MODERATOR





Professor / Internship Program Director at University of Connecticut

PRESENTERS



YADIN DAVID

Clobal Clinical Engineering Journal Editor-in-Chief & Interim Global Clinical Engineering Alliance President



TIMOTHY ZAKUTNEY



Senior Vice President, Digital Health and Cardiac Technology Chief Information and Technology Officer



Managing Director & Founder CEO of Andhra Pradesh MedTech Zone (AMTZ)

JITENDRA SHARMA



WEBINAR

OBAL

IEERING

National Clinical Engineering Certification

Why is it important and how to develop a national certification project.





2 рм NEW YORK TIME (ET)





National Clinical Engineering Certification

Why is it important and How to develop a national certification project Yadin David Ed.D., P.E., C.C.E., C.N.A.F.E. Global Clinical Engineering Alliance – Interim President Global Clinical Engineering Journal – Editor-in-Chief

Healthcare Delivery System is Dependent Upon Competent Professionals from Multidiscipline Fields

The healthcare system has never been more dependent on technology than today. That may seem axiomatic, but the integration of technology into patient care has become routinized, accepted by, and more visible to patients than ever before. In a study published in 2016, the estimated volume of medical devices sale is projected to reach 530\$ billion US in 2022. So, it seems only appropriate that the management of healthcare technology will increasingly be led by the professionals who create, curate, and manage this critical tool. Like the rest of the healthcare delivery team, CEs professionals need to profess their Credentialing publicly.

"Clinical engineers and technologists are critical for sustaining the availability of safe, effective, and appropriate technology for patient care. It is as important for their associations to collaborate on compliance with professional obligations that their jobs require."

Is Clinical Engineering an occupation or profession? J Global Clinical Engineering, Vol.4 Issue 2: 2021 http://globalce.org/







Appropriate and comprehensive training, qualification, experience, and competency assessment are the hallmarks of respected professions. WHO in 2007⁴ and again in 2018⁵ posted: "*it is critical that trained and qualified*" medical engineering professionals [clinical engineering practitioners] are required to design, evaluate, regulate, maintain and manage medical devices, and train on their safe use in health systems around the world. This role is referred to as clinical engineering, biomedical engineering, and/or health-care technology management dependent on regional terminology."

5. WHO Management and Safe Use of Medical Devices, updated 2021: https://www.who.int/teams/health-product-and-policy-standards/assistive-and-medical-technology/medical-devices/management-use

^{4.} WHO's 2007 World Health Assembly Resolution on Health Technologies: https://www.who.int/publications/i/item/WHA60.29

Global Professional Credentialing Support Common Elements

Healthcare expects like medicine, in engineering, public health, safety, and welfare tasks are designed to deliver outcomes protected from unintended consequences.

• Engineering is, at its core, problem-solving. Being an engineer means being a problem solver, capable of diagnosing, analyzing a situation, and finding a solution within a set of constraints even if it is not optimal. Similarly, one of the most required skills to be a clinical engineer is to solve problems safely and timely.

Education and Training of Clinical Engineers

• Clinical Engineers who practice as health professionals shall demonstrate competency in their discipline by completing appropriate educational qualifications and clinical experience competency training and follow this with participation in a continual professional development program. Identifying national minimum requirements is a mandatory common element for the global program.

Credentialing

- Dependent on established Bok and BoP.
- Self-assessment that is assumed objective and honest
- Evaluation by an external entity to foster a culture of compliance with standards and continuous improvement.



Credentialing History

1979 IFMBE document: *Mutual Recognition of Qualifications in the field of Clinical Engineering*

1985 Clinical Engineering Division created

1981 BIOMEDEA Project Coordinator:

Prof. Dr. Joachim H. Nagel Institute of Biomedical Engineering University of Stuttgart, Germany

2012 ISO/IEC 17024 review

2017 White paper developed on CE common roles and definitions

2021 Convenor for ICB global collaboration

AGREEMENT on **Mutual Recognition of Qualifications for Clinical Engineers** (Original Agreement: October 1981) **INTERNATIONAL FEDERATION OF MEDICAL & BIOLOGICAL ENGINEERING** INTERNATIONAL REGISTRATION OF CLINICAL ENGINEERS Historical Background Clinical Engineering: a definition •Role of the Clinical Engineer •Qualifications and requirements for international registration Mechanisms of registration Code of Confidentiality Reference Declaration of Intent APPENDIX 1, Examples of national requirements for professional qualifications 9 United Kingdom (Biological Engineering Society) 10



The Professional Clinical Engineer

A commitment to serve in the interests of specific clients (that at times can not fend for themselves) and the general welfare of humankind; Poses body of knowledge and set of principles; A required specialized set of skills, practices, and performances unique to the profession; the capacity to render judgments ethically and with integrity under uncertain conditions; Commitment to engage in continuing education and learning attitude to absorb new knowledge from the contexts of practice; and the development of a professional community responsible for the oversight and monitoring of quality in both practice and professional education.

Critical differentiators between an occupation and a profession are whether or not members of the field, in our case clinical engineers, have attributes such as (1) a BoK with a high degree of systematic continuous training, (2) mastery of their domain, (3) commitment to selflessly and ethically serve, (4) ability to render professional judgment, and (5) Self-governance by monitoring the quality-of-service members provide through a credentialing program. *David, Calil et all: Is Clinical Engineering an occupation or profession? J Global Clinical Engineering Vol.4 Issue 2: 2021*



Many Started but No One Cross the Global Finish Line Yet



CE-HTM Credentialing

Leaders

Fabiola Martínez (México) & Li Bin (China)

Team

Board member Ewa Zalewska (Poland)
Board member Jitender Sharma (India)
Board member Adrian Richards (Australia)
Board member Ricardo Silva (USA/Venezuela)
Board member Ashenafi Hussein (Ehiopia/Africa)
Board member Tomokazu Nagasawa (Japan)
Board member Riad Farah (Lebanon) representing EMRO Region

Advisors

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James Wear, Frank Painter, Antonio Hernandez, Joachim H. Nagel

International Credentialing Board (ICB)



Terms of Reference International Credentialing Short-term Working Group

Professor Dan Clark OBE 12/08/2021



China case-study

Credentialing for Clinical Engineering can be defined as 'setting and measuring against an essential and appropriate set of the field's competencies to identify comparable professional experience for practitioners. Agreeing and publishing a Body of Knowledge and Body of Practice to internationally accepted norms and standards are the expected foundation for education, training and professional characteristics to support agreed upon competencies. **IFMBE CED** and the **Global Clinical Engineering Alliance** (GCEA) - https://www.globalcea.org/home - Definitions TBD ISO/IEC 17024:2012.

Conformity assessment — General requirements for bodies operating certification of persons.





Recommendations

Clinical engineers need to recognize, like other professions that when establishing defined requirements to enter the professional practice, there needs to have a national consensus about and adopting clinical engineering practice criteria.

- Domain boundaries,
- Establishing a minimum qualifications criterion (nationally & globally) for entering clinical engineering practice in healthcare,
- Commitment for compliance with life-long continuing education,
- Adherence to ethical behavior, service stewardship to their communities, and
- Adopt rules for self-governing.

Adoption of these cannons across the world will gain wider recognition and elevate the professional standing they desire. We recommend that the **Global Clinical Engineering alliance & CED** will best serve as a Convenor for **ICB** collaboration between stakeholders such as academia, industry, healthcare providers, and government agencies. Working together to facilitate what clinical engineering practitioners deserve - be the nationally credentialed engineering and technology professionals within the healthcare team.







Thank You!

Yadin David david@biomedeng.com



Clinical Engineering Certification in Canada

Timothy J Zakutney, MHSc, PEng, CCE, FCMBES

Senior Vice President, Digital Health and Cardiac Technology, Chief Information and Technology Officer University of Ottawa Heart Institute

Adjunct Research Professor, Department of Systems and Computer Engineering, Carleton University Member, Canadian Board of Examiners for Clinical Engineering Certification

Agenda

- The Board and Governance
- Certification Process
 - Application
 - Preparation
 - Written and Oral Exams
- Renewal
- Demographics
- Why and How?
- Questions



The Board (CBECEC)

- The purpose of the Canadian Board of Examiners for Clinical Engineering Certification is to facilitate the continuous improvement of healthcare delivery in Canada through:
 - Establishment of a credible certification program that attests to the professional competencies of clinical engineers as related to the body of knowledge established by the American College of Clinical Engineering (ACCE) and to relevant Canadian regulations, codes, and standards.
 - Acting as a repository of information concerning the certification process.



The Board

- Currently 10 Members representing a cross section of Canada
 - 9 CCE Certified Members
 - We do have the option of having non-certified board members
 - Board Members serve a maximum of 2 Terms of 3 Years each (Max 6 years)
 - Board Officers serve a maximum of 1 Term of 2 Years each (Max 2 years)
 - Chairperson-Elect → Chairperson → Past Chairperson



The Board

- Andrew Ibey (ON) Chair
- Rachel Zhang (ON)
 Chair Elect
- Dr. Marie-Ange Janvier (ON)
 Past Chair
- Parisa Bahrami (ON)
 Secretary

- Eldon Berezanski (AB)
- Murat Firat (ON)
- Dave Gretzinger (ON)
- Gaetanne Heggie (ON)
- Philippe Laporte (QC)
- Timothy Zakutney (ON)



Governance





- American College of Clinical Engineering (ACCE) is the sponsoring legal entity for the Certification Program
- Healthcare Technology Certification Commission (HTCC) oversees the Program
- Two Boards of Examiners
 - Unites States Board of Examiners
 - Canadian Board of Examiners
- CMBES promotes and advocates both CCE and BMET Certification in Canada



Process

- Complete Application
 - Deadline is July 22, 2022 *
 - www.accenet.org
 - Application Fee: \$475 USD
- Application is reviewed by CBECEC for approval
- Online Examination Date
 - November 5, 2022 through November 19, 2022 *
 - Written Examination Fee: \$175 USD (Re-test)
- Oral Examination Typically at the Annual CMBEC Location but exceptions may be made upon request, and currently are performed virtually with an appropriate proctor.
- **Recommendation** from CBECEC, following a review of the examination results, to HTCC Board for Certification approval
- For Details: Visit accenet.org



Requirements

- A. Licensure in Canada as a Professional Engineer (PEng, ing) in your respective Province
- B. 3 or more years of Clinical Engineering Practice
- Documents
 - Proof of PEng / ing Licensure
 - Government issued (2) photo identification
 - Academic and career progression information (CV)
 - 3 Confidential References
 - Attest to the applicant's engineering or clinical engineering experience and abilities, e.g. nurses, administrators, physicians, engineers, and department managers
 - Official Academic Transcripts send from Institution to HTCC



Written Examination

- 150 Multiple choice questions
- Based on the ACCE Body of Knowledge (2021)
- Questions are set and reviewed by CCEs
- Administered by Professional Testing Corporation (PTC)

PROFESSIONAL TESTING CORPORATION

Technology Management (31.7%)	Service Delivery Management (19.9%)	Product Development, Testing, Evaluation, and Modification (4.3%)	IT / Telecom (6.8%)	Education of Others (8.0%)
Facilities Management (5.7%)	Risk Management / Safety (10.2%)	General Management (10.4%)	Device Integration (1.5%)	Standards and Government Regulations (1.5%)



Oral Examination

Objectives:

Assess the candidate's oral presentation of clinical engineering ideas in an organized and professional manner as well as their application of practical knowledge to solve problems.

- 1. Assess practical clinical engineering knowledge including:
 - Ability to utilize basic knowledge to solve problems,
 - Ability to comprehend complex ideas delivered orally,
 - Ability to **react to situations** in an appropriate timeframe.
- 2. Assess oral communication skills including:
 - Ability to **express** clinical engineering ideas in an **organized manner**.
 - Ability to articulate these ideas in a clear, direct, understandable, and professional manner



Oral Examination

4 Scenarios describing an typical theme or issue faced by Clinical Engineers in a healthcare setting:

- 3 Scenarios developed in collaboration with the US Board of Examiners
- 4th Scenario developed by CBECEC to address Canadian Standards and Regulations knowledge.

Assessment:

- 80% based on Candidate's responses
- 20% based on verbal presentation and communication ability

Format:

- Scenarios presented in writing at the beginning of the exam.
- Candidates have a period of time to collect their thoughts on each scenario.
- A series of 5-7 questions are asked by the examiners for the Candidate to respond to (20 minutes per scenario)

Renewal – 3 Years

I. Employment

- Hospital/Non-Hospital Employment
- Professor/Teaching

II. Continuing Education

- Academic courses, company/web/teleconference/workshop
- Self study books, journals, etc.

III. Professional Activities

- Meeting attendance, positions in professional Societies/Associations, publications, presentations
- **IV.** Miscellaneous Activities



Additional Statuses

• Retired Status (CCE-R)

- Active CCE to leave employment in the biomedical engineering field but wishes to maintain certification
- Can revert back to Active Status
- Complete Renewal Application form
- Exams are not required
- Emeritus Status (CCE-E)
 - Recognizes lifetime contribution to the field of CE
 - Active CCE retiring from full-time employment in the clinical engineering field
 - Met qualifications for lifetime achievement
 - > 30 years (total of Active CCE and years of working in the field) OR
 - > 15 years continuous of active CCE
 - Cannot revert back to Active Status



Demographics

- Total of 24 CCE-CA
 - 2 x CCE-US / CCE-CA (1 practicing in US)
 - 2 x CCE-US practicing in Canada
 - 1 Emeritus
 - 1 Retired
- CCE-CA professionals work in both Healthcare and Industry

Bahamas	1
Brazil	1
Canada	23
Colombia	1
Hong Kong	2
Japan	1
Peru	1
Saudi Arabia	3
Singapore	1
United Arab Emirates	2
United States of America	202
Total	238

* August 2021 ACCE



Geographical Distribution

Ottawa	8
Toronto and Area	8
Quebec	2
Newfoundland and Labrador	1
Edmonton	1
Vancouver and Area	3
Ohio, USA	1
Total	24





Why?

 > 25 Regulated healthcare professions in Canada (Provincial and Federal)

"When in Rome, do as the Romans do"

- Recognition of professional competency in the role of Clinical Engineering
 - Initial and On-going
- Helps for career advancement and opportunities both Nationally and Internationally
- Set an example for Technologists / Technicians to seek out CBET certification
- Personal choice in the absence of mandatory framework
- Driven by C-Suite and Senior Administration of organizations



How?

- Utilize the CE Book of Knowledge
- Utilize existing regulatory frameworks in your countries for academic/competency assessment
- Initiate dialog with the US and Canada Board of Examiners (and others) for synergies
- Start at the grass roots (secondary/post-secondary education organizations)
- Lead by example





Thank You!

Timothy Zakutney tzakutney@ottawaheart.ca

Indian Biomedical Skill Consortium



Launched IBSC on 16th February 2018

Certifications

Accredited Programs

- i) Certificate in Biomedical Engineering (NSQF Level- 5)
- ii) Certificate in Biomedical Maintenance (NSQF Level- 6)
- iii) Certificate in Biomedical Manufacturing (NSQF Level- 6)
- iv) Certificate in Biomedical Quality Assurance (NSQF Level- 6)
- v) Certificate in Biomedical Project Management (NSQF Level- 7)

IBSC Training Programs are Approved by Ministry of Skill Development & Entrepreneurship, Government of India

Get your employees be Qualified & Certified by India's only Assessment Body for Biomedical Fraternity backed by AiMeD. QCI. AAMI FEEL PROUD OF YOUR EMPLOYEES BEING CERTIFIED BY INDIAN BIOMEDICAL SKILL COUNCIL

NSDA Approved Skill Certification Programs

Name of the Certificate	NSQF Level
Certificate in Biomedical Engineering	5
Certificate in Biomedical Maintenance	6
Certificate in Biomedical Manufacturing	6
Certificate in Biomedical Quality Assurance	6
Certificate in Biomedical Project Management	7

For more information

NSQC Approved Job Roles

Listed in National Qualification Register

https://www.ngr.gov.in/

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Program – 1: Certificate in Biomedical Engineering

Certificate in Biomedical Engineering

NSDA Approved Skill Certification Program: Level - 5

Training Modules

tion

Eligibility:

 i) For Diploma candidates: Recent Graduate in Diploma in in Biomedical Engineering, Biomedical Instrumentation Engineering / Medical Electronics / any other related field.
 ii) For Engineers: Recent Graduate in B. E / B. Tech in Biomedical Engineering, Biomedical Instrumentation Engineering / Medical Electronics / any other related field.

Certificate in Biomedical Engineering

- Eligibility- BE/BTECH BME or Final year Students
- Objective is
- ✓ To develop a pool of workforce which can be employed by focuses on the acquisition of skills necessary to use equipment designed to diagnose, and fix malfunctioning medical equipment
- Number of Students Trained- 157
- Percentage of Students placed- 100 %

Certificate in Biomedical Engineering

- Hands on Training on Medical Equipments
- On campus Training Program





Program – 2: Certificate in Biomedical Maintenance



Certificate in Biomedical Maintenance NSDA Approved Skill Certification Program: Level – 6

Training Modules

Module Code	Name of the Module	
M04	Healthcare Technology Problem Solving and Troubleshooting	
M07	Healthcare Safety & Standards	
M08	NABH & NABL Accreditation	
M12	Radiation Safety	
M14	Facilities / General Management	

Eligibility:

 i) For Diploma candidates: Diploma in Biomedical Engineering, Biomedical Instrumentation Engineering / Medical Electronics / any other related field, with 2 years of experience.
ii) For Engineers: B. E / B. Tech in Biomedical Engineering, Biomedical Instrumentation Engineering

Medical Electronics / any other related field, with 2 years of experience.





Program – 2: Certificate in Biomedical Maintenance

globalceu.org

- Batch I starts on 22nd February *
- * Time: 4 - 7 PM (IST)
- **Eligibility National & International** * BMEs



Certificate in Biomedical Maintenance (NSQF Level - 6)

- **Training Modules**
- Healthcare Technology Problem Solving and
- Troubleshooting
- Healthcare Safety & Standards
- NABH & NABL Accreditation
- Facilities / General Management Radiation Safety

Eligibility Criteria: Working in Bio Medical Field Any Nationality

Course Starts from 22nd February 2022



For more information **ADMISSION** Nitturi Naresh Kumar Coordinator. Indian Biomedical Skill Consortium Email : n.nareshkumar@ibsc-amtz.in, Mob : + 91 8897330990





Last Date for Registration 18th February 2022





















OPEN

Online Classes Online Assessment Duration: 60 Hours









Program – 3: Certificate in Biomedical Manufacturing





Certificate in Biomedical Manufacturing NSDA Approved Skill Certification Program: Level – 6

Training Modules

Module Code	Name of the Module	
M09	Product Development, Testing, Evaluation & Modification	
M15	Service Delivery Management	
M17	Operations Management Functions and Strategies	
M18	Manufacture & Assembly (Design and Process)	
M19	Materials Handling and Inventory Management	

Eligibility:

 i) For Diploma candidates: Diploma in Biomedical Engineering, Biomedical Instrumentation Engineering / Medical Electronics / any other related field, with 3 years of experience in biomedical field.
ii) For Engineers: B. E / B. Tech in Biomedical Engineering, Biomedical Instrumentation Engineering / Medical Electronics / any other related field, with 2 years of experience in biomedical field.





Program – 4: Certificate in Biomedical Quality Assurance





Certificate in Biomedical Quality Assurance NSDA Approved Skill Certification Program: Level - 6

Training Modules

Module Code	Name of the Module	
M11	Risk Management	
M13	Medical Device Regulation	
M20	Medical Technology Quality Systems	
M21	Design Control & Product Development	
M22	Design Verification, Validation, Clinical evaluation and CAPA	

Eligibility:

 i) For Diploma candidates: Diploma in Biomedical Engineering, Biomedical Instrumentation Engineering Medical Electronics / any other related field, with 3 years of experience in biomedical field.

ii) For Engineers: B. E / B. Tech in Biomedical Engineering, Biomedical Instrumentation Engineering Medical Electronics / any other related field, with 2 years of experience in biomedical field.





Program – 5: Certificate in Biomedical Project Management





Certificate in Biomedical Project Management NSDA Approved Skill Certification Program: Level – 7

Training Modules

Module Code	Name of the Module Basic concepts & Application of Project Management	
M23		
M24	Project Modelling and Management with Applications in MS - Project	
M25	People Management in Projects	
M26	Scope Management	
M27	Applying Project Management Principles to Biomedical Industry	

Eligibility:

- For Diploma candidates: Diploma in biomedical / medical electronics / electrical / any other related filed, with 5 years of experience in biomedical field.
- ii) For Engineers: B. E / B. Tech in Biomedical Engineering, Biomedical Instrumentation Engineering Medical Electronics / any other related field, with 3 years of experience in biomedical field.





Upskilling Programs

- Upskilling Training Programs for Working Professionals
- Online Training Programs
- ✤ Sessions on every Saturday (6 9 PM)



- Successfully completed 4 Batches
- Trained 160 Candidates
- Batch 5 will started on 4th December 2021
- Successfully completed 1st Batch
- Batch 2 will started on 8th January 2022



Oxygen Concentrator Training Program



Till dated 335 candidates trained







Training Programs





Session on Every Friday & Saturday Who can Attend: Employees who are working in MedTech Industry/Individuals can apply.

Contact us: : +91 98995 84583 +91 9667630999 Contactus@mylogisticsgurukul.com



Training Programs



Radiology Equipment Service









- ✤ Fee: INR 5000
- Duration: 1 week
- Number of students Trained: 110









Industrial Training

















- Duration: 1 Month Industrial Training + 2/3/4 months Internship at Manufacturing Units / Biomedical Companies
- ✤ Fee: INR 19,500



Skill Vigyan Centre at AMTZ Campus







Supported by:





Skill Vigyan Programs

Skill Training Programs – Supported by Department of Biotechnology, Government of India

Program	No of Students per year	Total for 3 Years
Technician Training Program	50	150
Faculty Development Training Program	60	180
Entrepreneurship Training Program	20	60
	Total	390





Skill Vigyan Center – AMTZ

- Stipend: INR 10,000 per month
- Duration: 3 Months
- Two Batches completed





- Eligibility: BE/BTECH BME
- Duration: 3 Months
- Two Batches completed

- Number of students Trained: 46
- Number of students got placement : 44
- 2 students for Higher studies
- Next Batch- April 2022





2nd Batch Technician Training Program





Recruited Company Details

- GE Healthcare
- Akas Syringe and Infusion Pump
- Signal Biomedical
- MedEquip Services Pvt Ltd
- Medicover Hospitals
- PneumoCare Health Private Limited



Cont.



- Training on World Class Laboratory Facilities
- Duration: 2 Weeks
- Next Batch will start from March

Number of Faculties Trained: 11





- Stipend: INR 10,000 per month
- Duration: 6 Months
- First Batch will start from March





Webinar Sessions











Cont.









Upcoming Programs

 Proposed to start program from April 2022
'Executive PG Program in Medical Technology' In collaboration with Skill Lync

SKILL@LYNC

Executive PG Program in Medical Technology

Skill-Lync collaborates with Andhra Pradesh MedTech Zone (AMTZ) to bring you a 12-month program on Medical Technology, including a 6-month stint at AMTZ's 270-acre campus in Vizag.

Skill Lync - AMTZ in partnership with





Executive PG Program in Medical Technology









































Thank You!

Jitendra Sharma



Certification of Clinical Engineering Practitioners in Ireland

Brian Kearney

Professional Development Officer, BEAI

Portfolio Lead / Clinical Engineer, Irish Health Service

9th March 2022

Why is Certification important?

Recognition of a Clinical Engineers professional competency.

Preparation for any future **Regulation** of the Profession.

Vitally important to protect the public by **encouraging and promoting** high standards of professional conduct, education, training and competence.

Because it's the right thing to do!

- for the **patient**!
- for the profession!





Irish Context

- Health & Social Care Act 2005 in Ireland (*under the EU Directive 2005/36/EC*)
- HSCP's (Health & Social Care Professionals)
 - Make up 25% of the health service workforce
 - 26 professions includes Clinical Engineer, Physio, Occupational Therapy, SLT, Medical Physicists, Radiographers, Social Workers etc.
- CORU state body for regulation of HSCP's in Ireland
 - 12 x professions currently registered.
 - Clinical Engineers are not currently listed in the upcoming phase for future registration by CORU.



Irish Context (cont'd)

- Clinical Engineering Voluntary Registration Board set up in 2003
 - Based on Chartered Titles from Engineering Institution in the main.
 - Chartership not required by health service employer.
 - Not active anymore.
- BEAI made a decision in 2015 to progress registration, which later led to certification and credentialing.
 - Developed a Certification Scheme for Clinical Engineering Practitioners.
 - Takes into consideration:
 - Irish requirements from CORU Regulator for other professions.
 - International requirements in terms of IFMBE International Credentialing Board.
 - Voluntary.
 - Not opened to applications at present.

Protocol Core Components

The IFMBE ICB recognise credentials only or credentials plus exam.

• The route chosen for the Irish protocol is Certification by Credentialing.

The Certification Protocol for Clinical Engineers in Ireland contains the following:

- Certification Board Development and Governance
- Scope of Practice
- Eligibility Criteria
- Application Process
- Continuing Professional Development Programme and Log
- Code of Professional Conduct and Ethics
- Disciplinary Procedures
- Application Handbook



Clinical Engineering Practitioner Certification Board (CEPCB)

- Establishment of the 1st CEPCB to include:
 - Governance & Structures
 - Composition / Membership
 - Operational plans
- International standards for Certification Schemes (ISO/IEC 17024:2012).
- Bye-laws.
- National regulation requirements (CORU).
- Recognition by IFMBE ICB.



Certification Levels & Application Routes

Two Levels:

- a) Certified Clinical Engineering Technologist Practitioner
- b) Certified Clinical Engineer Practitioner

Routes:

- Existing Practitioners Transitional (Grandparenting)
 - Transition period of 2 years from opening of certification scheme.
 - Proof of Professional Practice / Employment.
 - Deemed fit and proper to practice the profession employment led.
 - Relevant vetting procedures completed employment led.
 - Hold the relevant qualifications / complete a competency test.
- New Graduates Standard route as per Protocol


Eligibility

Requirements include:

- a) Educational Qualifications
- b) Relevant Professional Work Experience
- c) Current Proof of Professional Employment / Work Position
- d) Detailed Curriculum Vitae (CV)
- e) References



Eligibility – Health Service Recruitment

- Use of existing Health Service recruitment processes
 - Commission for Public Service Appointments (CPSA) established under the Public Service Management (Recruitment and Appointments) Act, 2004.
 - Health service recruitment subject to the provisions within the CPSA.
 - Section 22 of the Health Act the Health Service Executive has responsibility for setting out and approving qualifications for health service posts.
 - Eligibility is assessed at recruitment stage via the setting out of essential qualifications, skills and experience relevant to the role.



Eligibility – Example of Job Description

Clinical Engineering Technician, Principal - Grade Code 3163

In exercise of the powers conferred on me by Section 22 of the Health Act 2004, I hereby approve the qualifications, as set out hereunder, for the appointment and continuing as **Clinical Engineering Technician, Principal.**

1. Professional Qualifications, Experience, etc

(a) Candidates must,

- Hold as a minimum a recognised qualification at National Framework of Qualifications (NFQ), Level 7 or higher, in <u>one</u> of the following engineering disciplines;
 - (i.1) Electronic,
 - (i.2) Electrical,
 - (i.3) Instrument Physics,
 - (i.4) Industrial Instrumentation,
 - (i.5) Applied Physics,
 - (i.6) Mechanical,
 - (i.7) Mechtronic,
 - (i.8) Biomedical Engineering;

or;

(ii) Hold a recognised qualification at least equivalent to one of the above;

and;

 (iii) Have a minimum of five years postgraduate satisfactory and relevant experience in an appropriate medical industrial field including at least three years in a clinical engineering environment;

and;

(b) Candidates must possess the requisite knowledge and ability (including a high standard of suitability and administrative capacity) for the proper discharge of the duties of the office.

2. <u>Age</u>

Age restriction shall only apply to a candidate where s/he is not classified as a new entrant (within the meaning of the Public Service Superannuation (Miscellaneous Provisions) Act, 2004). A candidate who is not classified as a new entrant must be under 65 years of age on the first day of the month in which the latest date for receiving completed application forms for the office occurs.

3. Health

Candidates for and any person holding the office must be fully competent and capable of undertaking the duties attached to the office and be in a state of health such as would indicate a reasonable prospect of ability to render regular and efficient service.

4. Character

Candidates for and any person holding the office must be of good character.

Senior Physicist – Grade Code 3808

In exercise of the powers conferred on me by Section 22 of the Health Act 2004, I hereby approve the qualifications, as set out hereunder, for the appointment and continuing as **Senior Physicist**.

1. Professional Qualifications, Experience etc

Candidates must

(a) hold a recognised first or second class honours degree in which Physics was taken as a major subject and honours obtained in that subject,

or

hold a recognised qualification at least equivalent to thereto,

- (b) have satisfactory relevant experience in the field of medical physics.
- (c) possess the requisite knowledge and ability (including a high standard of suitability) for the proper discharge of the duties of the office.

2. <u>Age</u>

Age restriction shall only apply to a candidate where he/she is not classified as a new entrant (within the meaning of the Public Service Superannuation (Miscellaneous Provisions) Act, 2004). A candidate who is not classified as a new entrant must be under 65 years of age on the first day of the month in which the latest date for receiving completed application forms for the office occurs.

3. Health

Candidates for and any person holding the office must be fully competent and capable of undertaking the duties attached to the office and be in a state of health such as would indicate a reasonable prospect of ability to render regular and efficient service.

4. Character

Candidates for and any person holding the office must be of good character.



Eligibility – Job Description details

Technologist/ian Grades -Clinical Engineering

Position	Professional Qualifications	Experience
Chief Clinical Engineering	(a) Candidates must,	Have a minimum of
Technician/ologist- Grade	(i) Hold as a minimum a recognised qualification at National	seven years
Code 3164	Framework of Qualifications (NFQ), Level 7 or higher, in one of the	postgraduate
	following engineering disciplines:	satisfactory and
	(i 1) Electronic	relevant experience
	(i.2) Electrical.	in an appropriate
	(i 3) Instrument Physics	medical industrial
	(i.4) Industrial Instrumentation	field including at
	(i.4) Industrial Institutientation,	least three years in
	(i.c) Applied Physics,	least three years in
	(i.b) Mechanical,	a clinical
	(I.7) Mechtronic,	engineering
	(i.8) Biomedical Engineering;	environment;
	or; (ii) Hold a recognised qualification at least equivalent to one of the above;	
Principal Clinical	(a) Candidates must,	Have a minimum of
Engineering	(i) Hold as a minimum a recognised qualification at National	five years
Technician/ologist Grade	Framework of Qualifications (NFQ), Level 7 or higher, in one of the	postgraduate
Code 3163	following engineering disciplines:	satisfactory and
	(i.1) Electronic.	relevant experience
	(i.2) Electrical.	in an appropriate
	(i 3) Instrument Physics	medical industrial
	(i 4) Industrial Instrumentation	field including at
	(i.4) Industrial Institutientation,	least three weers in
	(i.c) Applied Physics,	least three years in
	(I.6) Mechanical,	a clinical
	(I.7) Mechtronic,	engineering
	(i.8) Biomedical Engineering;	environment;
	or;	
	(ii) Hold a recognised qualification at least equivalent to one of the	
	above;	
Senior Clinical Engineering	(a) Candidates must,	Have a minimum of
Technician/ologist - Grade	(i) Hold as a minimum a recognised qualification at National	three years
Code 3162	Framework of Qualifications (NFQ), Level 7 or higher, in <u>one</u> of the	postgraduate
	following engineering disciplines;	satisfactory and
	(i.1) Electronic,	relevant experience
	(i.2) Electrical,	in an appropriate
	(i.3) Instrument Physics,	medical industrial
	(i.4) Industrial Instrumentation,	field including at
	(i.5) Applied Physics,	least three years in
	(i.6) Mechanical.	a clinical
	(i.7) Mechtronic.	engineering
	(i 8) Biomedical Engineering:	environment:
	or:	
	 (ii) Hold a recognised qualification at least equivalent to one of the above; 	
Clinical Engineering	(a) Candidates must,	No experience
Technician/ologist Grade	(i) Hold as a minimum a recognised qualification at National	required.
Code 3161	Framework of Qualifications (NFQ), Level 7 or higher, in one of the	,
	following engineering disciplines:	
	(i 1) Electronic	
	(i.2) Electrical	
	(i.2) Electrical,	
	(1.3) Instrument Physics,	
	(I.4) Industrial Instrumentation,	
	(i.5) Applied Physics,	
	(i.6) Mechanical,	
	(i.7) Mechtronic,	
	(i.8) Biomedical Engineering;	
	or;	
	In now a recognised qualification at least equivalent to one of the	

Graduate Grades - Used for both Medical Physicist/Clinical Engineer - Clarified in Job Description and Duties as advertised in Post

Position	Professional Qualifications	Experience
Chief Physicist/Engineer	(i) hold a recognized first or second class honours degree in which	have at least ten
Chief Physicist/Engineer-	(i) note a recognised first or second class honours degree in which	nave at least ten
Grade Code 5852	subject	ovporionco (at loast
	subject,	three of which work
	bald a recognized first or second class honours degree in Electrical /	at Bringing Lloyal) in
	Flostronic /	one or more of the
	Machanical / Clinical Engineering	following fields
	mechanical / clinical Engineering	Nuclear Medicine
	(iii) hold a postgraduate (M.Sc. or PhD.) degree m Medical	Radiation Protection
	Physics / Clinical	Procedures Clinical
	Engineering	Engineering
	or	Radiological Physics
	(iii) hold recognised qualifications at least equivalent to (i) and (ii)	Radiotherany
	above	Medical Imaging
Principal Physicist/Engineer-	(i) hold a recognised first or second class honours degree in which	have at least seven
Diagnostic Radiology- Grade	Physics was taken as a major subject and honours obtained in that	vears satisfactory
	subject:	experience. (at least
	or	three of which were
	hold a recognised first or second class honours degree in Electrical /	at Principal level), in
	Electronic /	one or more of the
	Mechanical / Clinical Engineering	following fields:-
	and	Nuclear Medicine,
	(ii) hold a postgraduate (M.Sc. or PhD.) degree m Medical	Radiation Protection
	Physics / Clinical	Procedures, Clinical
	Engineering.	Engineering,
	or	Radiological Physics,
	(iii) hold recognised qualifications at least equivalent to (i) and (ii)	Radiotherapy,
	above.	Medical Imaging.
Principal Physicist-	(i) hold a recognised first or second class honours degree in which	have at least seven
Radiotherapy Physics-	Physics was taken as a major subject and honours obtained in that	years satisfactory
Grade Code 3816	subject;	experience, (at least
	or	three of which were
	hold a recognised first or second class honours degree in Electrical I	at senior level), in on
	Electronic I	or more of the
	Mechanical I Clinical Engineering	following fields:-
	and	Nuclear Medicine,
	(ii) hold a postgraduate (M.Sc. or PhD.) degree m Medical	Radiation Protection
	Physics I Clinical	Procedures, Clinical
	Engineering.	Engineering,
	or	Radiological Physics,
	(iii) hold recognised qualifications at least equivalent to (i) and (ii)	Medical Imaging,
	above.	Radiotherapy Physics
		Three of the above
		years must be in
		Radiotherapy Physics
Senior Physicist /Engineer-	(a) hold a recognised first or second class honours degree in which	have satisfactory
Grade Code 3808	Physics was taken as a major subject and honours obtained in that	relevant experience
	subject,	in the field of medica
	or	physics.
	hold a recognjsed qualification at least equivalent to thereto,	
Basic Grade	a) hold a recognised first or second class honours degree in which	No experience
Physicist/Engineer - Grade	Physics was taken as a major subject and honours obtained in that	required.
Code 3794	subject,	
	or	
	hold a recognised qualification at least equivalent to thereto.	1



CPD Protocol

Updated: October 2021

All Clinical Engineers should aim to achieve:

- 1. 70 credits in 24 months, across a range of activities
- 2. Personal Learning Plan
- 3. Reflections on 8 different learning activities in 24 months
- 4. Record and evidence of CPD activities

CPD Units are used to measure activity. One credit is equivalent to one contact hour of participation in an organised continuing education experience. Each individual should have a minimum of 70 credits of CPD over a 24-month cycle to ensure ongoing professional development.

This target should comprise a spread of a minimum of 5 Credits of CPD (over a 24-month cycle) in each of at least four of the categories specified below:

- Educational Activities
- Approved Scientific Meetings
- Individual Structured Study
- Scientific Publication
- Local Professional Development Activities
- Professional Activities

A log of all CPD should be kept by the engineer.

• Reflective Learning Reports required by all attendees at CPD events in order to gain CPD points.



Considerations

- Health service make up
 - Public
 - Voluntary (funded by Public)
 - Private
- Med tech industry sector (9 out of the Top 10 Medical Technology Companies have a base in Ireland, 30,000+ employees, 8% of Irish GNP)
 - Provide med tech support in the Irish Health Service.
 - How to credential/certify/regulate if doing similar roles to CEP?
 - Currently take part in Credentialing Programme via RCSI for conducting business in healthcare facilities.
- Certification Scheme aligned to ISO/IEC 17024:2012 exam based.



Next Steps

- Publish full protocol:
 - Positive feedback from international peers to date.
 - Need to finalise items noted in considerations discussed and from stakeholder feedback.
- Complete set up of National Examining Authority
 - Finalise board membership
 - Separate to but sponsored by the BEAI / National Professional Society.
- Start based on experience and credentials potential to move towards exam based in the future.





Thank You for listening!

Brian Kearney Professional Development Officer, BEAI. Portfolio Lead, Irish Health Service. Email: <u>brian.kearney@hse.ie</u>







A list of additional topics and dates for next webinars will be soon announced on our website <u>www.GlobalCEA.org</u>

THANK YOU for your participation