools, practices and/or materials.

KNOW-HOW AND SKILL-SELECTIVITY: Respond to abstract problems that expand and redefine existing procedural knowledge.

COMPETENCE - CONTEXT: Exercise personal responsibility and largely autonomous initiative in complex and unpredictable situations, in professional or equivalent contexts.

COMPETENCE - ROLE: Communicate results of research and innovation to peers engage in critical dialogue, lead and originate complex social processes.

COMPETENCE - LEARNING TO LEARN: Learn to critique the broader implications of applying knowledge to particular contexts.

COMPETENCE - INSIGHT: Scrutinise and reflect on social norms and relationships and lead action to change them.

To assist the development of structured PhD programmes many countries have developed Skills Statements detailing categories of skills that students and supervisors may consider appropriate to students' skills development needs. Consequently this statement draws on skills statements developed elsewhere. (See appendix).



The skills identified by the Irish Universities Association's Fourth Level Network of Deans of Graduate Studies as relevant to PhD student education are outlined below. This is not an exhaustive list, and their relevance to students will vary upon experiential learning, disciplinary and professional development needs.

Research skills and awareness

- exhibit knowledge of advances and developments in their field
- demonstrate knowledge of research in related fields and disciplines
- comprehend and effectively employ appropriate research methodologies
- critically analyse and synthesise new and complex information from diverse sources
- formulate and apply solutions to research problems and effectively interpret research results
- exercise critical judgement and thinking to create new ways of understanding
- demonstrate, where appropriate, a knowledge of health and safety procedures and their application in the research environment
- have a broad awareness and knowledge of key relevant funding sources and grant application procedures
- appreciate basic principles of project and time management

Ethics and social understanding

- understand, and apply in their research, principles of ethical conduct of research, including avoidance of plagiarism, allocation of credit and authorship and definitions of research misconduct
- understand the relevance of research in society and the potential impact of research on individuals, groups and society
- where applicable, understand and apply the relevant guidelines for the ethical conduct of research involving people, human tissue and animals

Communication skills

- demonstrate effective writing and publishing skills
- effectively use and decide on appropriate forms and levels of communication
- communicate and explain research to diverse audiences, including both specialist and non-specialist
- teach and support the learning of undergraduate students when involved in teaching and demonstrating





Personal effectiveness/development

- operate in an independent and self-directed manner, showing initiative to accomplish clearly defined goals
- appreciate key rhetorical skills, including how to persuade others of a viewpoint's merits, demonstrating and communicating credible suggestions to achieve one's aims
- appreciate the importance of initiating new projects, proactively reacting to newly identified needs or aiming to resolve persistent problems
- ability to handle difficulties in research or other professional activities in an appropriate way
- critically reflect on experiences and act on such in a cycle of self-improvement

Team-working and leadership

- develop and maintain effective relationships with colleagues
- work in a collaborative environment
- awareness of their own working style, that of others, and how they interact
- understand how to acknowledge others' views, with a willingness to reflect on and critically appraise them
- understand leadership in team environments, recognising the strengths of team members and work effectively to achieve mutual goals

Career management

- demonstrate an awareness of transferable skills and their applicability to both academic and non-academic positions and how they are applied in different circumstances
- take ownership of their own career management, forming credible career plans
- initiate and sustain networks and relationships that may encourage opportunities for employment
- present themselves and their skills, attributes, experiences and qualifications, through effective job applications, CVs and interviews
- understand the broadest possible range of their employment opportunities

Entrepreneurship & innovation

- understand the role of innovation and creativity in research
- demonstrate an awareness and understanding of intellectual property issues, appreciate and, where appropriate, contribute to knowledge exchange
- appreciate the skills required for the development of entrepreneurial enterprises in the public and private sectors
- understand different cultural environments, including the business world, and the contribution that knowledge transfer can make to society

APPENDIX: International skills statements and documents reviewed

Research Councils UK: Joint Skills Statement.

Catholic University of Leuven: Competency Profile.

*University of South Australia:
Research Degree Graduate Qualities.*

*University of Canberra: Generic skills and attributes
of University of Canberra graduates from higher
degree by programs.*

*University of Queensland: Statement of Postgraduate
Research Student attributes.*

*Carnegie Mellon University, Pittsburgh, Pennsylvania:
Transferable skills.*

*The University of Sydney: Graduate
attributes project.*

*'The framework of qualifications for the European
Higher Education Area' as adopted at the Bergen
conference of European Ministers Responsible for
Higher Education 19-20 May 2005.*

*BHERT News. (2003). Developing Generic Skills:
Examples of Best Practice Business/Higher Education
Round Table, Issue 16, April 2003.*

*NUI Maynooth, Trinity College Dublin, Dublin City
University, Postgraduate skills development: examples
of current practice and emerging issues in National
University of Ireland, Maynooth, Trinity College Dublin
and Dublin City University, (Maynooth, 2007).³*

3. Also referred to as the 'Fallon report.'





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