RADIOLOGY TRAINING CURRICULUM AND TRAINING DOCUMENT

Malta Radiology Training Program

September 2025

Maltese Association of Radiologists and Nuclear Medicine Physicians (MARNMP)

CONTENTS:

Introduction

Post-graduate training in Radiology in Malta commenced in October 2008. Radiology training is 5 years long, extendible to 6 years. Training follows the 3+2 year model. The curriculum for the first 3 years covers **general/core Clinical Radiology training** with modular rotations and structured teaching in the form of lectures and tutorials. Years 4 and 5/6 are geared towards **subspecialty training**. Every trainee must spend at least one year of subspecialty training in one area of Radiology – either locally or abroad.

During their training, radiology trainees undergo regular appraisal and assessment and are actively encouraged to participate in audit, research and publications. They are also encouraged to attend radiology courses, especially those organized by the European School of Radiology, and conferences abroad.

As of 1st August 2020, the Maltese Association of Radiologists and Nuclear Medicine Physicians has endorsed the **European Society of Radiology (ESR) European Training Curriculum (updated March 2020)** and the **Royal College of Radiologists Clinical Radiology Curriculum 2023**. The Maltese Association of Radiologists and Nuclear Medicine Physicians holds that both curricula are complimentary and will be used as a guide for training held at Mater Dei Hospital, Malta. Both curricula are required to reflect the rapid changes that are occurring in medical training, especially in the world of diagnostic and interventional radiology. The ESR European Training Curriculum for Radiology has been officially endorsed by the Maltese Association of Radiologists and Nuclear Medicine Physicians (see page 2 of https://www.myesr.org/app/uploads/2023/08/ESR-European-Training-Curriculum-Level-I-II-2020-1.pdf;

and will therefore be the core curriculum for Radiology Training in Malta. The Royal College of Radiologists Clinical Radiology Curriculum 2023 will be consulted as a complimentary guideline curriculum to prepare trainees for the FRCR examination.

All radiology trainees commencing training at Mater Dei Hospital after 2020 are expected to follow **Master of Science in Clinical Radiology** – on part time basis – under the auspices of the University of Malta.

https://study-in-malta.com/university-of-malta/clinical-radiology/

The course content is already presently covered by the Radiology Training Program. Trainees will be expected to complete the first two years of the course leading to a Diploma in Radiology. Year 3 of the MSc course (thesis) leading towards the award of MSc in Clinical Radiology is optional.

Trainees are expected to sit the Fellowship of the Royal College of Radiologists, UK (FRCR) examination during the first four years of training.

Trainees will be encouraged to sit the EDiR (European Diploma in Radiology) as an adjunct to the FRCR – the FRCR certificate remains mandatory for award of Certificate of Completion of Training.

Radiology training will therefore have a dual pathway – (a) **Clinical, hospital-based training** and (b) **Academic, university-based training**. The two aspects of training are overlapping and complimentary and are both felt to be important to provide a sound basis for modern training in Radiology, reflecting European and world-wide standards.

Certificate of Completion of training (CCT) is awarded after (a) Completion of **5 years of appraised radiology training**, having satisfied the yearly appraisal throughout the training period + (b) Graduating **FRCR – Royal College of Radiologists** (or equivalent as approved by the Maltese Association of Radiologists) + (c) Graduating **Diploma or MSc in Clinical Radiology – University of Malta** and (d) having spent **one year subspecialty training locally or abroad** at a training centre that is recognized by the Postgraduate Training Committee for Radiology. All three criteria are necessary for award of CCT.

Reference Curricula

1. European Training Curriculum for Radiology (Years 1 to 3)

Can be accessed ate

https://www.myesr.org/app/uploads/2023/08/ESR-European-Training-Curriculum-Level-I-II-2020-1.pdf

2. European Training Curriculum for Subspecialisation in Radiology (Years 4 and 5)

Can be accessed at:

https://www.myesr.org/app/uploads/2023/08/ESR-European-Training-Curriculum-Level-III-2020-1.pdf

3. Clinical Radiology Specialty Training Curriculum

Can be accessed at:

https://www.rcr.ac.uk/exams-training/specialty-training/clinical-radiology-curriculum/

Master of Science in Clinical Radiology – University of Malta

Please refer to:

https://study-in-malta.com/university-of-malta/clinical-radiology/

University of Malta

Faculty of Medicine and Surgery

Master of Science in Clinical Radiology
(M.Sc.(Melit.))

(for courses commencing after October 2020)

YEAR ONE

Year (This/these unit/s start/s in Semester 1 and continue/s in Semester 2)

Compulsory Units (All students **must** register for this/these unit/s)

MPH5014	Medical Physics and Radiation Protection for Diagnostic and Interventional Radiologists	10 ECTS

Semester 1

Compulsory Units (All students **must** register for this/these unit/s)

SUR5499	Emergency Radiology	5 ECTS
SUR5500	Radiological Anatomy	10 ECTS

Semester 2

Compulsory Units (All students **must** register for this/these unit/s)

SUR5498	Thoracic and Cardiac Radiology	5 ECTS

YEAR TWO

Semester 1

Compulsory Units (All students **must** register for this/these unit/s)

PHL5503	Basics in Research Methods	5 ECTS
SUR5496	Neuroradiology, Head and Neck	5 ECTS
SUR5497	Genito-Urinary and Breast Radiology	5 ECTS

Semester 2

Compulsory Units (All students **must** register for this/these unit/s)

PHL5504	Statistics and Research Practicals	5 ECTS
SUR5494	Liver and Gastro-Intestinal Radiology	5 ECTS
SUR5495	Musculoskeletal Radiology	5 ECTS

YEAR THREE

Year (This/these unit/s start/s in Semester 1 and continue/s in Semester 2)

Compulsory Units (All students **must** register for this/these unit/s)

SUR5520	Research Project	30 ECTS

This programme of study is governed by the General Regulations for University Postgraduate Awards, 2008 and by the Bye-Laws for the Degree of Master of Science in Clinical Radiology - M.Sc. -, under the auspices of the Faculty of Medicine and Surgery.

Principles of Radiology Training and Radiology Training Program

The purpose of the curriculum is to act as a framework for radiology training. By the end of their training, radiologists are expected to function independently as specialists in the fields of diagnostic and interventional radiology. Patients that make use of radiology services must be ensured a safe and high level of care.

Basic Sciences

Anatomy and Physics are essential basic sciences in the teaching of medical imaging. These are subjects are formally thought and assessed in the first year of Radiology training.

Core Radiology Training

Radiologists are expected to have a thorough **knowledge** of general Radiology. This is covered in the first three years of training and takes the form of **modular system-based training** in the various fields of medical imaging, e.g. thoracic radiology, breast imaging, neuroradiology etc. The European Training Curriculum for Radiology details the various items of knowledge that need to be covered in the radiology training program. Trainees undergo an intensive **lecture and tutorial program** at Mater Dei Hospital – aiming at covering the breath of the curriculum. **Summative assessment** takes the form of University based local examinations as well as international examinations, i.e. the FRCR (fellowship of the Royal College of Radiologists) and EDiR (European Diploma in Radiology).
General Radiology training is also undertaken in **modular hospital-based rotations** through the various fields of medical imaging. Trainees undergo an **apprenticeship-style supervised training** – aiming at the acquisition of **clinical competencies**. During each rotation module, the trainee is supervised by his/her **clinical supervisor**. Training follows the 4-step principle – **level 1: has knowledge and understanding of principles and concepts; - level 2: can practice under direct supervision; - level 3: can practice under indirect supervision and; - level 4: can practice independently**. Apprenticeship training is covered in detail in the RCR Radiology Training Curriculum. Trainees are gradually introduced to clinical skills and competencies in general radiology through a supervised training program and are regularly assessed and appraised using the various **formative workplace-based assessment and appraisal tools** to gauge their level of practice. The goal is to ensure safe clinical practice and patient safety. To achieve the certificate of completion of training, trainees must show that they have achieved the competencies and skills that are needed for safe practice as independent radiologists.
The curriculum therefore has a dual role of providing **input** of knowledge and training and assess/appraise the **output** of achievement of both knowledge and clinical/professional competence.
Radiologists are expected to have a wide repertoire of **soft skills** that are essential for their professional and clinical practice. These include honesty; reliability; communication with patients, clinical colleagues, members of hospital staff and hospital management, among others. Leadership skills are essential in modern clinical practice. Radiologists, like other medical professionals, are expected to work within different teams at departmental, interdepartmental, academic, hospital, national and international levels. Achievement of soft skills is therefore paramount in radiology training and is reflected in both the European Training Curriculum for Radiology and the RCR Radiology Training Curriculum.

Subspecialty training

Subspecialty training is an essential aspect of radiology training and is covered in years 4

and 5 of the training program. The same principles of training used for core training are applied to subspecialty training.

Organization of training

Readers should refer to the **Common framework for all Specialty Training Programs within the Malta Postgraduate Medical Training Centre.** This document outlines in detail the roles of:

1. The Malta Postgraduate Medical Training Centre.
2. Postgraduate Training Coordinator.
3. Educational supervisor.
4. Clinical supervisor.
5. Definitions of Basic Specialist Trainee and Higher Specialist Trainee.
6. Annual Review of Competence Progression (ARCP).

These were previously listed in the Radiology Training Document and are summarized below:

The **Malta Association of Radiologists and Nuclear Medicine Physicians** is the specialist association responsible for the Training Program.
The Radiology postgraduate training committee is the body that shall determine, monitor and review the implementation of the Training Program. The committee will establish strategy and policy development to ensure such implementation. The Radiology postgraduate training committee will include the postgraduate training coordinator as chairperson and a number of members that include (i) the deputy training coordinator(s); (ii) a representative of the Medical Imaging Department Chairperson; (iii) a representative of the Malta Association of Radiologists and Nuclear Medicine Physicians (MARNMP).
The PGT committee shall meet at least twice a year and report to the Postgraduate Training School Lead.
Decisions shall be taken by consensus and only where this fails by majority vote. Each member present shall have the right to vote. In case of parity of votes, the chair shall have the right to add a casting vote.
The functions of the PGT committee shall be as follows:
(a) To advise the Malta Association of Radiologists and Nuclear Medicine Physicians on the competencies and content of the Training Program.
(b) To coordinate the delivery of the Training Program, including the selection, monitoring and evaluation of training attachments/modules.
(c) To ensure regular assessment and appraisal of trainees.
(d) To recommend trainees for specialist accreditation to the Specialist Accreditation Committee at the end of training.
(e) To deal with any other matter relating to postgraduate radiology training.

Patient safety must always be placed at the centre of healthcare. High quality patient care depends among other aspects, on robust training of competent specialists that can work effectively in a multidisciplinary team environment. Such training should be carried out in line with modern radiology curricula. Learning in and from clinical practice in a supervised, mentored environment is the most effective way for professionals to develop their expertise. Radiologists are committed to lifelong learning in, and from, the practice of radiology in the clinical environment and through repeated clinical experience. Radiology trainees will be expected to develop critical thinking and professional judgment, especially where there is clinical uncertainty. Every clinical experience is a learning opportunity and should be reflected upon from the perspective of developing skills, acquiring clinical/radiological acumen, and improving performance. By doing this, an individual demonstrates their commitment to lifelong learning and continuing professional development. Doctors must

continuously work to improve performance, i.e. improve what they do as distinct from what they can do.

(a) **Post-graduate training coordinator:** The PGT coordinator is recruited for a term of three years after an open application process. The Training Coordinator has the responsibility for the organization and smooth running of the training program, coordinated through the postgraduate training committee and supported and supervised by the Director General Health Care Services (MHEC Circular 26/2008). The PGTC has the following roles: (i) To set up and chair the PG Radiology Training Committee; (ii) to manage and administer the Postgraduate Training Program in Radiology; (iii) liaise with the Maltese Association of Radiologists in view of all training-related matters; (iv) co-ordinate appraisal and assessment of trainees as part of the process leading to the award of the Certificate of Specialist Training; (v) work with the appropriate authorities on manpower planning relating to trainee numbers and appropriate rotation of trainees so as to achieve a quality standard of post-graduate training; (vi) work with trainers within Radiology and trainers from other relevant specialties in the organization and / or delivery of regular training for specialist trainees; (vii) work in close collaboration with the Lead Training Coordinator in the organization and / or delivery of regular training for trainers; (viii) work with the Lead Training Coordinator in the organization and / or delivery of training for Radiology trainees; (vii) ensure and supervise assignment of trainees to trainers; (viii) establish appropriate mechanisms to ensure quality assurance of the training program; (ix) prepare an annual report on the workings of the training program and budget for subsequent year; (x) perform the role of, or delegate an educational supervisor for every trainee in the training scheme.

(b) **Deputy postgraduate training coordinators:** At present, there is no official post of deputy postgraduate training coordinator for Medical Imaging. The PGT committee has felt the need to have two Consultant Radiologists that fulfil this role. The deputy PGT coordinators are recruited internally to assist the PGT coordinator in all his/her functions as deemed appropriate by the PGT committee. It is up to the PGT committee to select suitable candidates to fulfil this role, up until when there is an officially recognized post of deputy PGT coordinator(s).

(c) **Educational supervisor:** An educational supervisor is appropriately trained to be responsible for the overall supervision and management of a specified trainee's educational progress during a training year. The educational supervisor is integral to the appraisal process. A trainee appraisal with the educational supervisor will include feedback on performance, review of outcomes of assessments, induction to posts and career advice. The educational supervisor (ES) will (i) ensure that the program is appropriate for the doctor's needs; (ii) be responsible for the radiology trainee's educational agreement; (iii) meet with the radiology trainee at the beginning of each placement to agree how the learning objectives for this period of training will be met; (iv) help radiology trainees by reviewing their learning needs in the light of achieved goals; (v) review the radiology trainee's learning ePortfolio; (vi) support the trainee through any difficulty; (vii) tell the chairperson, PGTC of serious weaknesses in their trainee's performance that have not been dealt with.

(d) **Clinical supervisor:** A trainer is selected and appropriately trained to be responsible for overseeing a specified radiology trainee's clinical work and providing constructive feedback during a training placement. Clinical supervisors may/will change on a day-to-day basis depending on the rota for each radiology trainee. A clinical supervisor will usually be the consultant to whom a radiology trainee is responsible for their clinical work. There will be frequent contact between them. The clinical supervisor is responsible for (i) ensuring that their radiology trainees are never put in a situation where they are asked to work beyond their competence without appropriate support and supervision. Patient safety must be paramount at all times; (ii) meeting with the radiology trainee at the beginning of each placement to discuss what is expected in the placement, learning opportunities

available and the trainee's learning needs; (iii) ensuring that the clinical experience available to the trainee is appropriate and properly supervised; (iv) monitoring, supporting and assessing the radiology trainee's day-to-day clinical and professional work; (v) providing regular feedback on the trainee's performance; (vi) undertaking and facilitating work-place based assessments (WpBA); (vii) allowing the trainee to give feedback on the experience, quality of training and supervision provided; (viii) discussing serious concerns with the educational supervisor about a trainee's performance, health or conduct; (ix) meet with the radiology trainee to assess whether they have met the necessary outcomes and complete an end of placement review form for each placement

(e) **Trainee:** A medical doctor who has - through a competitive interview - acquired an appointment for a designated training post in Radiology.

(f) **Specialist:** A doctor registered as a Specialist in Radiology by the Medical Council of Malta.

(g) **Appraisal**

Appraisal identifies the learning needs of the individual trainee and sets goals. It is primarily intended for the trainee, is conducted in-house and should be informal. It must be proactive and not reactive.

The trainee will undertake regular (a) induction, (b) middle and (c) end appraisals with the respective Education and Clinical supervisors, as outlined in the curriculum.

Log Book

Logbooks should be used for documenting the skills and experience attained and to facilitate reflective learning. Logbooks are mandatory for all interventional procedures irrespective of special interest. The training objectives identified in this curriculum document (encompassing knowledge, skills and behaviors) are mapped with the appropriate assessment tools, which can be used to illustrate proof of learning across the curriculum. All these methods and tools are included in the ePortfolio. These training objectives are used to assist trainee appraisal and assessment during specialty training and when achieved can verify that training has taken place to the required standard for a Certificate of Completion of Training (CCT) to be awarded.

ePortfolio

The ePortfolio is the record for documenting assessments and other achievements. It is essential that radiology trainees populate the ePortfolio as it will be used to inform the end of year report by the education supervisor.

End of Training Year Appraisal

The results of educational activities for an academic year will be drawn together and included in a formal structured educational supervisor's report. This will cover the overall performance of the trainee in each placement. The overall judgment of a trainee will include a triangulated view of the doctor's performance, which will include their participation in educational activities, appraisals, the assessment process and recording of this in the ePortfolio. The outcome of the final appraisal discussion should be agreed by both the radiology trainee and the educational supervisor and recorded in the trainee's ePortfolio in the structured supervisor's report. Placement reports put together in an annual structured educational supervisor's report will form the basis of the education supervisor's recommendations.

(h) **Assessment**

Assessment is a selection process that tests competence and progress, primarily in the public interest. The trainee is judged against predetermined (minimum) standards to confirm fitness to pass on to the next phase of training and, ultimately, onto the Specialist Register with the award of the Certificate of Completion of Training (CCT). Assessment should be formal, independent, objective, valid and robust.

Purpose The assessment system included in the curriculum is intended to

1. Enhance learning by providing formative assessment, enabling trainees to receive immediate feedback, measure their own performance and identify areas for development;
2. drive learning and enhance the training process by making it clear what is required of trainees and motivating them to ensure they receive suitable training and experience;
3. provide robust, summative evidence that trainees are meeting the curriculum standards during the training program;
4. ensure trainees are acquiring competencies within the domains of Good Medical Practice;
5. assess trainees' actual performance in the workplace;
6. ensure that trainees possess the essential underlying knowledge required for Clinical Radiology;
7. the Annual Review of Competence Progression (ARCP) is the culminating part of the assessment system;
8. identify trainees who should be advised to consider changes of career direction.

Assessment methodology

a. **Continuous assessment**

Improvement in clinical practice will only happen if regular review leads to constructive feedback. Thus, continuous review and assessment is a fundamental part of clinical radiology training. Radiology trainees are expected to demonstrate improvement and progression during each attachment. It is anticipated that radiology trainees will increasingly reach higher levels of attainments as they progress through their training. It is important that they arrange and undertake assessments in a timely and educationally appropriate manner spread throughout the year. Arriving at the overall assessment and judgment of the radiology trainee must be based on multiple assessments by many assessors, on multiple occasions. During core training, within a typical three-month placement, an individual consultant/assessor is unlikely to build up a coherent picture of competences, let alone performance, of an individual trainee. Therefore, the PGT coordinator will ensure that there is a local faculty of trainers capable of building a balanced judgment of a trainee's performance supported by the workplace based assessment results. Such an approach will prevent any individual having undue influence regarding a trainee's progression.

b. **Self-Assessment**

Radiology trainees have a personal responsibility to undertake self-assessment as an integral part of their professional life. It is good educational practice for this to be stated clearly and discussed fully during induction.

c. **Assessment System and Tools**

Radiological practice will be assessed using an integrated package of workplace based assessments and summative examination of knowledge and radiological skills, which will sample across the domains of the curriculum. The assessment methods are fit for purpose and mapped onto the curriculum in an integrated way. The assessments will generate structured feedback for trainees within core radiological training and level1/2 training. The assessment tools have been selected on the basis of their fitness for purpose.

d. **Summative Assessment**

The First FRCR Examination (Physics module) and Final FRCR Part A Examination test knowledge through single best answer (SBA) questions. The First FRCR Examination (Anatomy module) tests knowledge by requiring the identification of normal anatomical structures on images. The Final FRCR Part B Examination assesses clinical competence (interpretative, analytical and communication skills).

e. **Formative Assessment**

Workplace based assessment will be the cornerstone of assessment for day-to-day practice.

There is a range of tools available for this use. These have undergone or are undergoing evaluation in terms of their feasibility, reliability, validity and reproducibility. The generic and radiologically specific **workplace-based assessment (WpBA) tools** are summarized in the following list that is reproduced in the curriculum:

Assessment Method Key

1-First FRCR Examination
2-Final FRCR Part A Examination
3-Final FRCR Part B Examination: rapid reporting session component
4-Final FRCR Part B Examination: reporting session component
5-Final FRCR Part B Examination: oral examination
6a-1st year A/E plain film reporting assessment
6b - 1st year Ultrasound assessment
7- 2nd year CT brain reporting assessment
8- End of 3rd year assessment
9- Module forms
10-Mini – IPX
11-Rad – DOPS
12-Lecture program / Lectures done on RITI
13-Observed / supervised investigations or procedures
14-Audit Assessment
15-Certificate (Course, Conference etc.)
16-Publication / presentation
17-MDT form
18-Multisource feedback
19-Teaching timetable (e.g. medical students, radiographers, junior trainees, FY doctors)

f. Annual Review of Competency Progression

Every trainee will be interviewed by the ARCP board at the end of every academic year. The ARCP board will review the trainee's portfolio; the education supervisor report and any other training-related issues related to the preceding training year.

The ARCP board will consist of at least 3 consultant/resident specialist radiologists. The PGT coordinator or delegate training coordinator and the chairperson MID or his/her representative should be present on the board.

The ARCP board must be satisfied that the trainee has achieved the minimum competencies listed for every year of training. The board will also take into consideration any issues related to integrity, honesty, probity and patient safety when deciding the ARCP outcome.

The possible outcomes of the ARCP process are listed in the **Common framework for all Specialty Training Programs within the Malta Postgraduate Medical Training Centre** as follows:

Satisfactory Progress		Action
1	Achieving progress and the development of competencies at the expected rate	Progress to next year of training as per speciality training document, including recommendation to SAC for certificate of completion of BST at the end of the basic specialist training period specified in the training document. A letter recommending the trainee for CCBST shall be

		sent to the Registrar of the SAC signed by the training coordinator, president of the specialty association, and speciality department chairperson.
Unsatisfactory or insufficient evidence		
2	Further development of specific competences required	Additional training time not required. Trainee provided with a time period in which to develop the specific competencies and provide the postgraduate training committee with written documentation of the trainee's progress with or without the need for an additional clinical examination to be determined by the postgraduate training committee depending on the overall performance of the and specific deficits in competencies noted on the Annual Assessment.
3	Inadequate progress by the trainee	Additional training time required including repeating a year of training. Trainee provided with a time period up to one year in which to develop the specific competencies and provide the postgraduate training committee with written documentation of the trainee's progress as part of the Annual Assessment. Consider referral to the Trainee Support Service.
4	Recommendation for dismissal from training programme	It is anticipated that in most situations this outcome will result only when a trainee with a prior outcome 3 has not progressed despite an additional period of training of up to one year. A letter recommending dismissal from the speciality training programme signed by the training coordinator on behalf of the training committee, the speciality department chairperson, and president of the speciality association shall be sent to the Chair of the Malta Postgraduate Medical Trainee Centre Review Panel (MPMTC Review Panel), and the trainee informed in writing of this outcome and recommendation by the postgraduate training committee. Pending decision by the review panel the Speciality Chairperson shall assign the trainee any clinical roles deemed appropriate at the level of staff grade, but the trainee shall not be considered part of the training programme or rotations nor receive clinical or educational supervision as part of a training programme, though the chairperson may appoint a clinical supervisor outside of the remit of the training programme to ensure adequate patient care and safety.
5	Incomplete evidence presented	Additional training time may be required. The trainee will be required to explain to the

		postgraduate training committee in writing the reasons for the deficiencies in the documentation. The fact that outcome 5 has occurred will remain as a part of the trainee's record but once the relevant evidence has been submitted then a new outcome will be added according to the evidence evaluated by the postgraduate training committee. If the trainee's explanation is deemed unsatisfactory, the postgraduate training committee may decide to issue outcome 2, 3 or even 4.
Finished training satisfactorily		
6	Gained all competencies	Will be certified as having completed the training programme and will be recommended for the award of a CCT.

(i) Training years

It is understood that training in radiology consists of minimum of 5 training years. Progression from one year to the following is subject to ARCP. Certificate of Completion of training (CCT) is awarded after (a) **Completion of 5 years of radiology training**, having satisfied the yearly appraisal throughout the training period + (b) **Graduating FRCR** (or equivalent as approved by the Maltese Association of Radiologists) + (c) **Graduating Diploma or MSc in Clinical Radiology** – University of Malta and (d) having spent one year of subspecialty training locally or abroad in a training centre that is recognized by the Postgraduate Training Committee for Radiology. All 4 criteria are necessary for award of **CCT in Radiology**.

Trainees are known as basic specialist trainees (BSTs) upon commencement of training in radiology. **A BST will be eligible to a certificate of completion of basic specialist training and hence eligible to take up a higher specialist trainee (HST) post in radiology after successful completion of second year of training (i.e. Pass at 2nd year ARCP)**.

Higher specialist trainees are trainees that have completed two years of basic specialist training and have been successful at interview for promotion to HST post. HST posts will be issued in one of two formats:
(a) HST Radiology and
(b) HST Interventional and Diagnostic Radiology.
HST Radiology training will proceed according to the curriculum outlined in this document. HST Interventional and Diagnostic Radiology training will also proceed according to the curriculum outlined in this document but will focus more intensively on interventional radiology training – especially during on call hours and in post-FRCR subspecialty training. Please see: Addendum – Interventional Radiology Training on page 22. **Both pathways will lead to the same award of CCST in Radiology and will have same entry on the Specialty Register**.

Structure of Training Program

Year 1 of training:

Trainees undergo an initial 6-month period of induction to the department of radiology by rotating through induction modules in plain film reporting, ultrasound, fluoroscopy and interventional radiology. During these introductory modules, the trainees familiarize themselves with the basic concepts of medical imaging, picture archive and communication system, radiology information system and image reporting. The observe senior radiologists during their daily work routine and start taking initial roles in pre-reporting plain films and performing general ultrasound examinations under direct supervision.
During the first 6 months, trainees also undergo an intensive lecture and tutorial program in:

1. Radiological Anatomy;
2. Physics of Medical Imaging;
3. Accident and Emergency plain x-ray reporting; and
4. Introduction to Ultrasound.

These lectures are held jointly between the Medical Imaging Department at Mater Dei Hospital and The University of Malta as part of the MSc course in Clinical Radiology.

Trainees undergo summative assessment tests in physics, anatomy, plain film reporting and ultrasound. They are also expected to pass the first part of the FRCR examination (Physics and Anatomy) during their first year of training.

In the second half of first year of training, trainees commence 3 monthly rotations through the various radiology specialties at Mater Dei Hospital – e.g. cardiothoracic imaging, breast radiology, interventional radiology, musculoskeletal radiology etc. These 3 monthly rotations continue into years 2 and 3.

Cardiothoracic radiology lecture and tutorial program is given in second half of year 1 of training. These lectures are held jointly between the Medical Imaging Department at Mater Dei Hospital and The University of Malta as part of the MSc course in Clinical Radiology.

From an early date in their training, trainees are encouraged to:

1. Participate in radiology clinical governance and quality assurance activity, e.g. participate and organize departmental errors and discrepancy meetings; perform departmental audit.
2. Write clinical case reports and participate in departmental and inter-departmental as well as university-based research.
3. Participate in undergraduate teaching of medical students and radiography students.
4. Develop leadership and management skills, e.g. take leadership of their on-call roster in liaison with training coordinator and department chairperson.
5. Participate actively in multidisciplinary team meetings.
6. Participate actively in local educational activities, e.g. Radiology Diagnosis Please case of the month.
7. Attend local and international meetings and conferences, e.g. continued medical education program of the Maltese Association of Radiologists and Nuclear Medicine Physicians; attend the European Congress of Radiology.

All training activity should be documented in the e-portifolio.

RADIOLOGY MODULES AND COMPETENCIES FOR YEAR 1 OF TRAINING:

(a) **Lecture modules:**

1. Physics course (competency: attendance to 75% tutorials)
2. Anatomy course (competency: attendance to 75% tutorials)
3. Accident and Emergency Radiology (competency: attendance to 75% tutorials)
4. Chest Radiology (competency: attendance to 75% tutorials)
5. Introduction to ultrasound course (competency: attendance to 75% tutorials)
5. MDT and discrepancy meetings (competency: attendance to at least 30 meetings in 1 calendar year)

(b) **Practice modules:**

1. A/E plain film reporting (competency: i. evidence of number of x-rays reported and ii. A/E reporting test/assessment, i.e. >80% mark)
2. Ultrasound (competency: i. evidence of number of ultrasounds observed/performed, ii. Pass in End of First Year Ultrasound Assessment)
3. FRCR Part 1 exam (competency: Pass in FRCR part I physics and anatomy – both required)
4. Audit (competency: Audit report signed by supervising consultant/resident specialist)
5. Annual Review Competency Progression (competency: ARCP pass)

Year 2 of training:

By the beginning of year 2 of training, the radiology trainee should have a sound understanding of how the radiology department works and should feel at home in the specialty of Radiology. By now, the trainee should be conversant with plain x-ray reporting and general ultrasound, under direct/indirect supervision. The trainee should have passed the summative assessments in Anatomy, Physics, Plain x-ray reporting and Ultrasound.

Lectures and tutorials continue in the various body systems: Neuroradiology, Head and Neck; Genito-Urinary and Breast Radiology; Hepatobiliary and Gastro-Intestinal Radiology; and Musculoskeletal Radiology. These lectures are held jointly between the Medical Imaging Department at Mater Dei Hospital and The University of Malta as part of the MSc course in Clinical Radiology. University lectures are also provided in Basics in Research Methods and Statistics and Research Practicals.

Trainees continue their 3 monthly rotations through the various radiology specialties at Mater Dei Hospital – e.g. cardiothoracic imaging, breast radiology, interventional radiology, musculoskeletal radiology etc. They also continue to participate in audit, departmental meetings, teaching etc.

RADIOLOGY MODULES AND COMPETENCIES FOR YEAR 2 OF TRAINING:

(a) **Lecture modules:**

1. Neuroradiology, Head and Neck radiology (competency: attendance to 75% tutorials)
2. Genito-urinary radiology (competency: attendance to 75% tutorials)
3. Hepatobiliary and Gastro-intestinal radiology (competency: attendance to 75% tutorials)
4. Musculoskeletal radiology (competency: attendance to 75% tutorials)
5. Basics in Research Methods and Statistics and Research Practicals (competency: attendance to 75% tutorials)
6. MDT and discrepancy meetings (competency: attendance to at least 30 meetings in 1 calendar year)

(b) **Practice modules:**

1. Plain film reporting (competency: i. evidence of reporting a minimum of 80 plain x-rays a week and ii. RAD-DOPS form for 1 reporting session)
2. Ultrasound (competency: i. evidence of performing a minimum of 500 ultrasounds in one calendar year and ii. RAD-DOPS form for performing an ultrasound guided procedure e.g. FNA/aspiration/biopsy)
3. CT (competency: CT reporting forms - minimum number = 200)
4. MRI (competency: MRI reporting forms - minimum number = 50)
5. HEAD CT reporting assessment (competency: assessment result >70%)
6. Audit (competency: Audit report signed by supervising consultant/resident specialist)
7. Multisource feedback
8. Annual Review Competency Progression (competency: ARCP pass)

Year 3 of training:

This is the third and final year of general/core radiology training. By the end of third year of training, trainees should have amassed a comprehensive portfolio of radiology skills and competencies and should have undergone a wide repertoire of formative and summative assessments as well as appraisals.

By the end of third year of training, the radiology trainee should be competent at providing a knowledgeable initial opinion for various emergency imaging scenarios; should be capable of guiding clinical colleagues to the correct imaging pathway for patients presenting with emergent and elective clinical presentations; should feel as an important player in the Medical Imaging Department; should have a clear idea of what field of specialization they want to undertake in years 4 and 5 of training.

Trainees continue their 3 monthly rotations through the various radiology specialties at Mater Dei Hospital – e.g. cardiothoracic imaging, breast radiology, interventional radiology, musculoskeletal radiology etc. They also continue to participate in audit, departmental meetings, teaching etc.

The passage from year 3 to year 4 of training is an important **threshold** in radiology training. It marks the passage from general core training to subspecialized training and marks an important 'growth milestone' in the trainee's progression.

RADIOLOGY MODULES AND COMPETENCIES FOR YEAR 3 OF TRAINING:

(a) **Lecture modules:**

1. Departmental Lectures and Tutorials (competency: attendance to 75% tutorials);
2. MDT and discrepancy meetings (competency: attendance of at least 30 meetings in 1 calendar year).
3. International course/conference (competency: attendance certificate)

(b) **Practice modules:**

1. Plain film reporting (competency: i. evidence of reporting a minimum of 80 plain x-rays a week and ii. RAD-DOPS form for 1 reporting session)
2. Ultrasound (competency: i. evidence of performing a minimum of 500 ultrasounds in one calendar year and ii. RAD-DOPS form for performing an ultrasound guided procedure e.g. FNA/aspiration/biopsy)
3. CT (competency: CT reporting forms - minimum number = 400)
4. MRI (competency: MRI reporting forms - minimum number = 100)
5. IR (competency: 2 RAD-DOPS forms for ultrasound guided artery/vein puncture; 2 RAD-DOPS forms for ultrasound/CT guided biopsy and 2 RAD-DOPS forms for ultrasound/CT guided drainage)
6. Pass in FRCR IIA exam within two attempts.
7. End of third year assessment (competency: Pass certificate)
8. University of Malta MSc award.
9. Audit (competency: Audit report signed by supervising consultant/resident specialist)
10. Annual Review Competency Progression (competency: ARCP pass)

Year 4 of training:

The trainee undergoes training in one or two subspecialty areas of radiology on background of general radiology training. The training is held at Mater Dei Hospital, Malta.

By now, the trainee should be completely immersed in the activity of the radiology department and works in close liaison with his/her clinical supervisor in the subspecialty area of interest. At the same time, the trainee further his/her knowledge and practice of general radiology in both elective and emergency scenarios. Practice slowly shifts from direct to indirect supervision with ultimate aim of independent supervision by end of training.

RADIOLOGY MODULES AND COMPETENCIES FOR YEAR 4 OF TRAINING:

(a) **Lecture modules:**

1. Tutorial attendance (competency: attendance to 75% tutorials);
2. FRCR viva tutorial attendance (competency: attendance to 75% tutorials);
3. MDT and discrepancy meetings (competency: attendance of at least 30 meetings in 1 calendar year).
4. International course/conference (competency: attendance certificate)

(b) **Practice modules:**

1. Plain film reporting (competency: i. evidence of reporting a minimum of 80 plain x-rays a week);
2. Ultrasound (competency: i. evidence of performing a minimum of 500 ultrasounds in one calendar year and ii. RAD-DOPS form for performing at least 3 specialized ultrasound examinations e.g. breast/MSK/paediatric/vascular – these can be collected in 2nd or 3rd year depending on modular rotations)
3. CT (competency: CT reporting forms - minimum number = 400)
4. MRI (competency: MRI reporting forms - minimum number = 200)
5. IR (competency: Three RAD-DOPS forms depending on subspecialty interest)
6. FRCR IIA exam (competency: Pass)
7. FRCR IIB exam (competency: Pass certificate)
8. Audit (competency: Audit report signed by supervising consultant/resident specialist)
9. Annual Review Competency Progression (competency: ARCP pass)

Year 5 of training:

Under the guidance and supervision of the Radiology Postgraduate Training Committee, the trainee undergoes further subspecialty training either in Malta or abroad.
The Medical Imaging Department at Mater Dei Hospital offers the opportunity to undergo a Fellowship in Cross-sectional Imaging. Trainees who are interested in taking such a fellowship should approach their clinical and educational supervisors as early as possible in the fourth year of training to tailor their training program accordingly. Trainees who wish to subspecialize in other area of Medical Imaging should liaise with their clinical and educational supervisors and seek fellowship training abroad, at a centre that is recognized and approved by the Radiology Postgraduate Training Committee.
Trainees who choose the subspecialty training in Cross-sectional Imaging at MDH, will be encouraged to choose cross-sectional preparatory modules as of year 4 of their training. Trainees who choose to spend their fellowship training abroad in year 5 may still avail of cross-sectional imaging training modules at Mater Dei Hospital; but would normally be encouraged to have their year 4 training tailored in preparation for their Year 5 subspecialty training.

Post-FRCR Cross-sectional Imaging Fellowship at Mater Dei Hospital will consist of 4 three monthly modules. The trainee may select 4 different three-monthly rotations or may choose to spend 6 months in same rotation and two other three monthly rotations. The rotations on offer are the following:
1. Chest and Cardiovascular Radiology;
2. Oncology Imaging;
3. Hepatobiliary Radiology;
4. Gastrointestinal Radiology;
5. Genitourinary Radiology;
6. Neuroradiology;
7. Head and Neck Radiology;
8. Paediatric Radiology.

During the fellowship, the trainee is expected to keep a detailed logbook of all reported cases. Trainees are expected to participate actively in multidisciplinary team meetings – preparing and when necessary, chairing the respective meetings under consultant supervision. They are also expected to perform audit and publish studies/case reports. Each trainee will have an educational supervisor that will monitor their progress during this important part of their training. It is understood that the level of training will be at subspecialty level (level II training), i.e. higher than that obtained at pre-FRCR level (level I, core training).

RADIOLOGY MODULES AND COMPETENCIES FOR YEAR 5 OF TRAINING:

(a) **Lecture modules:**

1. Attendance of lectures/conferences (competency: certificate)

(b) **Practice modules:**

1. Fellowship in subspecialty (competency: i. Education plan set up at start of subspecialty training; ii. Evidence of subspecialty training and progression in form of detailed logbook countersigned by educational supervisor; iii. Progress reports halfway through and at end of fellowship training signed by education supervisor)
2. Annual Review Competency Progression (competency: ARCP pass)

Award of Certificate of Completion of Training

(a) **Completion of Basic Specialist Training**

Upon successful completion of a minimum of two years of training (or as otherwise indicated in the Speciality Training Document), and of two Annual Assessments and relevant Annual Reviews of Competence Progression (ARCPs) (or as otherwise indicated in the Speciality Training Document), the Speciality Association shall on the advice of the Speciality Training Committee recommend the trainee to the SAC in view of issuing Certificate of Completion of Basic Specialist Training (CCBST). Other criteria, laid down by the Training Document of the respective Training Programme, must also be fulfilled before such recommendation is issued.
The CCBST is issued by the Specialist Accreditation Committee (SAC).

(b) **Completion of Higher Specialist Training**

Upon successful completion of the Training Programme, and of all requisite Speciality Training Programme criteria including Annual Assessments and/or Annual Reviews of Competence Progression (ARCP's), the Speciality Association shall on the advice of the Training Committee recommend the trainee to the SAC in view of issuing Certificate of Completion of Specialist Training (CCST). All criteria, laid down in the Training Document of the respective Training Programme, must also be fulfilled before such recommendation is issued. The CCST will be issued by the Specialist Accreditation Committee.

Addendum: Interventional Radiology Training

The Maltese Association of Radiologists and Nuclear Medicine Physicians acknowledges the need to include an addendum on Interventional Radiology Training to the training document. Trainees with an aptitude towards Interventional Radiology will have the opportunity to apply for HST post in Interventional and Diagnostic Radiology in their third year of training.
Training will follow the same path in general radiology that is outlined in pages 1 to 21 of this document. Trainees choosing the **HST in Interventional and Diagnostic Radiology** pathway will have the same criteria for eligibility for CCST in Radiology as trainees that choose the HST in Radiology pathway. Their training will, however, focus more intensively on Interventional Radiology through:

(a) Exposure to emergency interventional radiology training during and out of normal hours;
(b) Regular exposure to Interventional Radiology training in the weekly training timetable in year 3 of training (one day per week);
(c) Focused subspecialty training in Interventional Radiology in years 4 and 5 of training.

References:

1. European Training Curriculum for Radiology
https://www.myesr.org/app/uploads/2023/08/ESR-European-Training-Curriculum-Level-I-II-2020-1.pdf
2. European Training Curriculum for Subspecialisation in Radiology
https://www.myesr.org/app/uploads/2023/08/ESR-European-Training-Curriculum-Level-III-2020-1.pdf
3. RCR Clinical Radiology Specialty Training Curriculum
https://www.rcr.ac.uk/exams-training/specialty-training/clinical-radiology-curriculum/
4. University of Malta Master of Science in Clinical Radiology
https://study-in-malta.com/university-of-malta/clinical-radiology/
5. Common framework for all Specialty Training Programs within the Malta Postgraduate Medical Training Centre
6. MHEC CIRCULAR 26/2008 DH 158/08