ENGINEERS EUROPE

MEMORIA DE ACTIVIDADES 2022

COMITÉ NACIONAL ESPAÑOL ENGINEERS EUROPE

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1. ORGANIZACIÓN

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Presidente
D. David Sedano Abad - Ingeniero Técnico Aeronáutico
Vicepresidente
D. Fernando Guijarro Merelles – Ingeniero Industrial
Secretario General
D. Rafael Monsalve Romero - Ingeniero de Minas
Tesorero
D. José A. López Olmedo – Ingeniero Técnico de Telecomunicación
Vocales
D. Francisco Javier González Matesanz - Ingeniero Técnico en Topografía
Dª. María Nuño Valdés - Ingeniera de Telecomunicación (hasta junio 2022)
D. José Mª. Goicolea Ruizgomez – Ingeniero de Caminos, Canales y Puertos (desde julio 2022)
Dª. Cristina de Bustos Tarragato – Ingeniera Aeronáutica
D. Mª. Ángeles de Blas Cecilia – Ingeniera Técnica Agrícola

PRESIDENTES DE LOS INSTITUTOS:

Presidente del IIE
D. José Trigueros Rodrigo - Ingeniero de Caminos, Canales y Puertos
Presidente del INGITE
D. José Antonio Galdón Ruiz – Ingeniero Técnico Industrial

SECRETARIOS GENERALES DE LOS INSTITUTOS:

Director General IIE
D. Carlos Rodríguez Ugarte - Ingeniero de Telecomunicación
Secretaria General INGITE
Dª. Mª. Ángeles de Blas Cecilia - Ingeniera Técnica Agrícola
D. Andrés Díez Galilea – Ingeniero Técnico en Topografía

1.2 Composición del COMITÉ NACIONAL ESPAÑOL DE ACREDITACIÓN

SECRETARIO
D. Ernesto Domínguez Alvarez - Ingeniero Técnico de Obras Públicas

1.3 Ingenieros españoles en los ÓRGANOS EUROPEOS DE LA FEANI

COMITÉ EJECUTIVO – Ex Board
Dª María Nuño Valdés - Ingeniero de Telecomunicación (hasta junio 2022)

COMITÉ EUROPEO DE ACREDITACIÓN - EMC
D. Francisco Javier González Matesanz - Ingeniero Técnico en Topografía

1.4 CUADRO DE HONOR

ANTs. PRESIDENTES DE LA FEANI

D. José Mª Coronado Valcárcel (1980 -1983)
D. José Medem Sanjuan (1993 – 1996)
D. Rafael Fernández Aller (2012 – 2014)

ANTs. VICEPRESIDENTES DE LA FEANI

D. Miguel Jerez Juan 1970
D. José Maza Selas (1984 – 1987)
D. Vicente García Álvarez (1996 -1999)
D. Rafael Fernández Aller (2010 – 2012)

PRESIDENTES DE HONOR DEL CNE DE LA FEANI

D. Miguel Jerez Juan -1978
D. José Mª Coronado Valcárcel - 1980
D. Lorenzo Madridejos Sarasola - 1983
D. José Maza Selas - 1991
D. Vicente García Álvarez - 1998
D. José Mª Fluxá Ceva - 2003
D. Avelino Suárez Alvarez - 2006
D. Rafael Fernández Aller - 2015

ANTs. PRESIDENTES DEL CNE DE LA FEANI

D. Miguel Jerez Juan
D. Lorenzo Madridejos Sarasola
D. José Mª Coronado Valcárcel (1978 – 1980)
D. José Maza Selas (1980 – 1989)
D. Vicente García Álvarez (1989 – 1998)
D. José Mª Fluxá Ceva (1998 – 2003)
D. Avelino Suárez Álvarez (2003 – 2006)
D. José Antonio Molina Francés (2006 – 2008)
D. Rafael Fernández Aller (2008 – 2009)
D. Juan de Dios Alférez Cantos (2009 – 2012)
D. Rafael Fdz Aller/D. Manuel de Oña (2012 - 2015)
D. José Javier Medina Muñoz (2015 – 2018)
D. Luis Manuel Tomas Balibrea (2018- 2020)
D. Luciano Azpiazu Canivell (2020-2021)

ANTs. VICEPRESIDENTES DEL CNE DE LA FEANI

D. Miguel Ángel Gómez Alamá (1983 – 1991)
D. Jacinto Alonso Las Peñas (1991 – 1998)
D. Luis Ayuso Llorente (1998 – 2003)
D. José Antonio Molina Francés (2003 – 2006)
D. Juan de Dios Alférez Cantos (2006 – 2009)
D. Rafael Fernández Aller (2009 – 2012)
D. José Javier Medina Muñoz (2012 – 2015)
D. Luis Manuel Tomas Balibrea (2015 – 2018)
D. José Javier Medina Muñoz (2018 – 2021)
D. David Sedano Abad (2021 – 2021)

ANTs. SECRETARIOS GENERALES DEL CNE DE LA FEANI

D. Francisco Sanabria Celis (1980 – 1989)
D. Juan de Dios Alférez Cantos (1989 – 1991)
D. José Javier Medina Muñoz (1992 – 1999)
Dª Raquel Esteban Pinto (1999 – 2003)
D. Fernando García Robredo (2003 – 2005)
D. Francisco Javier Moledo Froján (2005 – 2006)
D. Juan Blanco Lino (2006 – 2006) (2009 – 2012)
Dª Raquel Esteban Pinto (2006 – 2009)
D. Juan de Dios Alférez Cantos (2009 – 2012)
D. Rubén López-Pulido (2015 – 2018)
D. José Antonio Galdón Ruiz (2018 – 2021)
D. José Antonio López Olmedo (2021 – 2021)
D. Rafael Monsalve Romero (2021 – 2023)

ANTs. TESOREROS DEL CNE DE LA FEANI

D. José Mª Montes Villalón (1991 – 2003)
D. Juan de Dios Alférez Cantos (2003 – 2006)
D. Juan Blanco Lino (2006 – 2009)
D. Pedro Bello Berlín (2009 – 2010)
Dª Raquel Esteban Pinto (2010 – 2012)
D. Juan Blanco Lino (2012 – 2015)
Dª Raquel Esteban Pinto (2015 – 2018)
D. Rafael Monsalve Romero (2018 – 2021)

2.- INTRODUCCIÓN

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Tras la aprobación en la última Asamblea General, celebrada el 7 de octubre de 2022, FEANI cambiará su marca corporativa, pasando a llamarse ENGINEERS EUROPE, a partir del 1 de enero de 2023. El presente año, será un periodo de transición que compartirá con la marca FEANI, en los tres idiomas. En el 2024 pasará a llamarse exclusivamente ENGINEERS EUROPE.

FEANI/ENGINEERS EUROPE fue fundada en 1951, pocos años después del final de la Segunda Guerra Mundial, por un grupo de ingenieros franceses y alemanes que pensaron que a través de la tecnología, su campo común de actividad, sería posible crear vínculos entre antiguos adversarios, y así, facilitar el desarrollo próspero y pacífico de la sociedad europea. Inmediatamente se sumaron a esta iniciativa asociaciones de siete países europeos.

Actualmente , asociaciones de 33 países europeos están representadas en FEANI/ENGINEERS EUROPE, que reúne a más de 350 asociaciones nacionales de ingeniería, todas las cuales son reconocidas en sus países como representantes de la profesión de ingeniería a nivel nacional. A través de estas asociaciones nacionales, FEANI/ENGINEERS EUROPE representa los intereses de aproximadamente 6 millones de ingenieros profesionales en Europa.

FEANI/ENGINEERS EUROPE es miembro fundador de la Federación Mundial de Organizaciones de Ingeniería (WFEO) y colabora con muchas otras organizaciones que se ocupan de cuestiones de ingeniería y tecnología, así como de educación en ingeniería.

FEANI/ENGINEERS EUROPE es reconocido oficialmente por la Comisión Europea como representante de la profesión de ingeniería en Europa. La federación también tiene estatus consultivo ante la UNESCO, la ONUDI y el Consejo de Europa.

Los objetivos de FEANI/ENGINEERS EUROPE son:

Afirmar la identidad profesional de los ingenieros de Europa

- asegurando que las cualificaciones profesionales de los ingenieros de los países miembros sean reconocidas en Europa y en todo el mundo.
- afirmando el estatus, el papel y la responsabilidad de los ingenieros en la sociedad
- salvaguardando y promoviendo los intereses profesionales de los ingenieros y facilitando su libre circulación dentro de Europa y en todo el mundo
- luchar con una sola voz para la profesión de la ingeniería en Europa, reconociendo al mismo tiempo su diversidad

- promoviendo el desarrollo de una cooperación de trabajo con otras organizaciones internacionales interesadas en asuntos de ingeniería
- en la representación de los ingenieros de Europa en organizaciones internacionales y otros órganos de toma de decisiones

España es miembro de FEANI/ENGINEERS EUROPE desde 1952. En 1978 los dos Institutos de Ingeniería constituyeron el Comité Nacional Español como único órgano de representación de la ingeniería española en Europa, mediante la Federación de Asociaciones Nacionales de Ingenieros (ENGINNERS EUROPE).

3.- ACTIVIDAD ESPAÑOLA

3. ACTIVIDAD ESPAÑOLA

3.1 COMITÉ NACIONAL ESPAÑOL DE LA FEANI

El CNE es el único órgano español que representa a las ingenierías españolas integradas en los dos institutos, el IIE y el INGITE, ante la Federación Europea de Asociaciones, siguiendo las directrices que le marque el Consejo Rector.

A lo largo de sus 45 años de trayectoria, el Comité ha actuado, y sigue actuado, en defensa de los intereses de los ingenieros e ingenieros técnicos, promoviendo el reconocimiento, la movilidad, el prestigio y el acceso de oportunidades a nuestros profesionales.

Durante el año 2022, el Comité Nacional Español ha celebrado un total de 7 reuniones ordinarias: 12/02 (presencial) 23/03 (mixta-presencial y telemática), 26/04 (telemática), 29/06 (mixta), 21/09 (mixta), 17/10 (mixta) y 24/11 (presencial).

A propuesta del presidente del CNE, David Sedano, y apoyado por todos los miembros del comité, se acordó invitar a las reuniones personas que tengan relación con la ingeniería en Europa y en España, y que nos aporten sus puntos de vista.

Reunión 29/06
M. Ángeles de Blas, Rafael Monsalve, David Sedano, Fco. Javier G. Matesanz y José A. López Olmedo

En el año 2022, en dos ocasiones, hemos tenido el honor de tener como invitados en nuestras reuniones a Dña. Mª Jesús Prieto Laffargue, expresidenta del IIE y de la FMOI. Primera y única, por ahora, mujer presidenta del Instituto de la Ingeniería de España y de la Federación Mundial de Ingeniería, y a Fausto Laserna, presidente del comité español de EYE (Jóvenes Ingenieros Europeos).

En la reunión del mes de octubre, asistió como invitada Dña. Mª Jesús Prieto Lafargue, que manifestó la importancia que tiene el CNE, ya que es el único representante, interlocutor en Europa de la ingeniería española. Del mismo modo, destacó la importancia de los dos productos estrella que tiene la Federación Europea de Asociaciones Nacionales de Ingenieros (FEANI-ENGINEERS EUROPE), el Eur. Ing y la base de Datos de todas las Universidades Europeas con programas de estudio de ingeniería. Igualmente, subrayó el problema que actualmente se está presentando en la ingeniería y el poco interés que tienen los jóvenes, por lo que habría que reaccionar desde dentro de las instituciones para buscar soluciones.

Mª Jesús Prieto Laffargue con David Sedano Fernando Guijarro y José A. López Olmedo

Fausto Laserna también compartió en una reunión del CNE, su experiencia y sus vicisitudes respecto a EYE (European Young Engineers), ha explicado que la estructura de esta organización representa a más de 500.000 jóvenes ingenieros, entre profesionales y estudiantes que comparten conocimientos, fomentan la movilidad y desarrollan habilidades tanto personales y profesionales. Al mismo tiempo, esta organización impulsa la identidad profesional de los ingenieros. Laserna explicó que, por medio de foros, los jóvenes ingenieros europeos intercambian ideas, inquietudes y buenas prácticas para la promoción de los estudios de ingeniería y de la profesión, estableciendo y desarrollando líneas de acción conjuntas, con el fin de lograr los objetivos marcados, que establecen en las reuniones semestrales en las que participan los representantes de distintos miembros de EYE.

En abril, en su calidad de presidente del CNE, David Sedano, asistió a la reunión de Directores de Escuelas de Ingeniería y representantes de diversas ramas, quien aportó su visión de los estudios de Ingeniería en Europa.

David Sedano
en la reunión de Directores de Escuelas de Ingeniería

Igualmente, nuestro presidente del CNE, David Sedano, fue invitado por la Ordem dos Engenheiros Técnicos, al II Congreso Internacional de Ingeniería, Geopolítica y del Agua, que tuvo lugar el 23 de septiembre en Coímbra, quién destacó en su intervención, la importancia que tienen los ingenieros, siendo los responsables de aportar soluciones a los problemas de la humanidad y viéndose en la obligación de poner la Ciencia al servicio del hombre, convirtiendo las fórmulas en soluciones REALES al servicio de la sociedad. La ingeniería habla un sólo idioma, por encima de las fronteras.

En el mes de noviembre, David Sedano mantuvo una reunión con la Directora de ANECA, Mercedes Siles Molina; con la responsable del sello EurAce, Ana Isabel Bonilla y con Alfonso Vallés, responsable de Enseñanzas e Instituciones de ANECA, para compartir la perspectiva de la agencia en el proyecto europeo, Engineers for Europe (E4E), liderado por FEANI/ENGINEERS EUROPE a través del consorcio formado por 13 organizaciones profesionales y académicas europeas.

Durante el mes de junio, cesó María Nuño como miembro del CNE y como tesorera de FEANI/ENGINEERS EUROPEI a cuatro meses de las elecciones en Ex. Board. En sustitución de Nuño en el CNE se nombró al ingeniero de Caminos, Canales y Puertos, José Mª Goicolea.

3.1.1 CONSEJO RECTOR

El Consejo Rector está formado por los presidentes de los Institutos de Ingeniería (Instituto de la Ingeniería de España – IIE- e Instituto de Graduados en Ingeniería e Ingenieros Técnicos de España – INGITE-) y es informado por el presidente del CNE. Para que exista una paridad de ambos institutos, se acordó que a las reuniones asistieran el presidente y vicepresidente del Comité. El Consejo Rector es informado periódicamente de la marcha del CNE.

Durante el año 2022 se han celebrado varias reuniones del Consejo Rector, en donde se ha presentado y debatido:

- El Presupuesto del CNE para el año 2023,
- La implantación del IVA en las acreditaciones del Eur. Ing.
- Informes de las dos Asambleas Generales de ENGINEERS EUROPE
- Presentación e información del nuevo Certificado de Eur. Ing. 2.0

3.2 COMITÉ ESPAÑOL DE ACREDITACIÓN

Desde este Comité, queremos hacer un reconocimiento hacia una persona de gran calidez humana, que nos ha dejado una profunda huella, tanto en lo personal como en lo profesional, por su extraordinaria faceta afable, persona trabajadora y amigo de sus amigos, José Mª Ramírez Barrios, Ing. Tec. de Obras Públicas, antiguo Secretario del CEA, quien nos dejó el pasado mes de noviembre.

Fue una de las personas pioneras en este Comité Español. Junto a él, el presidente, por entonces, Víctor Martínez Segovia, Dr. Ing. de Caminos, Canales y Puertos y Francisco Sanabria Celis, Ing. Tec. Aeronáutico, tras largas tardes de reuniones comenzaron a recopilar Universidades españolas y titulaciones de ingeniería e ingeniería técnica, que primeramente habían evaluado, para hacer el INDEX español.

El Comité Español de Acreditación se vincula con el E.M.C (European Monitoring Committee) encargado de coordinar los comités de control nacionales de los 33 países miembros y establecer las normas y funcionamiento.

El Comité de Acreditación, dependiente del Comité Nacional, tiene encomendadas cuatro misiones principales:

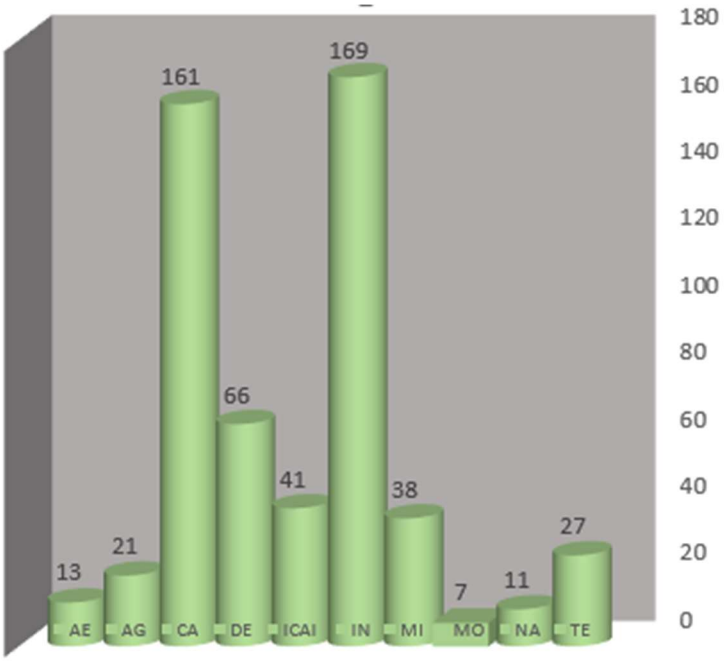
- Mantener al EMC informado sobre la estructura de su *Sistema Educativo y Profesional de Ingeniería* y de los estándares de las Escuelas y Programas individuales e informar regularmente sobre cualquier cambio.

- Presentar detalles de los nuevos programas que se consideren para su inclusión en el EEED. Los comités nacionales son responsables de la información proporcionada para la inclusión de programas de ingeniería en el EEED.

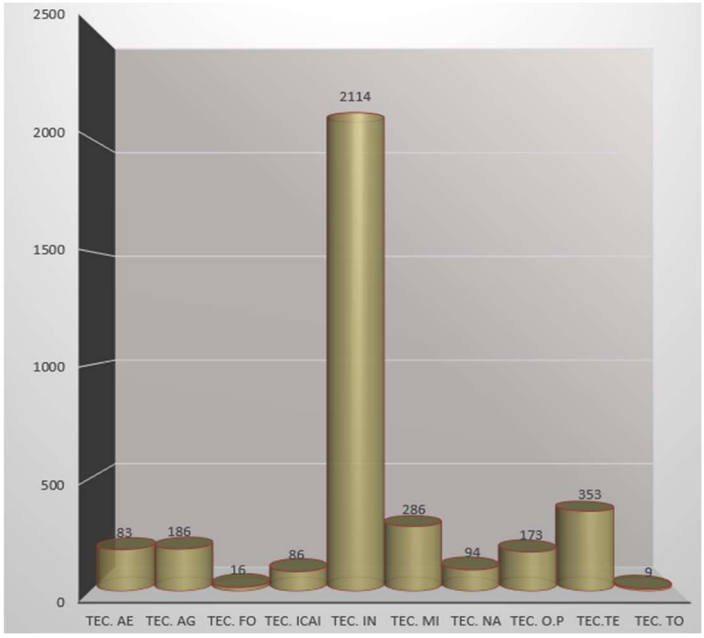
- Verificar y mejorar la convergencia de las bases de datos de ENAEE y de ENGINEERS EUROPE.

- Revisión de las solicitudes de registro del CERTIFICADO EUR ING, que incluye verificar toda la información proporcionada por el solicitante y certificar su exactitud con respecto a la educación y la experiencia profesional CPD y verificar que se hayan cumplido todos los requisitos con respecto al formulario de solicitud.

Durante el año 2022 el Comité de Acreditación ha celebrado varias sesiones de trabajo en las que se han estudiado y evaluado un total de 57 expedientes de solicitudes de acreditación de Eur. Ings., habiéndose aceptado un total de 42 de los que, 19 han correspondido al IIE y 23 al INGITE.



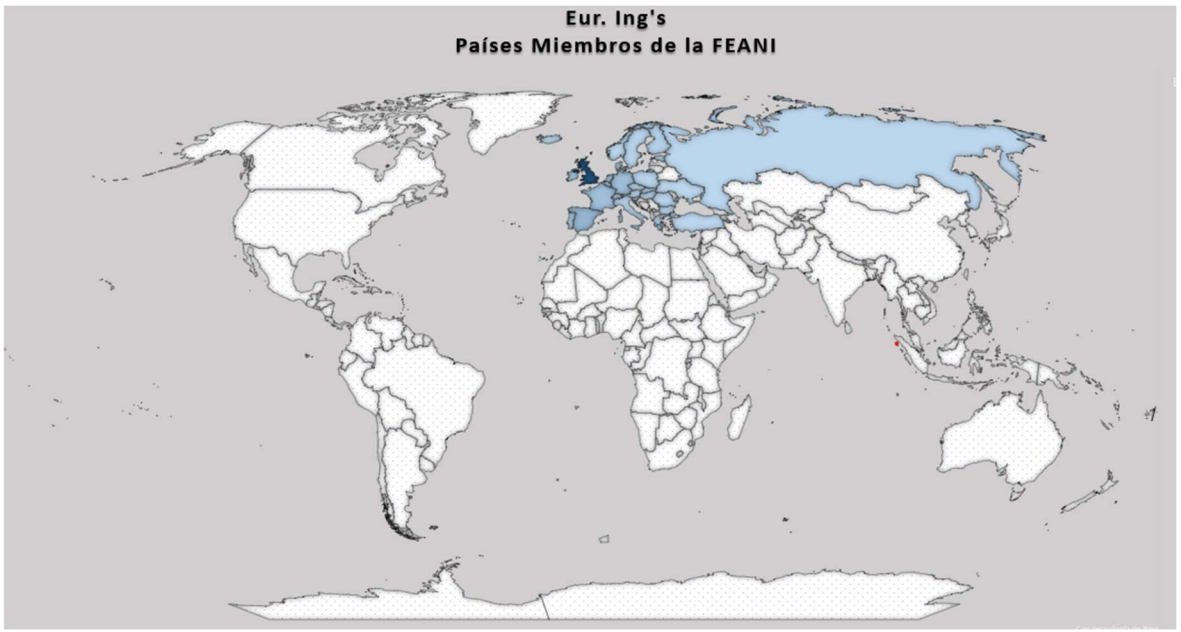
Total de acreditaciones Eur. Ing's Correspondientes al IIE 1989-2022



Total de acreditaciones Eur. Ing's correspondientes al INGITE 1989-2022

En el año 2022 las previsiones de solicitudes de Eur. Ing., por segundo año, han sido superiores a las que en un principio se calcularon, tanto para ENGINEERS EUROPE como para el Comité Nacional Español. Por vigésimo año, España con 4.053 Eur.Ing es el segundo país, después de UK y seguida por Alemania, que más Euro ingenieros tiene.

Hasta el día 31 diciembre de 2022, el número de Eur. Ing´s en Europa ascendían a 34.886.



AT	99
BE	337
BG	50
CH	906
CY	96
CZ	132
DE	3.015
DK	365
EE	52
ES	4.047
FI	700
FR	2.803
GB	16.582
GR	529
HU	658
IE	1.378
IS	20
IT	41
LU	33
MT	207
NL	671
NO	203
PL	434
PT	159
RO	270
RU	9
SE	347
SI	110
SK	167
UA	1
TR	33

Además de revisar y evaluar solicitudes de Eur. Ing., en las reuniones del CEA, se estudian y evalúan programas de Grados y Másteres habilitantes de ingeniería, se actualizan programas, se revisan y corrigen universidades de la base de datos de la EEED/España.

A este respecto, es de señalar, que todas las titulaciones pre-bolonia que estaban en el INDEX, actualmente EEED, por algún error, al hacer la convergencia de las dos bases de datos, ha generado la desaparición de muchos programas, las cuales se están volviendo a introducir en la EEED.

Una vez más, aclaramos que ENGINEEERS EUROPE-FEANI y ENAEE comparte la base de datos de Universidades y titulaciones de ingeniería. Ambas cumplen con los requisitos establecidos por sus propias instituciones, pero tanto ENGINEERS EUROPE como ENAEE no están obligadas a cumplir las normas de una o de la otra. En el caso de España, todos los programas de ingeniería evaluados y aprobados por el MNC-EMC son solamente **títulos habilitantes**, no pasa lo mismo con los programas de ENAEE/IIE/ANECA.

4.- ACTIVIDAD INTERNACIONAL

4. ACTIVIDAD INTERNACIONAL

4.1 ASAMBLEA GENERAL

Tras dos años y medio de celebrar las Asambleas Generales de ENGINEERS EUROPE de forma telemática, por primera vez después del periodo de la pandemia, se ha celebrado la primera Asamblea de 2022 de forma presencial en Berlín, el día 6 de mayo, aunque también se dio la opción de poder asistir de forma telemática.

Nuestro presidente asistió de forma presencial y en formato digital estuvieron presentes, los Sres. González Matesanz, López Olmedo, Guijarro y las Sras. de Blas, Busto y Nuño.

En esta primera Asamblea quedó patente el papel determinante de la ingeniería española en Europa.

Entre otros temas, se trataron:

- Plan de Acción: Nuevo plan de acción 2023 – 2026 - las competencias digitales y el desarrollo de un programa de Formación Continua
- La situación de Ucrania: Aprobación del borrador "New Paper" sobre la declaración de FEANI y la situación en Ucrania, documento elaborado por la secretaría general y aprobado posteriormente por el EX. Board. Tras varias exposiciones de algunos países miembros de la Federación, se aprobó en la Asamblea General, por unanimidad, la Declaración de la FEANI sobre Ucrania.
- Grupo de trabajo STEM: Su presidente, el Sr. Smits, informó de los posibles nuevos alcances como:
  - Investigar y contribuir
  - Preparación y discusión de estrategias para el DPC
  - Promoción de la ingeniería.

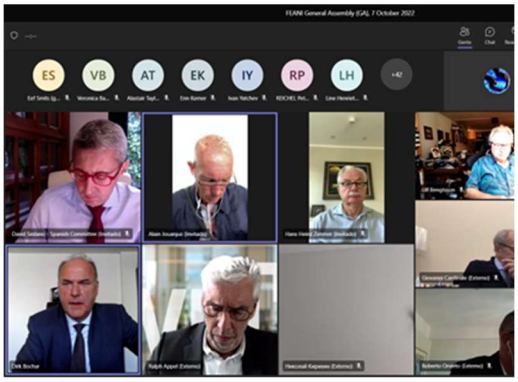
  Así mismo, también propuso cambiar el nombre al grupo STEM por grupo de Futuros Ingenieros.
- Desarrollo del concepto Eur. Ing. 2.0. Se informó de los avances de los documentos-guías elaborados para los miembros del EMC y Miembros Nacionales de Acreditación, del nuevo diseño del pergamino y certificado, de la creación de una nueva base de datos, que irá conectada a la solicitud electrónica del Eur. Ing., etc. La aprobación definitiva del Eur. Ing. 2.0 en la AG de octubre de 2022 y a principio del año 2023 comiencen las nuevas solicitudes.

- La suspensión temporal del pago de Rusia como miembro de la Federación.
- Proyecto E4E. El Secretario General de la FEANI, Sr. Bochar, informó a los miembros nacionales de la presentación y aprobación de la propuesta del proyecto Ingenieros europeos – ERASMUS+ en la EU.

Del mismo modo, se fijaron las fechas de las próximas Asambleas de ENGINEERS EUROPE:

- 7 de octubre de 2022 (viernes), digital.
- 9 de junio de 2023 (viernes) Cannes (Francia), presencial.

La segunda Asamblea General tuvo lugar, de forma telemática, el día 7 de octubre. A ella, asistieron el presidente, Sr. Sedano; vicepresidente, Sr. Guijarro; tesorero, Sr. López Olmedo, así como el representante español en el EMC y miembro del comité, Sr. G. Matesanz y la Sra. De Blas y Sr. Goicolea, y la secretaria del Comité, Sra. Fátima Gómez.



Reunión de la II Asamblea General.
David Sedano, Pte del CNE, A. JOUANJUS, tesorero de ENGINEERS EUROPE, Dirk Bochar, SG ENGNIEERS EUROPE, R. APPEL, President ENGINEERS EUROPE.

En esta ocasión, los temas más interesantes tratados fueron:

- Informe del proyecto E4E, presentación del documento, actualizado, del E4E. De igual modo, se informó quién formaba parte del consorcio del Proyecto de Ingenieros para Europa, entre los que se encuentran: ANECA, ECCE, VDI, Ordem de Engenheiros…..
- Nueva Marca de la FEANI, Desde el día 1 de enero de 2023, FEANI pasará a llamarse ENGINEERS EUROPE, lo que se quiere conseguir con esta nueva imagen es ser una Federación más adaptada a los tiempos actuales.

ENGINEERS EUROPE
Fédération Européenne d'Associations Nationales d'Ingénieurs
European Federation of National Engineering Associations
Föderation Europäischer Nationaler Ingenieurverbände

- Nuevo Certificado de Eur. Ing. 2.0 Se presentó el nuevo documento tutorial, dirigido a los Miembros del EMC, a los Miembros nacionales y los ingenieros interesados en la obtención del título. La novedad de este nuevo Certificado de Eur. Ing. es la duración de la validez del certificado, que será de 5 años. Transcurridos estos años, se requerirá una nueva evaluación del Desarrollo Continuo de la Profesión de estos años. Se le notificará al Ingeniero de la renovación desde los mismos comités nacionales. Todos los Eur. Ing., anteriores al año 2023, su acreditación tendrá validez de por vida.
- Aprobación de los presupuestos para el año 2023. El tesorero en funciones, Sr. Alain Jouanjus, presentó los presupuestos para el ejercicio 2023 e igualmente el informe de los resultados positivos financieros del primer semestre de 2022. Ambos documentos fueron aprobados por unanimidad.

- Elecciones para las vacantes de tesorería y Ex. Board – Para la vacante de tesorería solo se presentó la candidatura del francés Alain Jouanjus, tesorero en funciones desde julio de 2022, proclamándose elegida.
  Para la vacante del Ex. Board se presentaron dos candidaturas, la española representada por el Sr. Goicolea y la maltesa Sra. Cortis, saliendo elegida esta última para un periodo de tres años. España después de 43 años, ha perdido su representación en el Board.
- Calendario de reuniones para el año 2023. Presentación de una nueva estructura de reuniones (AG, Ex. Board, EMC, NMFORUM…) 50% presenciales y 50% telemáticas. Esta nueva iniciativa fue acogida con interés por los participantes, por lo que se aprobó por unanimidad.
- El Comité Nacional Checo presentó el programa del 7º Congreso Mundial de la Ingeniería, que tendrá lugar en octubre de 2023

4.2 Forum MIEMBROS NACIONALES– NMF

Estas reuniones tienen lugar el día anterior a la celebración de la Asamblea General, a la que están invitados todos los miembros nacionales, sin limitación alguna, lo que no ocurría en las anteriores sesiones que sólo podían asistir los secretarios generales de los países miembros de la FEANI/ENGINEERS EUROPE.
La reunión del NMF, celebrada el día 5 de mayo, tuvo una convocatoria superior a la de otros años.
Como sucedió en el año anterior, la reunión se dividió en varios grupos trabajo, en los que se trataron:

- Nuevo Plan Estratégico.
- Lobby político e influencia.
- Viabilidad del trabajo de la FEANI/ENGINEERS EUROPE sobre el SDG 12
- Gestión de recursos
- La transición verde y el compromiso STEM en las escuelas de primarias.

Reunión del National Member FORUM – oct.2022

De nuevo, en la segunda reunión anual del NMFORUM, se volvió a debatir los avances y de las perspectivas para un futuro cercano del Plan de Acción 2023-2025. Se presentaron los informes de las reuniones de los Grupos Regionales (Norte, Centro y Sur) celebradas con anterioridad. El presidente del NMFORUM recomendó que estos grupos deberán proponer temas de discusión para próximas sesiones de la AG.

Del mismo modo, se analizaron y se prepararon los temas principales de la AG, que tendría lugar al día siguiente. El presidente del NMFORUM manifestó que estas reuniones son una valiosa plataforma de información e intercambio para los miembros nacionales.

El presidente del Comité Nacional Checho, Mr. Zdeněk Trojan, recordó a todos los asistentes que están invitados al 7º Congreso Mundial de la Ingeniería, que se celebrará en otoño la segunda semana de octubre, en la ciudad de Praga.

4.3 COMITÉ EJECUTIVO – Ex. BOARD

Desde 1982, España siempre ha tenido representación española en el Ex. Board, incluso 3 presidentes españoles en la Federación. D. José M.ª Coronado Valcárcel Coronado, Dr. Ingeniero de Telecomunicación, D. José Medem Sanjuan, Dr. Ingeniero de Caminos, Canales y Puertos, y D. Rafael Fernández Aller, Dr. Ingeniero de Minas.
La Sra. Nuño, ha sido el último miembro español en el Ex. Board, siendo la tesorera de FEANI por un periodo de 2 años y medio. Por motivos personales, cesó, por voluntad propia, en el mes de junio, a 4 meses de las elecciones.
En la I Asamblea presentó el informe económico de FEANI/ENGINEERS EUROPE del ejercicio 2021. María Nuño destacó el beneficio global de los resultados positivos del año anterior y así mismo señaló, el esfuerzo hecho por todos los miembros nacionales al haber realizado el pago de la cuota a su tiempo y señaló que, FEANI ha sido capaz de dar un giro con respecto a los dos años anteriores: la facturación ha crecido modestamente, la tesorería corporativa ha crecido y los costes operativos están a un nivel muy bajo y que la crisis actual tendrá posiblemente repercusiones en las cuotas de afiliación de 2023 de algunos países, pero el desarrollo del EUR ING 2.0 y el proyecto E4E podrían ofrecer futuras oportunidades financieras.

4.4 EUROPEAN MONITORING COMMITTEE – EMC

Al igual que en el Ex. Board, en el EMC nunca ha faltado la presencia española. El actual representante español es Francisco Javier González Matesanz, Ingeniero Técnico en Topografía.

Durante el año 2022 se han celebrado un total de 5 las reuniones, 2 telemática y 3 presenciales, con opción de asistir telemáticamente para quien no pudiera asistir a la reunión presencial

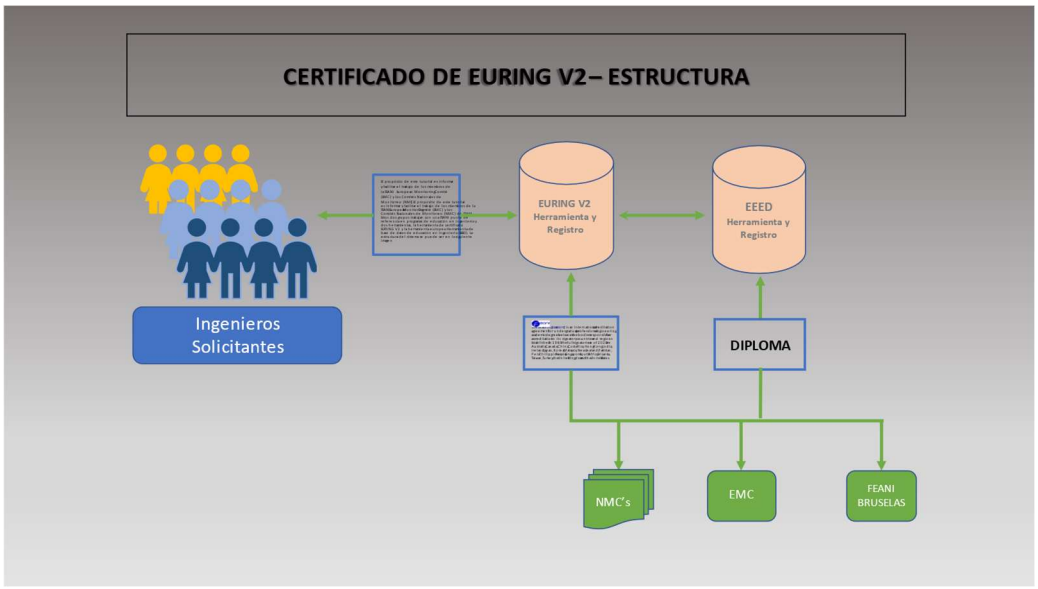
El tema principal en el que se ha trabajado, como estaba programado, es el desarrollo del proyecto piloto del Certificado Eur. Ing. 2. 0.. Hay que señalar que, España ha sido elegida para la prueba del proyecto.
Este nuevo proyecto estará dividido en 3 roles:

1º Solicitante
2º NMC – Comité Nacional de Acreditación
3º EMC – Euopean Monitoring Committee

Se han elaborado nuevos Tutoriales (se adjunta como anexo), EMC/NMC, diseñados para reemplazar la "Guía EUR ING", (el del NMC y el del EMC), los manuales de la herramienta electrónica EUR ING y de la EEED, así como la nueva herramienta de solicitud. El propósito de estos tutoriales es informar y facilitar el trabajo a los miembros del European Monitoring Committee (EMC) de FEANI y de los Comités Nacionales de Supervisión (NMC) de FEANI. Estos dos grupos, trabajan con un punto de referencia en programas de educación en ingeniería y en las dos herramientas:

- la herramienta el Certificado EURING 2.0
- la herramienta European Engineering Education Database (EEED).

La estructura del sistema se puede ver en la siguiente imagen.



El estándar EUR ING define la medida ENGINEERS EUROPE/FEANI sobre buenos programas de ingeniería y el aprendizaje permanente de ingenieros. La adjudicación de un programa de ingeniería en la base de datos EEED, es una prueba de que el programa de ingeniería cumple con el estándar EUR ING. La concesión del certificado EUR ING a un ingeniero declara que el solicitante cumplió con los requisitos establecidos para el EUR ING.

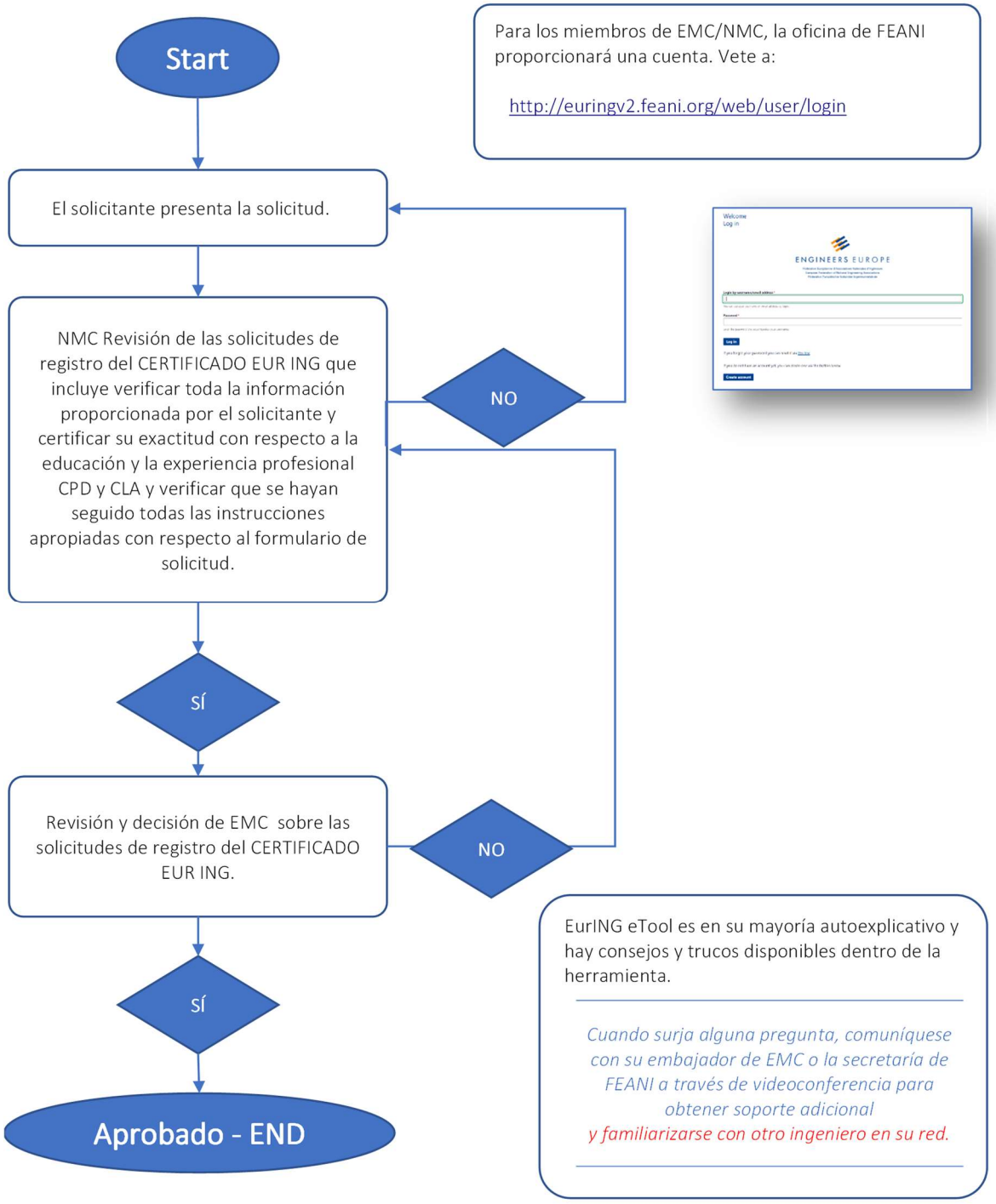
FEANI mantendrá un registro EUR-ING que contenga las solicitudes aprobadas. El CERTIFICADO EUR ING tendrá una validez de 5 años, después de los cuales será necesaria la renovación. Un punto que destacar es que los antiguos Eur. Ing., anteriores al año 2023, tendrán una validez de por vida.

Nuevo Certificado de Eur. Ing. 2.0

Durante el período de validez del certificado, el Eur. Ing. seguirá siendo miembro de la organización nacional y estará a las disposiciones del Documento de Posición de FEANI sobre el Código de Conducta: Ética y Conducta de los Ingenieros profesionales. (se adjunta como anexo)

Tras varios intentos de lanzar el nuevo Certificado de Eur. Ing. 2.0 finalmente la fecha de lanzamiento será el día 1 de enero de 2023.

A continuación, se presenta el esquema del proceso de solicitud del Eur. Ing. 2.0, desde que el ingeniero solicita el certificado hasta su obtención



Proceso de solicitud del nuevo Certificado de Eur. Ing. 2.0

4.5 PAISES DEL SUR

El día 18 de marzo tuvo lugar la reunión de los países del sur de forma telemática con la participación de los países miembros: España, Portugal, Bulgaria, Grecia, Italia, Macedonia, Malta. El Presidente y el Secretario General de FEANI/ENGINEERS EUROPE, así como el presidente del National Member Forum.

En esta primera reunión se comentó la situación de Ucrania frente a la Guerra de Rusia y con el consenso de todos los participantes, así como con los Grupos de los países del Centro y Norte, se elaboraría un documento manifiesto en contra de la Guerra. Este documento se llevaría a la Asamblea General para ser aprobado.

Se informó del resultado positivo del proyecto E4E [(1),] que tras dos años presentando a la UE, finalmente ha sido aprobado, se ha recibido la cantidad de 268.121€, cantidad destinada al proyecto ERASMUS+ 2021 de la UE es de 1.488.466€, cantidad repartida entre 13 proyectos presentados por instituciones europeas.

La segunda reunión de los Países del Sur tuvo lugar en Roma, siendo en esta ocasión los anfitriones el Comité Nacional Italiano – Consiglio Nazionale degli Ingegneri. La reunión fue dirigida por el Secretario General de la FEANI/ENGINEERS EUROPE quien por medio de un PowerPoint presentó "Brainstorming sobre la estructura de las futuras reuniones" Igualmente, informó del borrador del Plan Estratégico 2023-2025, en el cual han participado en su elaboración los siguientes Sres.: Damien OWENS (IE, Chair), Alexandre KOUNITZKY (CH), Enn KERNER (EE), Dave CLARK (UK), Alfredo SOEIRO (PT), Robert GHIRLANDO (MT) y las Sras. Nancy VERCAMMEN (BE), Jenny GRENSMAN (SE) y Katerina TSIKALOUDAKI (GR). Este documento seria presentado en la Asamblea General del mes de octubre para su aprobación definitiva.

(1) El objetivo de E4E es fomentar la innovación y la resiliencia de los ingenieros de la UE mediante la adquisición de nuevas competencias, incluidas habilidades, conocimientos, actitudes y liderazgo, con un enfoque en lo digital, verde, resiliencia y emprendimiento, orientados por los nuevos requerimientos del mundo del trabajo. El objetivo operativo de E4E es cerrar las brechas entre la educación, la formación y la industria, mientras hacer operativos los marcos de competencias de la UE (DigComp, LifeComp, EntreComp) para ingenieros.

Las actividades con productos relacionados son:

1. Definir y establecer el Engineering Skills Council, una plataforma de múltiples partes interesadas de la UE para mejora del diálogo y la colaboración entre los representantes de la educación, la formación, la industria y los empleadores
2. Diseñar una metodología de seguimiento para medir las dinámicas, desafíos y oportunidades de la profesión de ingeniería, que culmina en la estrategia anual de habilidades de ingeniería
3. Desarrollar y entregar el Currículo E4E, una formación innovadora para competencias transversales y habilidades.

Con 11 socios de pleno derecho y 13 socios asociados, E4E es una "Alianza" robusta, que representa a todo el espectro de VET, HE e industria. E4E involucrará directamente al menos a 700 estudiantes a través de la entrega de entrenamiento; 1.150 profesionales y partes interesadas a través de E4E "Road Show" y eventos en toda la UE y un total de 86.750 personas a través de actividades de valorización.

4.6 WG STEM

El Grupo de trabajo STEM, presidido por el Prof. Dr.sc. Vjera Krstelj, es un grupo bastante activo que celebra una reunión cada 3 meses.

En este grupo se encuentran, por parte española, nuestro vicepresidente Fernando Guijarro y, hasta el mes de junio, María Ángeles de Blas, miembro del CNE y desde julio, Ernesto Dominguez, secretario del Comité Español de Acreditación.

Este grupo ha cambiado de nombre, pasando a llamarse Futuros Ingenieros.

El WG STEM se formó para intercambiar información sobre los esfuerzos de los países nacionales del WG STEM, para construir y desarrollar acciones, promover la orientación STEM en la educación, así como, en la difusión y sensibilización, además de apoyar la futura competitividad industrial europea.

ANEXOS

EUR ING STANDARD FOR PROFESSIONAL ENGINEERING COMPETENCE

(EUR ING SPEC)

ENGINEERS EUROPE

Secretariat.general@engineerseurope.com

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ENGINEERS EUROPE

I. EUR ING SPEC

The EUR ING SPEC defines the ENGINEERS EUROPE measure on engineering programs and lifelong learning of engineers during their education, in their work environment, and through their careers. EUR ING SPEC intends to align to the recognition of qualifications in the spirit of European Directive 2005/36/EC on the recognition of professional qualifications. Awarding an engineering program into the EEED database is proof the engineering program complies with the EUR ING SPEC.

Awarding the EUR ING Certificate to an engineer declares that an applicant did comply with the requirements in the EUR ING SPEC. The EUR ING Certificate facilitates the professional mobility of engineers within the European Higher Education Area (EHEA) and beyond in order to enable engineers - who wish to practice outside their own country - to carry with them a certificate of recognized professional competence.

The EUR ING SPEC comprises of:

a. EUR ING Certificate and trade name
b. Use of the EUR ING with the national title
c. EUR ING Certificate Applicants and holders prerequisites
d. EUR ING compliant engineering programs
e. EUR ING compliant engineering programs: Awarding accreditation
f. Level of education and successive experience requirements (incl. professional development requirements CLA)
g. Subjects and ECTS requirements of formal and/or informal learning/continuing professional development
h. EUR ING compliant professional registrations
i. Professional Competences

a. EUR ING Certificate and trade name

ENGINEERS EUROPE and its EUR ING Certificate encourage the continuous improvement of engineers by setting, monitoring and reviewing its standards. The EUR ING Certificate is therefore awarded on robust evidence of acquired competence, i.e. educational qualifications (knowledge), skills, training, professional experience, and continuous professional development (CPD). The EUR ING Certificate provides in this sense information about and across the various formation systems of individual engineers, for the benefit of prospective employers.

Awarding the EUR ING Certificate typically but not exclusively comprises of:

1. The provable completion of a EUR ING SPEC compliant engineering program or equivalence.
2. A provable number of years experience working as an engineer or equivalence.
3. Provable and ongoing formal and/or informal learning/continuing professional development presented according to the engineering competences.

The certificate will be awarded with an initial validity of five (5) years and can be renewed.

b. Use of the EUR ING with the national title

It is important to consistently use the correct way of writing EUR ING (and not Eur Ing etc.). The EUR ING may be used with the national title (academic or professional) regarding the national regulations.

c. EUR ING Certificate Applicants and holders prerequisites

Eligible to register as a EUR ING are professionals who meet the ENGINEERS EUROPE prerequisites:

- Applicants must have exemplifying formal qualifications (degrees, diplomas of Higher Education Institutions) in combination with some years of professional experience or have an equivalent career learning assessment.
- Applicants must be a member of an ENGINEERS EUROPE member National Engineering Association in their country of residence or initial engineering education country or native country.
- Members of Affiliated Members cannot submit EUR ING applications.

Note: When a diploma/degree is initially obtained outside the ENGINEERS EUROPE area, a formal evaluation from the country of residence needs also to be added to the EUR ING application.

After acquiring the EUR ING Certificate, the holder:

- During the period of certificate validity, the holder remains a member of the national organization.
- Observes the provisions of the ENGINEERS EUROPE Position Paper on Code of Conduct: Ethics and Conduct of Professional Engineers.

Note: It is respected that in some member countries national regulations may prevent to apply for EUR ING in the absence of a formal engineering education.

d. EUR ING compliant engineering programs: content categories and study load

The EUR ING compliant engineering program contains a general minimum study load of at least a total of 180 ECTS comprised of a suitable and balanced study load of the following categories:

Initial Engineering Program Categories	Typical but not exclusive balanced study load
Natural sciences	10 %
Mathematics	20 %
Engineering sciences and subjects	60 %
Non-technical subjects	10 %

Note: For an individual person a EUR ING compliant engineering program may be built up out of various combinations of FCD, SCD, and other engineering courses in accordance with local regulations and developments in education.

e. EUR ING compliant engineering programs: Awarding accreditation

The accreditation of engineering programs inside the EUR ING SPEC, are awarded either:

- by a national members formal national accreditation organization or
- an EMC recognized accreditation organization.
- the EMC

When a member state deems a program as a 'non-engineering' program it can still comply with the requirements of the EUR ING SPEC and the EMC can give the accreditation within EUR ING.

f. Level of education and successive experience requirements (incl. professional development requirements CLA)

Education based on EQF[1] - Level and CLA	Typical Relevant Experience (Pre if applicable and Post Education)
EQF 7	Experience (typically 2 to 5 years)
EQF 6	Experience (typically 5 to 7 years)
EQF 5	Experience (typically 7 to 10 years)

Part time experience has to add up to the minimum of the periods mentioned in the table above.

For Career Learning Assessment (CLA) the typical relevant experience is 7 to 10 years. This is likely to commence at a point when the EUR ING Candidate has become established in their engineering career, most probably when they have reached 20 years of age.

Note: a PhD (EQF level 8) is recognized as professional research experience.

In most member states the engineering title is not a protected profession although in some member countries complementary laws may only allow to carry the engineering and EUR ING titles when additional conditions are met.

Type of CLA	Comments
Work-based Learning	Professional development undertaken through routine work activities
In-company training courses or lectures	Taken in a lecture room or in a virtual environment
Formal post graduate academic courses	All such activities will involve some form of assessment.
External training courses	Recognised institution or training provider

[1] https://europa.eu/europass/en/european-qualifications-framework-eqf

g. Subjects and ECTS requirements of formal and/or informal learning/continuing professional development

It is considered that the minimum of 100 hours per 5 years (average of 20 hours per year) is the minimum total of CPD for an engineer.

Type of CPD	Comments
Work-based Learning	Professional development undertaken through routine work activities.
In-company training courses or lectures	Taken in a lecture room or in a virtual environment.
Formal post graduate academic courses	All such activities will involve some form of assessment.
External training courses	Recognised institution or training provider.

Other CPD Activities may include (without definition of any min. and max. hours)

Service in professional engineering organization activities	May include serving in a volunteer capacity on boards and committees; being a member on higher education accreditation visits; assisting with CPD audits; mentoring a colleague for work experience purposes; contributions to participation in technical standards.
Technical visits or external assignments	Must be able to demonstrate how it has extended knowledge and skills related with the profession.
Updating professional development based in individual study	For any learning activity undertaken it is necessary to demonstrate how it has extended knowledge and skills related with the profession.
Preparation and presentation of a technical paper in a conference	Papers subject to critical peer review prior to publication.
Preparation and technical publication in a journal or a book	Publication must be related with the profession.
Teaching or instructing in CPD related activities with the profession	This type is not considered for engineers that are members of higher education or research institutions.

h. EUR ING compliant professional registrations

Professional registrations other than EUR ING may also contain reviews on continuous professional development or career learning assessments. When such a review is of the same quality as the EUR ING review the EMC can decide to accept such a professional registration certificate as proof of sufficient professional experience.

To not break the continuity of professional development, it is reasonable such a certificate should not be older than 1 year.

i. Professional Competences

Engineers aware of their professional responsibilities must strive to achieve competence in all 6 categories, although achieving all 6 is not mandatory and can depend on the applicant's discipline:

Competence	Explaining description
Knowledge and Understanding	A thorough knowledge of the principles of engineering, based on mathematics and a combination of scientific subjects appropriate to their discipline
Engineering Analysis	An ability to apply appropriate theoretical and practical methods to the analysis and solution of engineering problems.
Investigations	An awareness of continuous technical change and the cultivation of an attitude to seek innovation and creativity within the engineering profession.
Engineering Design	Knowledge of the use of existing and emerging technologies relevant to their field of specialization. Knowledge of standards and regulations appropriate to their field of specialization.
Engineering Practice	A general knowledge of good engineering practice, in their field of engineering and the properties, behaviour, fabrication and use of materials, components and software.
Transferable Skills	An understanding of the engineering profession and an obligation to serve society, the profession and environment, through commitment to apply the appropriate code of professional conduct. An ability in engineering economics, quality assurance, maintainability, and use of technical information and statistics. An ability to work with others on multidisciplinary projects. An ability to provide leadership embracing managerial, technical, financial, and human considerations. Communication skills and an obligation to maintain competence by continuous professional development (CPD). Fluency in European languages sufficient to facilitate communication when working throughout Europe.

Note: As a recommendation for a professional level of competences the descriptors of the European Qualifications Framework (EQF) level 6 or above can be used.

EUR ING TUTORIAL

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Secretariat.general@engineerseurope.com

www.engineerseurope.com

ENGINEERS EUROPE

Foreword

This tutorial is intended as an internal ENGINEERS EUROPE document and cannot be complete without the information from the EUR ING SPEC. In this tutorial, the structure of the EUR ING framework, the tools, and the way of working together among NMCs, EMC, and the secretariat are explained. As well, the complementary additions to the framework are given.

Additional information can be added to this document by EMC decision, mainly concerning updating the way of working with recent or changed information, working together improvements within the EMC, NMCs, and the Secretariat.

During the process of making the new documentation, the EMC recognized that working together, both in physical and online meetings, among NMC members, EMC members, and the secretariat is highly appreciated. We hope current and future members will keep this cooperation close to heart.

When any assistance is required, please contact your EMC ambassador, preferably through videoconferencing.

When it is not clear who your EMC ambassador is, look at
List of EMC ambassadors

or please contact the ENGINEERS EUROPE Secretariat at
Secretariat.general@engineerseurope.com.

ENGINEERS EUROPE

Contents

I. Introduction

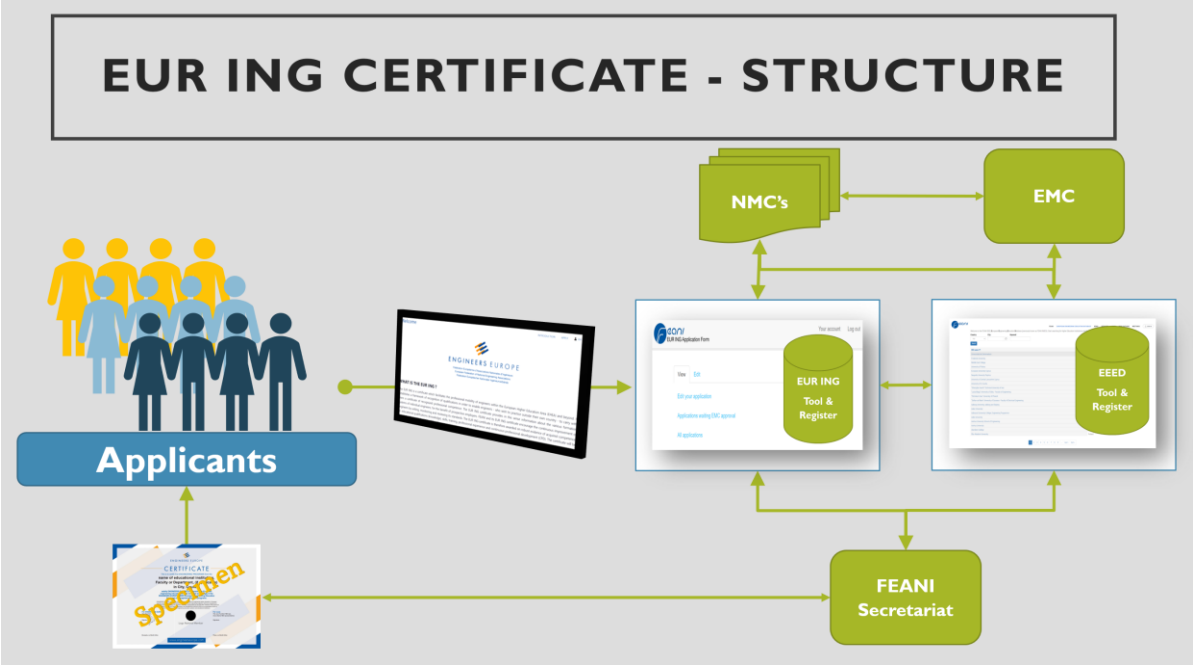
The purpose of this tutorial is to inform and facilitate the work of **three groups**:

- At the international level, the ENGINEERS EUROPE European Monitoring Committee (EMC).
- At the national level, ENGINEERS EUROPE National Monitoring Committees (NMCs), one of each ENGINEERS EUROPE member state.
- The ENGINEERS EUROPE Secretariat.

In order to process applications efficiently, these groups work with **two online tools** and some documents:

- Working documents: The EUR ING SPEC, a report template for remote maintenance, Excel files for program evaluation (against the EUR ING SPEC), etc.
- The online EURING Application and Certificate tool.
- The online European Engineering Education Database (EEED) tool.

The EUR ING system structure can be seen in the following picture and the components will be introduced in the following sections:



a. European Monitoring Committee (EMC)

The EMC is an ENGINEERS EUROPE body and is composed of representatives of the members of ENGINEERS EUROPE. Its main tasks comprise of:

- Making recommendations to the Executive Board.
- General policy matters relating to the EUR ING Certificate/Register and the EEED.
- Review and decide on EUR ING SPEC additions.
- Review and decide upon applications for the EUR ING Certificate registration.
- Granting permissions to NMCs for remote updated of the EEED.
- Review and decide upon the acceptance of programmes to the EEED (where no remote access is currently granted).
- Each EMC member acts as an EMC Ambassador to several NMCs for NMC questions/comments.

Link to the formal terms of reference for the EMC which were approved by the General Assembly: **LINK**
Current document: List of EMC ambassadors

b. National Monitoring Committees (NMCs)

The NMC is a national body, established in every ENGINEERS EUROPE country, and is composed of representatives from national engineering associations, industry, and education. Its main tasks comprise of:

Review of applications for EUR ING Certificate registration

- Review of applications for EUR ING Certificate registration which includes checking all the information given by the applicant and certifying its accuracy and authenticity with respect to education, professional experience, CPD (Continuing Professional Development), and (where appropriate) CLA (Career Learning Assessment), checking that all appropriate instructions with respect to the application form have been followed.

Maintaining EEED programs and HEI information

- To keep the EMC fully informed on the structure of its *Engineering Educational and Professional System* and the standards of the individual Schools and Programs and to report regularly on any changes in structure or national standards.
- Ensure compliance with the requirements of the standard for EEED inclusion.
- Bring forward details of new programs to be considered for inclusion in the EEED. NMCs are asked to submit an annual overview list of programmes submitted based on this scheme, which undergoes a regular general review (every +/- 5 years).
- The NMC is responsible for the information given for inclusion in the EEED in respect of its own country. If this has been approved by the EMC the programme submissions by the NMCs are directly entered into the EEED without undergoing the above procedure based upon programme evaluation sheets.

Current document: List of NMCs with Remote Maintenance Permission

c. ENGINEERS EUROPE Secretariat

The ENGINEERS EUROPE Secretariat supports all ENGINEERS EUROPE activities and administers the EUR ING Register and the European Engineering Education Database (EEED).

E-mail: Secretariat.general@engineerseurope.com

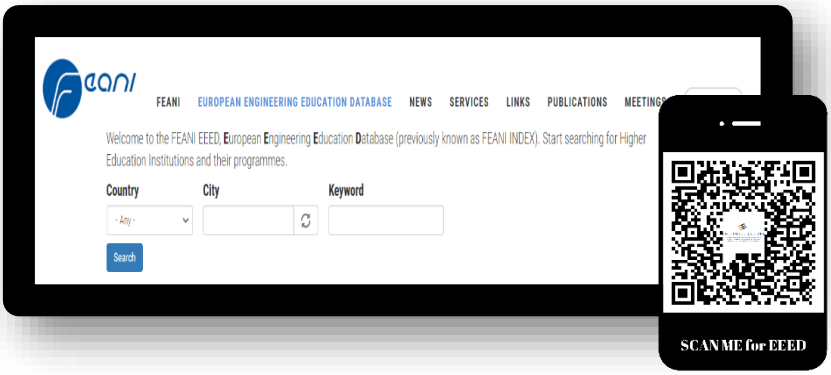
d. EUR ING Certificate application tool and register

ENGINEERS EUROPE maintains an online EUR ING application tool and register containing the approved applications. The EUR ING Certificate is valid for 5 years, after which renewal is needed. NMCs will be informed when renewal is needed.

During the period of validity, the holder remains a member of the national organization and observes the provisions of the ENGINEERS EUROPE Position Paper on Code of Conduct: Ethics and Conduct of Professional Engineers.

e. European Engineering Education Database (EEED)

To support the EUR ING Certificate Register, ENGINEERS EUROPE maintains an online EEED[1] listing of Engineering programs, which are recognized by ENGINEERS EUROPE, at institutions of Higher Engineering Education in the European countries, represented within ENGINEERS EUROPE.



[1] https://www.engineerseurope.com/eeed-database

II. Lifelong learning power of an engineer.

The EMC recognizes that learning during an engineering career is not contained to engineering or technology alone. This short exercise is to create, also towards people who are not engineers, a recognizable and simple indication of the '1000 ECTS lifelong learning power of engineers',

An engineering career path might be typically but not exclusively be framed as follows:

Student	Young Professional	Professional	Expert	Nestor
5 years	15 years	15 years	20 years	next 100 years

Engineers Salute: *Expert picture: Kitty O'Brien Joyner - Nestor Picture: Isambard Kingdom Brunel*

The EMC estimates, but does not prescribe, that all engineers are able to learn 1000 ECTS on engineering subjects during their entire life. The reasoning and estimation behind the 1000 ECTS learning power of an engineer can be seen in the table on the next page:

Career phases & Estimated learning time (in ECTS[2])	Explaining description
General	A lot of precious time and energy will be needed to learn other than engineering subjects. Typically these will not be relevant for engineering and EUR ING evaluation.
Student: 180-300 ECTS	Basic engineering education. In some countries the basic education /diploma includes the first work experience.
Young Professional & Professional & Expert: 300 ECTS	After graduation during work, people educated themselves for about 10% of the time that is 4 hrs per week. A working year is about 40 weeks, so 4*40 = 160 hours per year. 160 divided by 28 is almost 6 ECTS per year. With a working career of about 50 years that sums up to about 300 ECTS. During life, we all change, from junior to senior, from young to experienced, etc. Learning interests are changing year by year. Fire safety training of EQF level 4 might not be engineering level BUT really important and these kind of hours should also be counted for learning/CPD time.
Professional & Expert: 120 ECTS	After the initial start of their career, a lot of engineers start with extra bachelor/master`s education of about 20 hours a week for 4 years besides their daily jobs. 20 hours per week is about 30 ECTS per year. Further education in 'business management' is done very often by engineers.
Nestor: 300 ECTS	After retiring a lot of engineers are still discovering new technologies outside their own expertise. While not having to work anymore this is often 8-10 hours per week so about 15 ECTS per year. Retirement lasts on average around 20 years.
The total estimated learning power of an engineer is more than 1000 ECTS	

[2] 1 ECTS equals 25-30 hours workload.

III. EUR ING SPEC additions

f. EUR ING compliant engineering program category subjects

Engineering programs evolve every year with technology developments. The required content cannot be strictly described. In the table below example subjects are given without trying to be complete.

When new subjects arise, please communicate those to your EMC ambassador or the secretariat for review.

Categories	Engineering Category Subjects
Natural sciences	Physics, Chemistry, Biology, Geology, Agriculture, Environmental ..
Mathematics	Linear algebra, analytical geometry, differential and integral calculus, numerical analysis, operational research, discrete mathematics, statistics, numerical systems, ..
Engineering sciences and subjects	Analysis, Design Methodologies, Research, Thermodynamics, Tribology, Production Technologies, Automation, Robotics, Drones, CAD/CAM/BIM, Systems Engineering, 3D printing technologies, material sciences, data-management, augmented reality, artificial intelligence, recycling technologies, technical safety, composing technical specifications and documents. ..
Non-technical subjects	Learning to learn, communication skills, economics, management, team working, law, safety, languages ..

g. Common types of engineering program and common accreditations

The following table with examples can help to understand which types of engineering programs and types of accreditations are common with the ENGINEERS EUROPE national members:

	The 3 sources of accreditation/evaluation of engineering programs:		
3 general types of engineering programs of EQF levels and amount of study load (in ECTS)	1. By law accredited programs	2. By private label accredited programs.	3. By ENGINEERS EUROPE evaluation of programs (Like individual programs.)
First cycle degree (FCD): EQF level 6, 180–240 ECTS credits	First cycle degree Usually awarding a bachelor's degree. Typical titles at this level: Ingenieur (ing.) (NL) Ingenieur (Ing.) (AUT) dipl. Ing. FH/HES (CH)	First cycle equivalent Examples: The EUR-ACE framework standards.	First cycle equivalent Examples: By evaluation sheet.
Second cycle degree (SCD): EQF level 7, 60–120 ECTS credits	Second cycle degree Usually awarding a master's degree. Typical titles at this level: Ingenieur (ir.) (NL) Diplomingenieur (DI, Dipl.-Ing) (AUT)	Second cycle equivalent Examples: The EUR-ACE framework standards.	Second cycle equivalent Examples: By evaluation sheet.
Second cycle integrated degree: EQF level 6/7 ECTS credits will vary across NMC members	Second cycle integrated degree Usually awarding a master's degree. Typical titles at this level: Diploma Engineer (with integrated master) (GR) Ingenieur (ir.) (NL) (*prior to 2003.)* dipl. Ing. ETH/EPF (CH)	Second cycle integrated equivalent. Examples: The EUR-ACE framework standards.	Second cycle integrated equivalent Examples: By evaluation sheet.

h. Accreditation organizations accepted by the EMC

Engineering programs that hold a formal accreditation of one of the following accreditation agencies can be entered into the EEED database without a separate program evaluation.

ENGINEERS EUROPE MEMBER	HEI Acc	Program Acc	ACCREDITATION ORGANIZATION
ENGINEERS EUROPE	No	Yes	EMC
ENGINEERS EUROPE	No	Yes	ENAEE EUR ACE
Austria Österreichisches Nationalkomitee der ENGINEERS EUROPE	Yes	Yes	Bundesministerium für Wissenschaft und Bildung AQ Austria (Agentur für Qualitätssicherung und Akkreditierung Austria)
Belgium Comité des Ingénieurs Belges - Belgisch Ingenieurscomité	No	Yes	CTI NVAO
Bulgaria Federation of Scientific Technical Unions in Bulgaria	Yes	Yes	National Evaluation and Accreditation Agency
Croatia Croatian Engineering Association	Yes	Yes	Croatian Engineering Association
Cyprus ENGINEERS EUROPE Cyprus National Committee			pending
The **Czech Republic** Czech Association of Scientific and Technical Societies	No	Yes	National Accreditation Bureau for Higher Education
Denmark Ingeniørforeningen i Danmark	Yes (new standard)	Yes (decreasing)	The Danish Accreditation Institution (https://akkr.dk/)
Estonia Estonian Association of Engineers			pending
France Ingénieurs et Scientifiques de France	Yes	Yes	CTI
Germany Deutsches Nationalkomitee der ENGINEERS EUROPE	Yes	Yes	Accreditation Council (supported by ten accreditation agencies responsible for the operative realisation of the accreditation processes)
Greece Technical Chamber of Greece	Yes	Yes	Hellenic Authority for Higher Education ETHAEE https://www.ethaae.gr/en/
Hungary Hungarian Chamber of Engineers	Yes	Yes	Hungarian Committee for Accreditation of Higher Education
Iceland Association of Chartered Engineers of Iceland	No	Yes	(ENGINEERS EUROPE, ABET) No national accred authority
Ireland Engineers Ireland	No	Yes	QQI (https://qqi.ie)

ENGINEERS EUROPE MEMBER	HEI Acc	Program Acc	ACCREDITATION ORGANIZATION
Italy Consiglio Nazionale Ingegneri	No	Yes	Quacing
Kazakhstan Kazakhstan Society of Engineering Education			pending
Malta Chamber of Engineers			pending
Netherlands Royal Netherlands Society of Engineers KIVI	No (pilots)	Yes	NVAO
North Macedonia Engineering Institution of Macedonia	No	No	The Agency for Quality in Higher Education https://www.akvo.mk/
Norway Norwegian National Committee for ENGINEERS EUROPE	Yes	No	NOKUT
Poland Polish Federation of Engineering Associations			pending
Portugal Portuguese National Committee for ENGINEERS EUROPE	Yes	Yes (EUR-ACE)	Ordem dos Engenheiros
Romania The General Association of Engineers in Romania			pending
Russia Russian Union of Scientific and Engineering Associations			pending
Serbia The Union of Engineers and Technicians of Serbia	Yes	Yes	National Entity for Accreditation and Quality Assurance in Higher Education (NEAQA)
Slovakia Slovak National Committee for ENGINEERS EUROPE			pending
Slovenia Slovenian National Committee for ENGINEERS EUROPE	Yes	Yes	SQAA (Slovenian Quality Assurance Agency for Higher Education) (nakvis.si)
Spain Comite Nacional Espanol de la ENGINEERS EUROPE			pending
Sweden Swedish National Committee for ENGINEERS EUROPE	Yes	Yes	Swedish Council for Higher Education
Switzerland Schweizer Nationalkomitee für ENGINEERS EUROPE	Yes	optional	AAQ
Turkey Union of Chamber of Turkish Engineers and Architects			pending
Ukraine Union of Scientific and Engineering Associations of Ukraine			pending
United Kingdom British National ENGINEERS EUROPE Committee	No	Yes	Engineering Council

When the accreditation organization is not yet approved by the EMC, the addition can be pursued by the 'Evaluation of Country Education System'.

i. EUR ING SPEC engineering program accreditation through EMC by program evaluation form

When an engineering program is not yet approved by any of the organizations mentioned in section o, the approval can be pursued by using the program evaluation forms:

- First cycle degree.
- Second cycle degree.

After approval, the program can be entered into the EEED (see Chapter V).

j. Professional registrations accepted by the EMC for sufficient professional experience

Professional registration accepted by the EMC	ORGANISATION
Chartered Engineer / Associate Engineer Ireland	Engineers Ireland
Chartered Engineer / Incorporated Engineer Netherlands	KIVI
Chartered Engineer / Incorporated Engineer United Kingdom	Engineering Council
REG A / REG B / REG C Switzerland	SIA, Swiss Engineering, etc.
Ingenieur [Ing.] Austria	BMBWF, BFI, WIFI etc.

Note: some registrations can be temporarily whilst others can be permanent, depending on national regulations.

k. Tool to check for possible protection of engineering titles in EU Countries

The tool to check for possible protection of engineering titles in EU Countries is the following:

https://ec.europa.eu/growth/tools-databases/regprof/index.cfm?action=homepage

l. Monitoring the quality of national educational systems

An **EMC working group**, consisting of 2-3 EMC members, will evaluate every five years the educational system in the country and the working procedures of the NMC.

The written report includes:

- a brief description of the educational system in the country
- a description of the QA system and accreditation procedures in place
- a description of the workflow used in NMCs to update the INDEX
- a recommendation to EMC

The report template to be used for this is: Template 'Evaluation of Country Education System'

In the exceptional case, the EMC WG will need to visit the NMC according to an agreed agenda, in which case all expenses of the Working Group will have to be arranged by the respective National Member.

m. Recommendation for procedure for handling complaints about EUR INGs

Complaints are broadly defined. They may include unethical and/or unprofessional practices as an engineer, failure to comply with EUR ING requirements such as the maintenance of CPD, nonpayment of fees, etc.

If ENGINEERS EUROPE receives a complaint from a third party regarding EUR INGs:

1. The Secretary General should first verify whether the concerned EUR ING was registered on a national basis in a country such as the UK (Chartered Engineers). In this case, the national body could take appropriate steps/disciplinary measures.

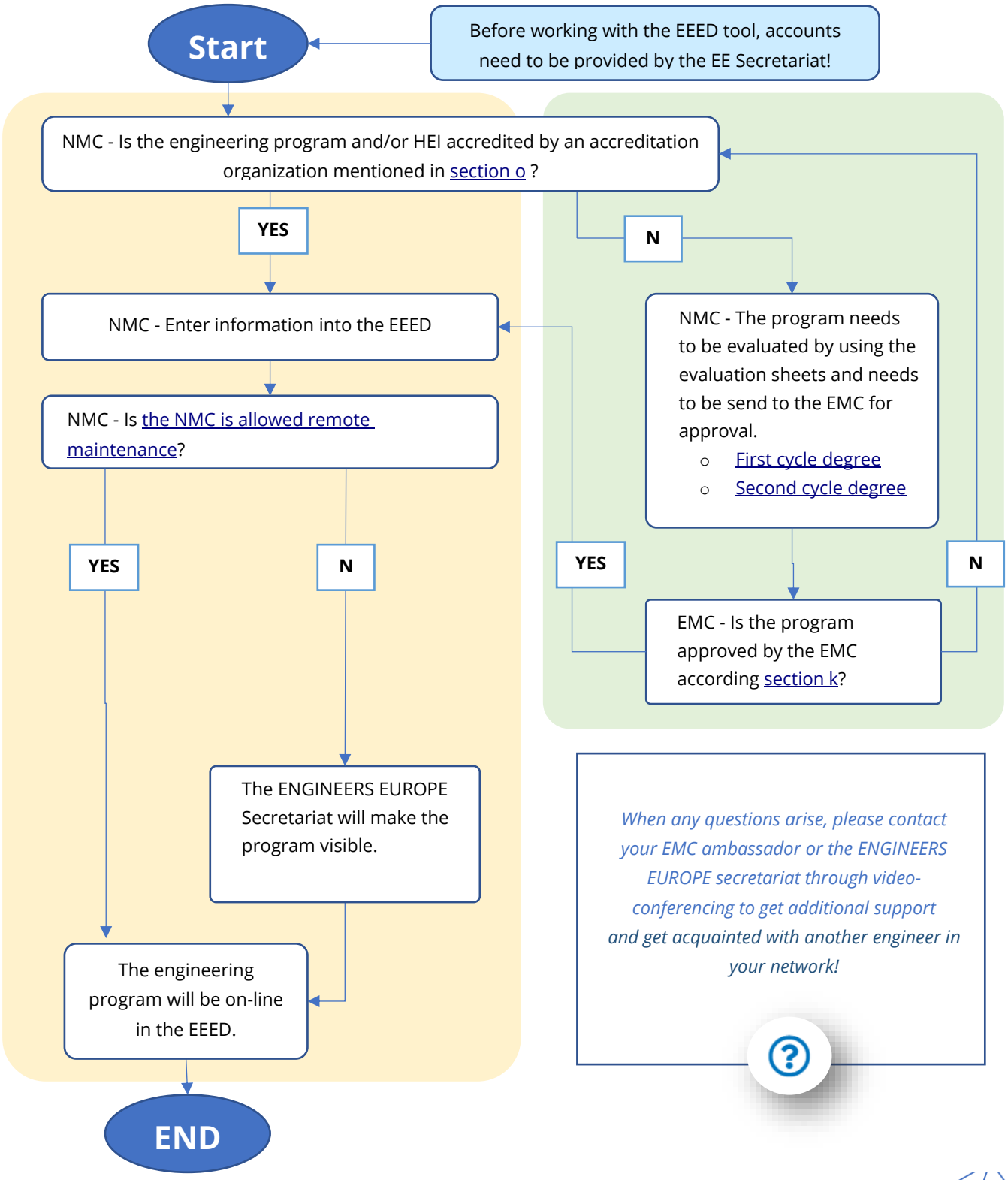
2. If this is not the case the following procedure applies. The Secretary General will :

- send a copy of the complaint to the EMC Chair and the respective NMC;
- reply to the complainer
- inform the concerned EUR ING that a complaint has been made and include a copy of the response but without sending the actual complaint and request a written response to the complaint.
- The disciplinary measures of the respective NMC will be applied and/or escalated to the ENGINEERS EUROPE Secretariat for final resolution if necessary

In any case, close consultation with the respective NM/NMC is vital. The communication with the concerned EUR ING and complainer will generally be made through ENGINEERS EUROPE.

IV. Submissions of engineering programs and HEI to the EEED

n. Basic workflow entering information into the EEED by the NMC

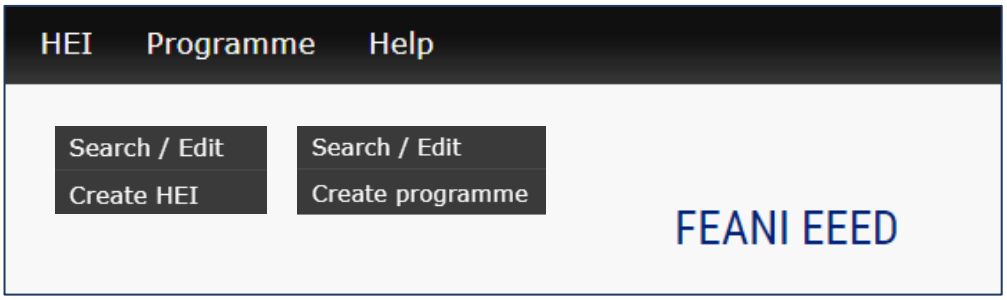


When any questions arise, please contact your EMC ambassador or the ENGINEERS EUROPE secretariat through video-conferencing to get additional support and get acquainted with another engineer in your network!

EMC and NMC members require an account to modify the contents of the EEED database. To the applicable people an account will be provided by the ENGINEERS EUROPE Secretariat.

https://www.engineerseurope.com/eeed-database

Select the applicable menu options in the top left corner of the screen and proceed.



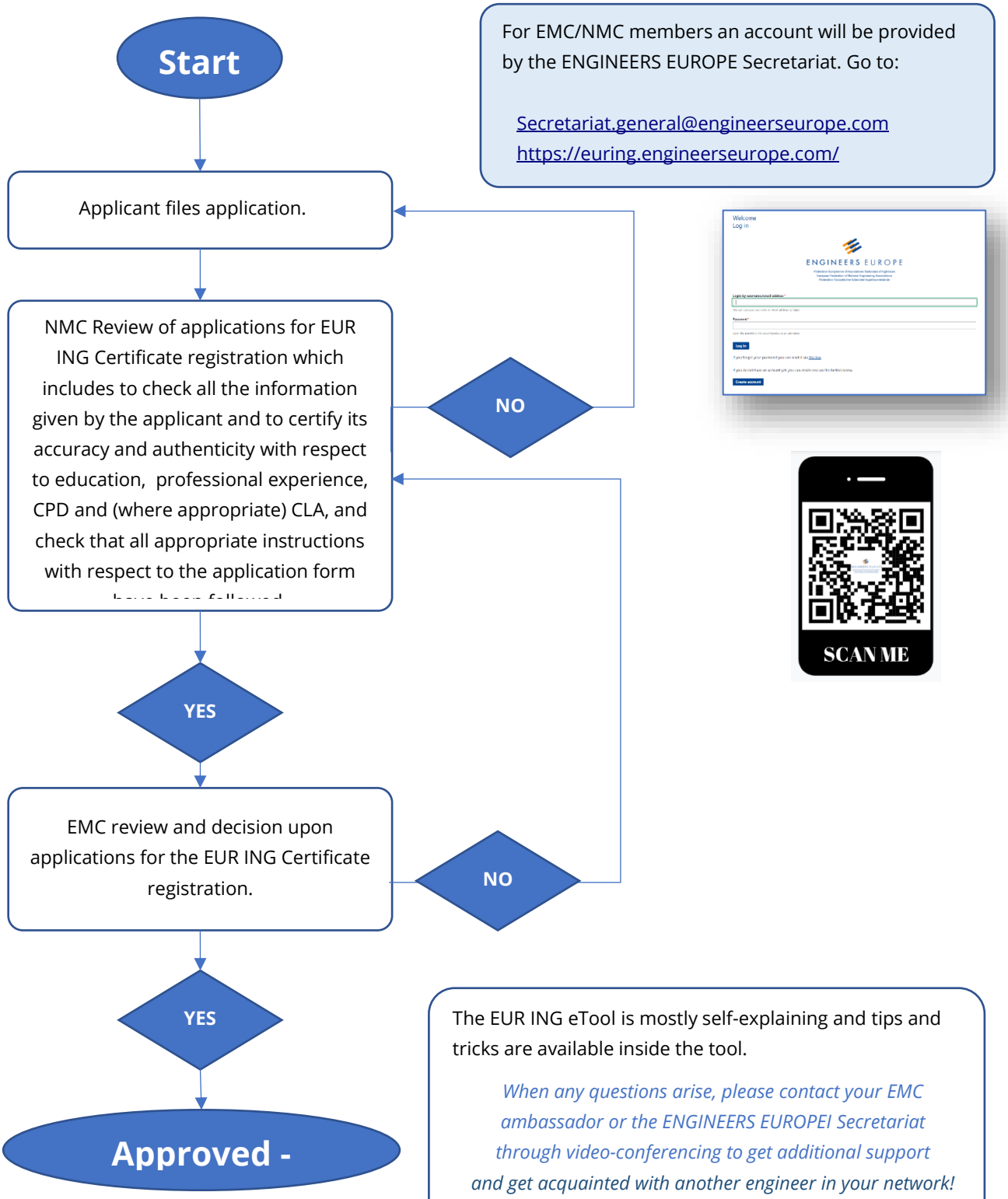
*A * asterisk indicates it's a mandatory field to be filled in.*

The question mark signs in the screens gives additional support.

o. Special workflow exceptional cases

In exceptional cases (inclusion of programmes from a new ENGINEERS EUROPE Member; new types of programmes; …) and submissions above the amount of 7 programmes combined with no remote maintenance permission of the member country, the EMC nominates a Working Group (WG) that will select a representative sample of 7 programmes for which programme evaluation sheets will be asked from the NMCs. This is being done to make the work manageable.
In the exceptional case, the EMC WG will need to visit the NMC according to an agreed agenda, in which case all expenses of the Working Group will have to be arranged by the respective National Member.

V. EUR ING Certificate eTool workflow tutorial



For EMC/NMC members an account will be provided by the ENGINEERS EUROPE Secretariat. Go to:

Secretariat.general@engineerseurope.com
https://euring.engineerseurope.com/

SCAN ME

The EUR ING eTool is mostly self-explaining and tips and tricks are available inside the tool.

When any questions arise, please contact your EMC ambassador or the ENGINEERS EUROPEI Secretariat through video-conferencing to get additional support and get acquainted with another engineer in your network!

VI. Abbreviations and Definitions

CLA	Career Learning Assessment
CPD	Continuing Professional Development, timely personal development in technical and non-technical topics.
Competence	The knowledge, skills, and attitude needed to perform a specific task in a specific environment.
Course	An assembly of lectures, tutorials, and other learning environments in which one or more subjects are studied
EB	ENGINEERS EUROPE Executive Board
ECTS	European Credit Transfer System[3]
Education	Learning leading to a diploma in an engineering program, provided by a university or another establishment of higher education, accepted by ENGINEERS EUROPE.
EE	ENGINEERS EUROPE
EEED	List of Higher Education Institutions (HEI) and Engineering Programs recognized by ENGINEERS EUROPE
EEED Procedures	EMC Procedures to analyse proposals from National Members
EHEA	European Higher Educational Area[4]
EMC	ENGINEERS EUROPE European Monitoring Committee
ENIC-NARIC	European network of national agencies for the recognition of foreign university diplomas[5]
EUR-ACE	Certification of European Engineering Programs by ENAEE[6]
EUR ING	Registered trademark.
EQF	European Qualification Framework[7]
FCD	First Cycle Degree
GA	ENGINEERS EUROPE General Assembly
HEI	Higher Education Institution
National engineering associations	This includes institutions, societies, and associations.
NM	National Member
NMC	National Monitoring Committee
Professional Engineering Experience	Continuous Learning gained during working life after the completion process by current development in engineering and particularly specialism. CPD can be acquired in a variety of ways through seminars, meetings, discussions, further study, etc.
Program	An assembly of courses leading to an award in recognition of the satisfactory completion of the program.

[3] https://ec.europa.eu/education/resources-and-tools/european-credit-transfer-and-accumulation-system-ects_en
[4] http://www.ehea.info/
[5] https://www.enic-naric.net/
[6] https://www.enaee.eu/
[7] https://europa.eu/europass/en/european-qualifications-framework-eqf

SCD	Second Cycle Degree
SCI	Second Cycle Integrated Degree
Subject	A topic or area of study. For example, Mathematics, Technical Drawing, Chemistry, etc.
VET	Vocational Education and Training, as the third pillar besides scientific universities and universities of Applied Science
WG	Working Group

VII. References

These appendices give some extra information for current and future readers.

p. Worldwide quality alignment of engineering programs

There are two main public processes according to which the quality of engineering programs are aligned:

The Bologna process is a series of ministerial meetings and agreements between European Countries to ensure comparability in the standards and quality of higher-education qualifications. The process has created the European Higher Education Area (EHEA) under the Lisbon Recognition Convention. It is named after the University of Bologna, where the Bologna declaration was signed by education ministers from 29 European Countries in 1999. The process was opened to other countries in the European Cultural Convention of the Council of Europe, and governmental meetings have been held in Prague (2001), Berlin (2003), Bergen (2005), London (2007), Leuven (2009), Budapest-Vienna (2010), Bucharest (2012), Yerevan (2015), Paris (2018), and Rome (2020).

The Washington accord is an international accreditation agreement for undergraduate professional engineering academic degrees between the bodies responsible for accreditation in its signatory countries and regions. Established in 1989, the full signatories as of 2020 are Australia, Canada, China, Costa Rica, Hong Kong, India, Ireland, Japan, Korea, Malaysia, New Zealand, Pakistan, Peru, Philippines, Russia, Singapore, South Africa, Sri Lanka, Taiwan, Turkey, the United Kingdom, and the United States.

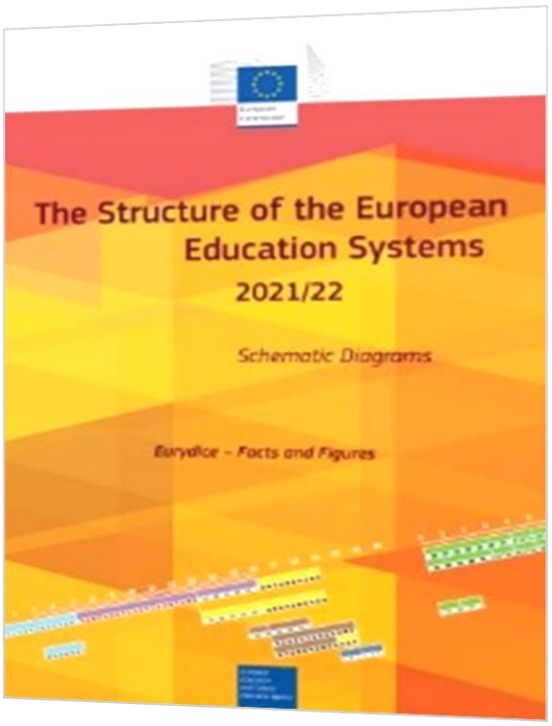
Diplomas from outside the ENGINEERS EUROPE area (EHEA) can be recognized by a European host country according to the ENIC-NARIC agreement, as authorized by the respective national ministry of education. For the EHEA (most ENGINEERS EUROPE members) states the Bologna process is followed.

In some member states the institutes are accredited, incl. the authority to issue study programs on their own, in other member states only the programs are accredited (incl. stakeholder feedback and quality assurance). In addition, private accreditations can be proof of the quality of engineering programs. At the moment the EUR-ACE accreditation of ENAEE is accepted by ENGINEERS EUROPE.

q. Structure of the European Education System

See the link for more information on an excellent visualisation of the structure of the European Education System.

https://eacea.ec.europa.eu/national-policies/eurydice/content/structure-european-education-systems-202122-schematic-diagrams_en



r. European workload frameworks: ECTS

ENGINEERS EUROPE has adopted the **European Credit Transfer System (ECTS)**[8] to quantify and measure the workload expected from a student to pass a subject. According to ECTS, one full-time academic year of studies corresponds to 60 credits and credits embrace the full student workload, including classes, individual work, and exams.

In general 1 ECTS is equivalent to a workload of 25 to 30 hours and 60 ECTS is equivalent to a workload of 1680 hours (based on the EMC assumed workload of 28 hours).

The Framework for **Qualifications of the European Higher Education Area (EQF)**[9] provides descriptors for three cycles agreed by the ministers responsible for higher education. Each cycle descriptor offers a generic statement of typical expectations of achievements and abilities associated with qualifications that represent the end of that cycle.

The descriptor for the first cycle, usually awarding a bachelor's degree, corresponds to the learning outcomes for EQF level 6.
The descriptor for the second cycle, usually awarding a master's degree, corresponds to the learning outcomes for EQF level 7.

Note that a PhD (EQF level 8) is recognized as professional research experience including CPD.

The route mostly used for the EUR ING starts with a secondary education (level 5), granting a general or a specific admission to tertiary education. However, countries with a fully developed **vocational qualification path (VET)** may have higher technical schools, which are also considered tertiary education on level 6 (equivalent to 120 ECTS) and award a diploma as technologist. After 3 or more years in professional practise, technologists may earn the title engineer by passing a state examination or similar recognition procedure. Some national qualification frameworks may even foresee a VET examination of level 7 (e.g. as a construction supervisor or other senior technologist).

[8] https://ec.europa.eu/education/resources-and-tools/european-credit-transfer-and-accumulation-system-ects_en
[9] https://europa.eu/europass/en/european-qualifications-framework-eqf

Some member countries within the European Higher Education Area have different scales from which the following picture is taken:

Correspondences between UK and Irish frameworks with European qualifications frameworks

Within Europe, two overarching qualifications frameworks exist to which the national qualifications frameworks of the UK and Ireland relate: The European Qualifications Framework (EQF) and the Framework for Qualifications of the European Higher Education Area (FQ-EHEA) also known as the Bologna Framework.

Table 1 shows the correspondence of levels established between national qualifications frameworks and the EQF:

European Qualifications Framework (EQF)	Framework for Higher Education Qualifications in England/ Northern Ireland (FHEQ)	Regulated Qualifications Framework England/ Northern Ireland (RQF)	Credit and Qualifications Framework for Wales (CQFW)	Scottish Credit and Qualifications Framework (SCQF)	The National Framework of Qualifications for Ireland (NFQ IE)
8	8	8	8	12	10
7	7	7	7	11	9
6	6	6	6	10/9	8/7
5	5/4	5/4	5/4	8/7	6
4		3	3	6	5
3		2	2	5	4
2		1	1	4	3
1		E3	E3	3	2/1
		E2	E2	2	
		E1	E1	1	

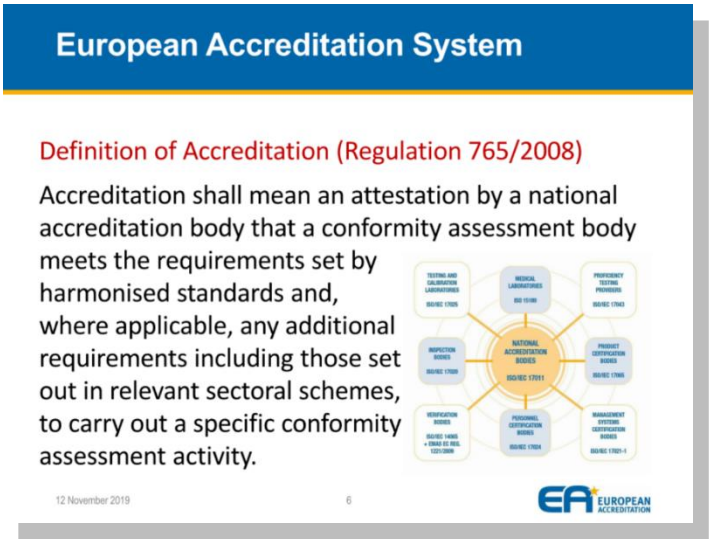
Table 2 shows the outcome of verifying the compatibility of higher education frameworks for Scotland (FQHEIS/SCQF), for England, Wales and Northern Ireland (FHEQ) and for the NFQ for Ireland (NFQ IE) with the FQ-EHEA as follows:

Typical higher education qualifications within each level	FHEQ level	FQHEIS/ SCQF level	NFQ IE level	Corresponding FQ-EHEA cycle
Doctoral degrees	8	12	10	Third cycle (end of cycle) qualifications
Master's degrees (including Integrated Master's)	7	11	9	Second cycle (end of cycle) qualifications
Postgraduate diplomas				Intermediate qualifications within the second cycle
Postgraduate certificates				
Bachelor's degrees with honours /Honours Bachelor Degrees	6	10	8	First cycle (end of cycle) qualifications
Irish Higher Diplomas				
Bachelor's degrees/ Ordinary Bachelor Degree		9	7	
Graduate diplomas				Intermediate qualifications within the first cycle
Graduate certificates				
Foundation Degrees (for example FdA, FdSc)	5	8	6	Short cycle qualifications
Diplomas of Higher Education (DipHE)				
Higher National Diplomas (HND)				
Irish Higher Certificates				
Higher National Certificates (HNC)	4	7		Intermediate qualifications within the short cycle
Certificates of Higher Education (CertHE)				

For more information on compatibility with these frameworks see: http://ec.europa.eu/eqf/home_en.htm and www.enic-naric.net.

s. Accreditation in the European Union

Caused by the abundant (mis)use of many non-transparent quality markings/logos/certificates by organizations/companies in the past, in 2008 the EU came up with https://european-accreditation.org/:



*BE AWARE, this is about the 'conformity assessment **bodies**', not about the quality markings/ logos/ certificates themselves!*

Awarding the EUR ING Certificate will be a process of 'conformity assessment'. Many high-tech companies and quality companies already have an accreditation based on 765/2008.

ENGINEERS EUROPE

Fédération Européenne d'Associations Nationales d'Ingénieurs
European Federation of National Engineering Associations
Föderation Europäischer Nationaler Ingenieurverbände

ENGINEERS EUROPE position paper on Code of Conduct:
Ethics and Conduct of Professional Engineers
approved by the General Assembly on 07/10/2022

Codes of Conduct

The pan-european statement on engineering ethics and conduct presented below is best implemented through the codes issued by national engineering associations. These codes can, and in general already do, incorporate the listed objectives in a form which reflects national circumstances and allow additional objectives to be added as required by national practice.

Ethical Principle

The decisions and actions of engineers have a large impact on the environment and on the wellbeing of society. This has an enhanced and growing importance as the twenty-first century progresses. The engineering profession thus has an obligation to ensure that it works in the public interest with particular regard for equality, diversity, health, safety, and sustainability.

In doing so they are required to maintain and promote high ethical standards and challenge unethical behaviour. There are four fundamental principles for ethical behaviour and decision-making. These are honesty and integrity; respect for life, law, the environment and public good; accuracy and rigour; and leadership and communication.

Framework Statement

National associations of engineers, and FEANI with regard to EURING registrants, have codes of conduct which have much in common and which have the intent of implementing the above ethical principle. As a result of this convergence, the European engineering profession as a whole can make a universal statement regarding the conduct of professional engineers.

Individual engineers have a personal obligation to act with integrity, in the public interest, and to exercise all reasonable skills and care in carrying out their work.

In so doing engineers:

> *Shall maintain their relevant competencies at the necessary level and only undertake tasks for which they are competent*
>
> *Shall not misrepresent their educational qualifications or professional titles*

Schuman Square 6, 5th floor
BE – 1040 Brussels
T: +32 2 234 78 78

EU Transparency Register
ID: 71635694112-37
secretariat.general@engineerseurope.com

VAT 046 057 6487
www.engineerseurope.com

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Shall provide impartial analysis and judgement to employer or clients, avoid conflicts of interest, and observe proper duties of confidentiality

Shall carry out their tasks so as to prevent avoidable danger to health and safety, and prevent avoidable adverse impact on the environment

Shall accept appropriate responsibility for their work and that carried out under their supervision

Shall respect the personal rights of people with whom they work and the legal and cultural values of the societies in which they carry out assignments

Shall be prepared to contribute to the public debate on matters of technical understanding in fields in which they are competent to comment

Shall challenge unethical behaviour when observed or experienced and enforce best ethical practices in their work assignments.

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