DIMP Registration Assessment Form
Competency for Medical-Scientific Expert Domain
Radiology Physics

Applicant surname:	
Applicant given names:	
Applicant speciality:	Radiology ☐

This form is to provide information about the areas considered when assessing Competency for Medical-Scientific Expert Domain, for applications for entry to the ACPSEM Register of Qualified Medical Physics Specialists.

Competency for Medical Scientific Expert Domain

Demonstration of competence in relevant key clinical activities in the following areas is assessed:

i. Scientific knowledge in a medical context
ii. Practical skills in a medical context
iii. Application of relevant theory to novel situations
iv. Scientific judgment and responsibility
v. Provision of high-quality and safe care

Application requirements including evidence of expertise

Please fill in as much detail as possible against each subtopic area specified in the tables on the following pages. Inclusion of evidence to support statements of knowledge and experience is critical for candidates not holding overseas registrations/certifications as outlined in clause 5.2 of the ACPSEM registration policy. Providing comprehensive information will greatly assist and expedite the assessment of your application.

Separate attachments of reports, presentations, certificates, published papers, or other documents should be included.

This form is to provide information about the areas considered when assessing Competency for Medical-Scientific Expert Domain for applications for entry to the ACPSEM Register of Qualified Medical Physics Specialists.

Competency for Radiology Medical Physics Speciality

Demonstration of competence in relevant key clinical activities in the following areas is assessed:

(i) patient and occupational dosimetry, including foetal and paediatric
(ii) equipment performance testing and image formation
(iii) radiation safety
(iv) dose audit and subsequent optimisation

For each TEAP module specified for a topic there are three possible outcomes:

Acceptable (A)	Candidate meets the knowledge and skills expected of a minimally competent person based on the portfolio assessment.
Not Acceptable (N)	Candidate does not demonstrate the knowledge and skills expected of a minimally competent person
Revise and resubmit (R)	Candidate has not provided enough evidence for a determination. Ask to revise portfolio in specific areas and resubmit for further consideration Only a single opportunity to revise and resubmit is available, after the revised material is received a final decision is made, based on the latest submission, about the suitability to proceed to the next phase.

Possible overall outcomes

- Suitable to proceed to structured interview
- Revise and resubmit with more evidence (NB: only one resubmission allowed)
- Refusal (prescribed work – one chance only); Portfolio reassessed following submission of prescribed work
- Reject (TEAP suggested, with recognition of prior experience as appropriate);
- Dismiss

Medical Scientific Expert Domain Assessment

Medical-Scientific Expert Subdomain i.

i. Scientific knowledge in a medical context
Discussion of Postgraduate Education and/or clinical practice experience that aligns to this domain. Details of experience in this topic area and evidence available.

Medical-Scientific Expert Subdomain ii.

ii. Practical skills in a medical context
Discussion of Postgraduate Education and/or clinical practice experience that aligns to this domain. Details of experience in this topic area and evidence available.

Medical-Scientific Expert Subdomain iii.

iii. Application of relevant theory to novel situations
Discussion of Postgraduate Education and/or clinical practice experience that aligns to this domain. Details of experience in this topic area and evidence available.

Medical-Scientific Expert Subdomain iv.

iv. Scientific judgment and responsibility
Discussion of Postgraduate Education and/or clinical practice experience that aligns to this domain. Details of experience in this topic area and evidence available.

Medical-Scientific Expert Subdomain v.

v. Provision of high-quality and safe care
Discussion of Postgraduate Education and/or clinical practice experience that aligns to this domain. Details of experience in this topic area and evidence available.

Detailed Topic Area Assessment

(i) Patient and occupational dosimetry, including fetal and paediatric

Basic patient and fetal dose and detriment from diagnostic imaging procedures		ACPSEM TEAP Module Reference	CB3.1
Knowledge	Understands • Radiation quantities, units and dosimetric formalism relevant to diagnostic imaging.		
Skills	• Estimate typical organ and effective dose from CT dose metrics • State typical organ and effective dose (including fetal dose) for common general radiography, CT and mammography		
Details of experience in this topic area and evidence available			

Radiation Risk to the Patient in Diagnostic Radiology		ACPSEM TEAP Module Reference	CE3.2
Knowledge	• Understand the various stochastic and deterministic risks that might result from diagnostic and interventional radiology procedures.		
Skills	• Assess radiation risk to the patient and foetus in diagnostic and interventional radiology • Communicate radiation risk to patients and staff in diagnostic and interventional radiology.		
Details of experience in this topic area and evidence available			

Ionising Radiation Dosimetry and Principles of Measurement		ACPSEM TEAP Module Reference	SR3.3
Knowledge	Understand • The theory, principles of operation and limitations of dosimeters used for measurement of dosimetric quantities relevant to diagnostic radiology. • The role of dosimetric phantoms and standardised beam conditions for dose determination in radiology		
Skills	Ability to: • Measure/calculate the appropriate dosimetric quantities for each radiology modality and estimate the measurement uncertainties.		
Details of experience in this topic area and evidence available			

Patient Dosimetry in Diagnostic Radiology		ACPSEM TEAP Module Reference	SR3.4
Knowledge	Understand • Understand the concepts that underpin the relevant dosimetric principles needed for appropriate patient dose estimation.		
Skills	Ability to: • Calculate an estimate of organ doses for a range of diagnostic and interventional radiology procedures. • Calculate an estimate of effective dose for a range of diagnostic and interventional radiology procedures. • Adjust patient dose estimations to take into account patient size. • Determine uncertainties associated with patient dose estimations.		
Details of experience in this topic area and evidence available			

Fetal Dose Estimation		ACPSEM TEAP Module Reference	SR3.5
Knowledge	Understand • Be able to use appropriate methodologies to calculate an estimate of absorbed dose to the foetus in diagnostic radiology. • Understand the limitations and uncertainties associated with foetal dose calculations.		
Skills			
Details of experience in this topic area and evidence available			

(ii) Equipment performance testing and image formation

Performance Testing of General Radiography Equipment		ACPSEM TEAP Module Reference	SR4.2
Knowledge	• Understand the operation of radiographic equipment and the factors that affect the radiographic output, AEC performance and clinical performance of the equipment.		
Skills	Ability to • The ability to conduct performance testing of general radiographic equipment and interpret the results.		
Details of experience in this topic area and evidence available			

Performance Testing of Computed Radiography and Digital Radiography Equipment		ACPSEM TEAP Module Reference	SR4.3
Knowledge	• Understand the principles of CR and DR imaging systems.		
Skills	Ability to • The ability to conduct performance testing of CR and DR imaging systems.		
Details of experience in this topic area and evidence available			

Performance Testing of Fluoroscopy and Interventional Equipment		ACPSEM TEAP Module Reference	SR4.4
Knowledge	• Understand the operation of fluoroscopy and Interventional equipment and the factors that affect the output and clinical performance of the equipment.		
Skills	Ability to • The ability to conduct performance testing of fluoroscopic and interventional equipment, including complex equipment (e.g. bi-plane DSA unit).		
Details of experience in this topic area and evidence available			

Performance Testing of CT Equipment		ACPSEM TEAP Module Reference	SR4.5
Knowledge	• Understand the operation of computed tomography (CT) equipment and the factors that affect the radiation output and clinical performance of the equipment.		
Skills	Ability to • conduct performance testing of CT equipment, including complex equipment (e.g. system with dual sources or wide beam).		
Details of experience in this topic area and evidence available			

Performance Testing of Mammography Equipment		ACPSEM TEAP Module Reference	SR4.6
Knowledge	• Understand the design and operation of mammography equipment and the theory of image formation.		
Skills	Ability to • The ability to conduct performance testing of digital mammography systems, biopsy mammography systems and tomosynthesis mammography systems.		
Details of experience in this topic area and evidence available			

Performance Testing of Dental Radiography Equipment		ACPSEM TEAP Module Reference	SR4.7
Knowledge	• Understand the importance of a routine QA program overseen by the medical physicist and including periodic testing by a medical physicist and routine testing by dental staff.		
Skills	Ability to to perform performance testing on: • Intra oral dental units • Complex dental units such as OPG, cephalometric and cone beam CT units		
Details of experience in this topic area and evidence available			

(iii) Radiation safety

Radiation Protection Legislation, Principles, Control Methods and Operational Considerations		ACPSEM TEAP Module Reference	CE2.1
Knowledge	Understand: • Radiation protection legislation and recommendations at an international, national, state and local level. • Radiation protection principles and control methods.		
Skills	Ability to • Review and revise a radiation management plan for a hospital radiation site ensuring consistency with relevant regulatory requirements and good practice. • Conduct an audit at a radiation site against the associated radiation management plan or recognised radiation protection benchmark.		
Details of experience in this topic area and evidence available			

Monitoring Radiation Levels, Including Personal Dose Monitoring		ACPSEM TEAP Module Reference	CE2.2
Knowledge	Understand: • Radiation protection legislation and recommendations at an international, national, state and local level. • Radiation protection principles and control methods.		
Skills	Ability to • Review and revise a radiation management plan for a hospital radiation site ensuring consistency with relevant regulatory requirements and good practice. • Conduct an audit at a radiation site against the associated radiation management plan or recognised radiation protection benchmark.		
Details of experience in this topic area and evidence available			

Sources of Exposure, Incidents and Emergencies		ACPSEM TEAP Module Reference	CE2.5
Knowledge	• Understand what constitutes a radiation exposure incident in general and specifically in a radiology department, the implications and required response		
Skills	Ability to • Conduct quantitative measurement of surface radioisotope contamination and environmental radiation dose rates		
Details of experience in this topic area and evidence available			

Radiation Shielding for Diagnostic Imaging Facilities		ACPSEM TEAP Module Reference	CE2.6
Knowledge	• Understand the principles and requirements of shielding design for diagnostic imaging facilities.		
Skills	Ability to • Design and verify satisfactory radiation shielding for all types of diagnostic imaging equipment.		
Details of experience in this topic area and evidence available			

(iv) Dose audit and subsequent optimization

Clinical Audit		ACPSEM TEAP Module Reference	CE5.2
Knowledge	Understand the: • Nature, purpose and importance of clinical audit and its relationship to accreditation in the medical imaging setting • Structure, objectives and terminology used in a quality management system		
Skills	Ability to • Effectively contribute as a member of a multidisciplinary team to a medical imaging clinical audit		
Details of experience in this topic area and evidence available			

Patient Dose Audit		ACPSEM TEAP Module Reference	SR5.4
Knowledge	Understand the: • Concepts that underpin dose audits, including the relevant dosimetric principles, the appropriate selection of the patient sample or phantom and the concept of diagnostic reference levels. • Considerations necessary for conducting audits of paediatric populations.		
Skills	Ability to • Carry out patient dose surveys for an adult population, compare the results with appropriate diagnostic reference levels or other benchmarks and draw meaningful conclusions.		
Details of experience in this topic area and evidence available			

Optimisation Processes in Diagnostic Radiology		ACPSEM TEAP Module Reference	SR5.6
Knowledge	Understand the: • inter-relationship between image quality and patient radiation dose.		
Skills	Ability to • take a leading role amongst radiological colleagues in optimisation processes for radiology examinations.		
Details of experience in this topic area and evidence available			