

## European Environment Overview



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**Engineers Ireland**  
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CELEBRATING  
**175 YEARS**  
1838-2013



**ENGINEERS**  
**IRELAND**



### Agenda

- Overview of Engineers Ireland
- Overview of EU
- Regulation of Engineers in Europe
- Education Requirements
- Mobility in Europe

## Ireland is Unique

- About 100,000 engineers in Ireland
- Strategically located between America and Europe
- 1000+ MNCs serving Europe
- Engineers in Ireland working into both continents and within standards (e.g. FDA regulations, CE mark)

## European Union

- EU consists of 27 member states
- 500million people (eurostat)
- GDP of over €12.3 trillion
- The EU economy consists of a single market and is represented as a unified entity in the WTO
- >50million employed in Science and Technology (30% of 25-64 year olds)

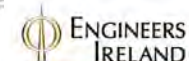
## Engineers Ireland

- 24,000 members
- Represent all disciplines
- Register of Engineering Professionals
- Statutory Authority to grant titles
- International Engineering Community
- Accreditation of Engineering programmes



## Links with the engineering community

- Regions, Divisions & Societies
- Engineers Ireland TV
- Volunteer Opportunities
- Conferences
- Publications / Submissions



young engineers



## Continuing Professional Development

- CPD Accredited Employer Standard
- Future Professionals Programme
- Registered Titles Competencies
- Support Services



## Education in Ireland

- Second level students : ~ 60,000 pa
- Entry into third level : ~40,000 pa
- Number of third level students : 190,000
- Number of Engineering students : 25,000
- 25,800 international students from 159 countries are studying at higher level - 2000 are PhDs
- Currently no third level fees !!!



## Regulation of Engineers in Europe

- Strong regulation of the profession exists in few countries
  - Many countries have limited regulation
  - Many have none at all e.g. UK
- .... But bridges are not falling down nor aircraft falling from the sky!

## Regulation is complex – examples of Titles ENGINEERS IRELAND

- [Eur Ing](#), (EUR ING) (European Engineer) in [Europe](#), used as a pre-nominal (similar to Dr. or Prof) after being suitably registered in their own country and then accepted by [FEANI](#).
- [Ing.P.Eur](#) (European Professional Engineer) in Europe, used as a pre-nominal
- [Ing. \(Ingeniero\)](#) in [Spain](#), used as a pre-nominal, for the engineers who have the equivalent to a master's degree as they studied five or six courses in a Engineering Superior School. Also exists the [Ingeniero Técnico \(I.T.\)](#), who is a professional that holds a *Degree* and a minimum formation of three courses in an engineering official college. Both types of engineers have full competency in their respective professional field of engineering, being the difference that the three year Engineers have competence only in their speciality (Mechanical, Electrical, Chemical, etc.) and the "Engineering Superior School" Engineers have wider competences. The [Bologna process](#) will change this structure into a different one. The Degree will need four courses and the Superior Engineering School Engineers will be equalised to the ones that hold a Master in Engineering.
- [Eng. \(Engenheiro\)](#) in [Portugal](#), used as a pre-nominal. An [Engenheiro](#) is a full chartered professional in [engineering](#) who was awarded a *masters' degree* (2nd study cycle according to the [Bologna process](#) system) by an accredited engineering school. In Portugal there is also the [Engenheiro Técnico](#) who is a professional with a bachelor's degree (1st study cycle) in engineering or engineering sciences. Accredited masters' degrees in engineering are regulated and certified by the [Ordem dos Engenheiros](#) (Order of Engineers), and every professional full chartered engineer is registered at the [Ordem](#).
- In [Germany](#) the [Dipl.-Ing. \(Diplom-Ingenieur, Diploma Engineer\)](#) is awarded by the educational ministries of the federal states (the [Bundesländer](#)) after having completing an academic engineering education according to the German Engineer's Law ([Ingenieurgesetz](#)). The degrees [Ing. grad. \(Graduierter Ingenieur, Graduate Engineer\)](#) and [Obering. \(Oberingenieur, Supervisor Engineer\)](#) are not awarded any more. ([pre-nominal letters](#))
- [Ing. EurEta](#) - used as a pre-nominal (similar to Dr. or Prof). An engineer registered with EurEta "European Higher Engineering and Technical Professionals Association" is called an "EurEta Registered Engineer", and has the right to use this title in [Europe](#). [[www.eureta.org/html/startframe.htm](#)]
- [State-certified Engineer BVT](#). These titles are the respective translations, authorised by the German Federal Government, of "Staatlich geprüfter Techniker", in [Europe](#).<sup>124</sup>
- [Ir.](#) in the Netherlands (for engineers holding a Master's degree from a university) or [Ing.](#) (for engineers holding a Bachelor's degree from a professional school), ([pre-nominal letters](#))
- [Ir.](#) in Belgium (for engineers holding a Master's degree in [engineering/bio-engineering sciences](#) from a university) or [Ing.](#) (for engineers holding a Master's degree in [applied engineering](#) from other institutes of higher education). ([pre-nominal letters](#))
- [Ing.](#) in Italy used as a pre-nominal (similar to Dr. or Prof. and only for engineers holding a Master's degree) or [Ing./r](#) (Bachelor's) or [Periti Industriali](#) (from institutes of secondary education). A state exam is required. ([pre-nominal letters](#))
- [Siv. Ing.](#) (Sivilingenieur, M.Sc) and [Ing.](#) (Heyskoleingenior, B.Sc) in Norway. The titled is used by persons holding degrees from accredited engineering colleges and universities.
- [CEng](#) (Chartered Engineer) and [Eng](#) (Incorporated Engineer) in the UK & [Republic of Ireland](#). UK and Irish engineers may also carry [post-nominal letters](#) specific to their specialist engineering institute, such as [MIET](#) (professional engineers and graduate professionals registered with the [Institution of Engineering and Technology](#)). In the UK these are recognised as regulated qualifications and titles.<sup>124</sup>
- [Civ. Ing.](#) in Denmark and Sweden (for engineers holding a Master's degree in Engineering, also M.Sc. Eng, master of science in engineering) and [Högskoleingenjör](#) in Sweden (for engineers holding a B.Sc degree).
- [Ing.](#) in Romania, used as a pre-nominal (similar to Dr. or Prof.).
- [Ing.](#) for engineers holding a Master's degree in [Czech Republic](#) and [Slovak republic](#), used as a pre-nominal (similar to Dr. or Prof.).
- [inz.](#) and [mgr inż](#) in [Poland](#), in Poland [inz.](#) is the title obtained after 4 years of studies (similar to B.Sc. degree); [inżynier](#) who obtain M.Sc. level use [mgr inż](#) (*magister inżynier*). The [mgr](#) level can be obtained through [post-bachelor](#) education usually 2 years of studies, or through integrated B.Sc/M.Sc. program that usually is 1 year shorter than the non-integrated program. [SOME](#) (particularly in the USA) mistakenly believe that "mgr inż" is a separate title, while in fact it is two titles one "inż." indicating technical science 4 year education and the "mgr" indicating the advanced education of 2 cycle regardless of how it was obtained. The degree in general includes license to practice, although some regulation may require additional registration to perform specific tasks. ([pre-nominal letters](#))
- [mag. univ.](#) (Mag. Inzh. from [Magister \(Master\) Engineer](#)) in Bulgaria (for engineers holding a Master's (Magister) degree) or [univ.](#) (for engineers holding a Bachelor's degree). ([pre-nominal letters](#))
- "Ing." in Malta (for engineers holding a university degree and at least 3 years of experience)
- "PEng(UK) in UK (for Engineers members of Society of Professional Engineers UK)

## Professional Engineer Status (Ireland)

- To obtain professional status engineers must:
  - Complete an accredited engineering degree course
  - Complete a period of post graduate experience
  - Undergo a Professional interview
  - 2013 move to higher academic requirement
  - Maintain CPD

## Education Process in Europe

- Following the introduction of the [Bologna process](#), universities divide higher-education studies in three cycles, corresponding to a 3-year [bachelor's degree](#), a 2-year [master's degree](#), and a [doctoral degree](#).
- Accordingly, engineering studies which lasted 5 years are now divided in two parts: first, the [bachelor's degree](#) (*baccalaureus*, three years), and the second optional part (two years), after which either the traditional engineer's degree or a [master's degree](#) (MEng or MSc) is awarded. In this new scheme, the graduate must complete the master's degree before attempting to pursue doctoral education.
- This platform supports academic mobility between countries (parts of degree programmes can be done in different countries)


## Engineering Programme Accreditation

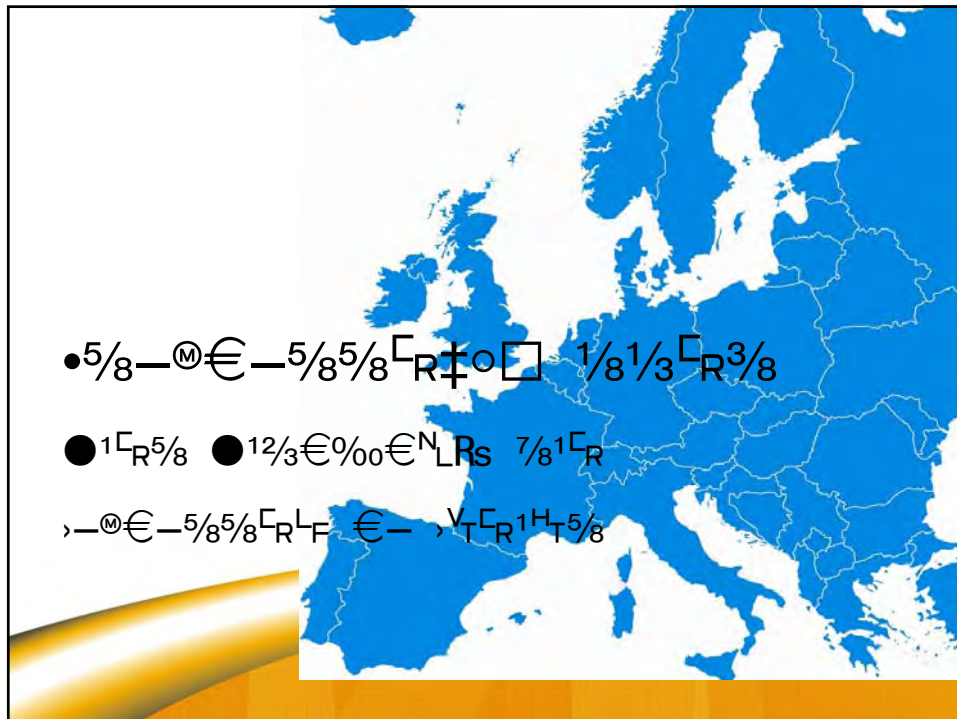
- ENAEE (*European Network for Accreditation of Engineering Education*) has published the EUR-ACE Framework Standards and authorizes national agencies to award the EUR-ACE® label based on these standards.
- The EUR-ACE® label is **awarded to engineering degree programmes accredited by an authorized agency** (or analogous national accrediting body).
- EUR-ACE® labels
  - **respect the great diversity** of engineering education within the European Higher Education Area,
  - create a system of accredited engineering programmes that **share common objectives and outlooks,**
  - **facilitate trans-national recognition** of academic and professional qualifications.
- The EUR-ACE® labels distinguish between First-Cycle (Bachelor) and Second-Cycle (Master) Degrees, in accord with the definitions given in the European Qualification Frameworks (EQF-LLL and QF-EHEA).

## Mobility of Engineers in Europe

- **DIRECTIVE 2005/36/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 7 September 2005 on the recognition of professional qualifications**
- Pursuant to Article 3(1)(c) of the Treaty, the abolition, as between Member States, of obstacles to the [free movement of persons and services](#) is one of the objectives of the Community. For nationals of the Member States, this
- includes, in particular, [the right to pursue a profession, in a self-employed or employed capacity, in a Member State other than the one in which they have obtained their professional qualifications](#). In addition, Article 47(1) of the Treaty lays down that directives shall be issued for the mutual recognition of diplomas, certificates and other evidence of formal qualifications.
- The Directive covers a number of professions- not just engineering.

## Mobility in Practice

- FEANI – Eur Ing title 
- engineerING Card
- Mutual Recognition Agreements
  - Washington Accord (education)
  - EMF (professional)
- Mobility is not an issue in non-regulated markets



# engineering card: Front

- 01 Given Name
- 02 Surname
- 03 Date and Place of Birth
- 04a Date of Issue
- 04b Date of Expiry
- 05 Member of Association/Organisation
- 06 ID Number
- 07 Signature
- 08 Key for qualifications



# engineering card: Reverse side

06	Studium / Academic studies	Datum / Date
A1	Bachelor/Diplom (FH)	30.07.2003
A2	Master/Diplom (TU/TH)	27.11.2005
A3	Dr.-Ing	
Berufserfahrung / Professional Experience		
B1	Unternehmen / Free Economy	X
B2	öffentl. Dienst / Civil Service	
B3	Selbstständig / Self-employed	
Weiterbildung / Further Education		
C1	Seminar mit Teilnahmebescheinigung / Tutorial with Certificate of Attendance	1
C2	Seminar mit Abschlussprüfung / Tutorial with Final Exam	
C3	Fertbildung mit Zeugnis / Advanced Education with Certificate	

Academic Studies

•  $F_R^{17/8} L F F \in 1 - 1/3 \%$

•  $1 - N_L \in - V_T \in - \textcircled{3} \textcircled{8} V_T 1/8$

$R^{5/8} \textcircled{5/8} - 3/8 \quad 17/8$   
 $1/8 \textcircled{00} 1/3 L F F \in 7/8 \in 1/8 1/3 N_L \in 1 - 17/8$   
 $N_L \textcircled{5/8} \quad 7/8 F_R 1 - N_L \quad 17/8 \quad N_L \textcircled{5/8} \quad 1/8 1/3 F_R 3/8$

## Summary

- We are operating in a global environment.
- Regulation varies on country by country basis
- European legislation has reduced barriers to mobility
- Mutual Recognition Agreements are pragmatic ways of supporting our profession

**Thank you!**

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