

كلية العلوم الطبية التطبيقية

قسم علوم الأشعة

لجنة التدريب الإكلينيكي

Clinical Practice Manual

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VALIDITY

- 1- The information in this guide should be read in conjunction with the field of experience for the clinical practice course being taken.
- 2- The information contained within this guide is believed to be accurate at the time of production. Still, the department cannot be held responsible for errors, omissions or changes which may have occurred.
- 3- The information in this guide will be emphasized during the course with additional materials.

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- 1- **ALARA:** is an acronym for "as low as (is) reasonably achievable," which means making every reasonable effort to maintain exposures to ionizing radiation as far below the dose limits as practical.
- 2- **Appearance:** refers to the student's appearance and includes the following points: Medical uniforms must be tidy, clean, the right colour designated to the radiology department. TLD must belong to the student and the exposure side facing forward and placed firmly on the chest. If the student was wearing a lead apron, then the TLD must be worn underneath it. Proper footwear should cover all toes and protect the student from falling objects (e.g., film cassette). Student ID, valid and visible all time.
- 3- **Attitude:** aspects might include (smiling, greeting the patient, being nervous, being inpatient, maintain the patient confidentiality, being modest and take consideration of patient's *modesty/decency*) - modesty/decency refers to the shyness about, or fear of, exposing one's body parts to someone else-.
- 4- **Helping the patient after examination:** making sure that the patient is feeling well (no sudden dizziness after standing), move objects out of the patient way (e.g., tube head) and helping the elderly/nauseous patients.
- 5- **Infection control:** Cleaning contaminated areas (e.g., IR in case the patient skin contacted it, or patient's breath or door handles), changing gloves, mask, and handwashing.
- 6- **OSPE:** Objective structured practical examination
- 7- **Patient Identification:** the student must identify the patient by all three identifiers (patient name, medical record number "MRN", and date of birth "DOB"). A failure in using any of the patient identifiers means the patient was not identified.
- 8- **PACS:** picture archiving and communication system
- 9- **Preparing the room for the next patient:** that includes changing bedsheets/paper rolls tidying the room. Cleaning contaminated areas (e.g., image receptors (IR) in case the patient skin contacted it, or patient's breath or door handles), changing gloves and mask, etc...
- 10- **TLD:** Thermoluminescent dosimeter.
- 11- **Radiology Department/Hospital regulations:** all the training institute framework and regulations including (trainee distribution, identification, dress code, safety etc...)

1. INTRODUCTION

This guide aims to describe the structure of the clinical practice courses to help the student understand the courses and how to attain the highest score. This guide includes a comprehensive overview of the mechanism for registering students of practice courses in hospitals, assessment mechanism in clinical practice courses and rubrics forms for the following courses:

- a. Clinical practice in Radiography (1) 374318-3
- b. Clinical Practice in Radiography (2) 374328-3
- c. Advanced clinical practice (1) 374415-4
- d. Advanced clinical practice (2) 374425-4

2. GOALS

Evaluate the students' progress/achievements in retaining the theory of prerequisite module/s and putting the content to practice, along with investigating the technical skills as a radiological health provider that considers all CLOs of prerequisite module/s.

Provide all the paperwork related to the clinical practice evaluations, examinations, and forms in a single platform, along with the guidance through the training registration and procedures.

The Mechanism for Clinical Practice Students Training in The Hospital

1- Ministry of Health hospitals:

- **King Abdulaziz Specialist Hospital**
- **King Faisal Medical Complex**
- **Children's Hospital in Taif**

1- The student proceeds to the hospital's training department to complete the registration procedures in the training department.

2- The student must bring the following documents: the training letter sent from the college and the student distribution schedule.

3- The student obtains a training card and then goes to the training supervisor in the radiology department in the hospital.

4- Students pledge to abide by hospital rules during their training period in the radiology departments.

5- The academic supervisor explains the field experience specification to the students and explains the assessment mechanism in the course.

6- The training supervisor in the radiology department distributes the students to the modalities required to be trained, according to the clinical practice course.

2- Military Hospitals:

- **Al-Hada Hospital**
- **Prince Mansour Hospital**
- **Prince Sultan Hospital**

1- The student proceeds to the hospital's training department to complete the registration procedures in the training department.

2- The student must bring the following documents: a personal photo - the training letter sent from the college and the student distribution schedule.

3- The student proceeds to the security office to obtain entry permit. then goes to the training supervisor in the radiology department in the hospital.

4- Students pledge to abide by hospital rules during their training period in the radiology departments.

5- The academic supervisor explains the field experience specification to the students and explains the assessment mechanism in the course.

6- The training supervisor in the radiology department distributes the students to the modalities required to be trained, according to the clinical practice course.

3. ASSESSMENT METHODS

3.1. Logbook (10 marks):

The logbook is evaluated by both the training hospital and the academic supervisors, including recording the work being done and the student's dedication to learn/work. The evaluation criteria are specified in **Table 4.1**.

3.2. Case report/presentation (20 marks):

Evaluated by the training hospital and the academic supervisors and included feedback to the student for future work. The criteria of the case report and the oral presentation are specified in **Tables 4.2 and 4.3, respectively**.

3.3. Continuous assessment (20 marks):

The student is evaluated throughout the semester by the training supervisor for multiple aspects and is required to complete a minimum number of radiological cases throughout the semester. The number of cases is specified in (Table 1). The criteria for the continuous assessment are specified in **Table 4.12**.

Table 1: Number of cases required for each module

Module	Examinations	Minimum number of cases
Clinical Practice 1 (General X-ray)	Upper extremities	15
	Lower extremities	15
	Vertebral spine	5
	Bony thorax	5
Clinical Practice 2 (General X-ray)	Chest	15
	Abdomen	5
	Skull	10
	Dental	4
	Mammogram (Female students)	3
	Fluoroscopy	3

<p>Advanced Clinical Practice 1 (Sonography, Computed tomography, and contrast media)</p>	<p>Ultrasound cases:</p> <ul style="list-style-type: none"> • Neck • Abdomen / pelvic • Renal • Doppler • Venous • Musculoskeletal • Obs/gyn (female students) • Scrotal (Male students) • Small part 	20
	<p>Computed tomography and contrast media cases:</p> <ul style="list-style-type: none"> • Abdomen and Pelvis • Chest including cardiovascular Head and Neck • Brain • Spine • Musculoskeletal • CT colonography (CTC) • CT coronary angiography (CTCA) 	20
<p>Advanced Clinical Practice 2 (Nuclear Medicine and Magnetic Resonance Imaging)</p>	<p>NM cases:</p> <ul style="list-style-type: none"> • Bone scan • Thyroid scan • Lung scan - ventilation / perfusion (V/Q) • GI bleed scan • Renal: MAG 3, DTPA, DSMA Brain: Dementia, epilepsy (SPECT and PET) • Cardiac - performing exercise and pharmacological stress tests under supervision • Sentinel lymph node mapping • White Cell / Gallium • Pediatric Nuclear Medicine: renal (obstruction, infection, reflux), bone (fracture, non-accidental injury, infection), liver (biliary atresia versus neonatal hepatitis), thyroid (congenital 	10

	hypothyroidism), oncology (PET, MIBG) <ul style="list-style-type: none"> • PET/CT or PET/MRI • Therapy: Iodine-131 for thyrotoxicosis and thyroid cancer 	
	MRI cases: <ul style="list-style-type: none"> • Abdomen and pelvis (including liver, MRCP, rectum, cervix, uterus, prostate) • Chest including cardiovascular • Head and neck • Brain • Spine • Musculoskeletal • Breast • Pediatrics 	20 cases
	<ul style="list-style-type: none"> • Bone mineral density (BMD) 	Optional

3.4. Final exam (50 marks):

3.4.1. OSPE (index 6): the criteria of the exam evaluation are different for each module as follows:

Objective Structured Practical Examination (OSPE) to assess theoretical, practical, and problem-solving skills. The students receive the same test and interact with two different examiners. Time constrain is maintained during the exam (5-15 minutes for each student depending on the module being taken and specified in Table 2).

For each OSPE exam, there are two types of assessment. The first one for patient care and ethics, and worth 30% of the total OSPE mark. The second one covers the technical skills of the students, and worth 70% of the total OSPE mark.

Moreover, for the modules Advanced Clinical Practice (1), and Advanced Clinical Practice (2), which cover two modalities each, the OSPE exam mark is divided between the two modalities (specified in Table 3).

3.4.2. Clinical practice in radiography (1) 374318-3. Specified in **Table 4.9**.

3.4.3. Clinical Practice in radiography (2) 374328-3. Specified in **Table 4.9**.

3.4.4. Advance clinical practice (1) 374415-4. Specified in **Tables 4.4, 4.7, 4.10 and 4.15**.

- 3.4.5. Advance clinical practice (2) 374425-4. Specified in **Table 4.5, 4.6, 4.7, 4.8, 4.12 and 4.13.**

Table 2: Time limit for each student.

Examination	X-ray	Ultrasound	CT	MRI
Time for each student	5 minutes	10 minutes	15 minutes	15 minutes

Table 3: Marks for each module.

Examination	Clinical Practice 1	Clinical Practice 2	Advanced Clinical Practice 1	Advanced Clinical Practice 2
OSPE mark	30% Patient care in general radiography	30% Patient care in general radiography	30% Patient care in CT or US	30% Patient care in NM or MRI
	70% Technical skills in general radiography	70% Technical skills in general radiography	70% Technical skills in CT or US	70% Technical skills in NM or MRI

3.5. Oral exam:

An oral exam is only used to replace any OSPE exam in case of unavailability of lab/simulator/equipment, breakdown, or maintenance of the simulator/equipment.

The distribution of the oral exam marks is described in Table 4. The criteria for oral exam assessment are specified in **Table 4.4.**

Table 4: The distribution of the oral exam marks.

Module	modality	In case of unavailability
Clinical practice (1)	X-ray	Oral exam is worth 100% of the total OSPE mark
Clinical practice (2)	X-ray	Oral exam is worth 100% of the total OSPE mark
Advanced Clinical practice (1)	US	The total mark is divided between the two modalities (50% each) regardless of the oral exam implementation.
	CT	
Advanced Clinical practice (2)	MRI	The total mark is divided between the two modalities (50% each) regardless of the oral exam implementation.
	NM	

4. ASSESSMENT CRITERIA

The assessment criteria are different for each assessment method. There are different rubrics/checklist in this section.

Some of the assessment methods are part of the activity during the course duration, i.e., logbook, case study, and continuous assessment), while some are part of the examination process, i.e., OSPEs and oral exam.

4.1. Criteria of logbook evaluation

	Items	Poor (2.5)	Satisfactory (5)	Good (7.5)	Excellent (10)	mark
1	Organization of the logbook.	The logbook is poorly organized. Required information is missing.	Moderately organized. Some information is included.	Better organized. Most information is included but still, some is missing.	Well-organized. All required information is recorded.	
2	Adequacy of Content/ Information.	Details are missing or insufficiently illustrates what examination was logged, observed etc.	An appropriate number of details is used to explain the examination logged, observed etc.	Enough details are used to provide an in-depth look into the examination.	The information/content is exceptionally detailed, providing an in-depth investigation of the examination.	
3	The number of cases recorded.	The student was very selective and has done few cases.	The number of cases is less than the load of the department.	A respectable number of cases were recorded.	The student logged every case on the training day.	
4	Relevance of Content in the logbook.	No or limited relevance of data or comments.	Modest relevance of data or comments.	Good relevance of data or comments.	Excellent relevance of data or comments.	
Total mark						

4.2. Criteria of evaluating the case report

REPORT FEATURE ¹	Inadequate (1)	Good (2)	Very good (3)	Excellent (4)
Title and Abstract: The report has a proper title, authorship, affiliation and is dated. Assessing for conciseness, brevity, description of the purpose of the report, mentioning of used methods, measures taken, a summary of numerical results obtained and associated error (if applicable) and, comparison with "accepted" values (if appropriate). The abstract should be valid when isolated from the report.				
Introduction : Assess coverage of the aims and purpose of the report (interesting, useful, and relevant), background, comprehensiveness and setting of contexts. Are appropriate references included?				
Material and methodology : This section should include a concise description of the materials, procedures, and equipment used, including how the study was conducted, collected data, and what statistical analyses were undertaken.				
Theory : Assess if the theory section (if appropriate) is adequate. Have contents or other materials been needlessly copied verbatim from students' handouts/texts or have only the salient points been properly noted (with references to appropriate sources). If necessary, has any non-standard theory been included (or placed in an appendix)?				
Results, Errors and Graphs : Assess presentation mode, whether graphical or tabular, axes labels and units, symbols, error bars, etc. All graphs are given titles, and these referred to in the text with figure captions. Assess whether considerations were given to statistical uncertainties (if applicable), how these were obtained, whether they are good or poor estimates.				
Discussion and Critique of Results : Assess whether all the data were clearly displayed, whether systematic errors that may have affected results are recognized, considered, or used to account for discrepancies. Check whether results have been properly compared to accepted values/outcomes where appropriate. Assess the discussion of the outcomes and the extent to which this shows a proper appreciation of their significance.				
Conclusions and Summary : Assess the summary of the salient aspects of the report and results. The conclusion should be drawn from the findings and assess the convince of these arguments.				
Acknowledgements and References/Bibliography : Are acknowledgements included if necessary? For a list of references/bibliography, there should at least be a properly quoted ref. to the student handout and any other sources of material (e.g., textbooks, datasheets, literature etc.). The list of references should be numbered sequentially, and all referred to at appropriate places in the main text, using either: superscripts; []; or abbreviated references in parentheses, e.g. (Einstein, 1951)				
Presentation : Assess overall report format and presentation (i.e., is it properly arranged into typical sections as given above?). Assess its legibility, grammar, spelling, page numbering, style, clarity, readability, coherence, and conciseness. Has the material been plagiarised from a handout or other sources?				
Total mark				

Feedback: Comments on any aspects where the report could have been improved.

¹ If the feature was completely not applicable to the report/assignment the student, take the equivalent score of presentation.

4.3. Criteria for evaluating oral presentation.

Items	Unsatisfactory (0)	Marginal (1)	Good/Sufficient (2)	Very Good (3)	Exceptional (4)	mark
Organization and Preparation	Very poorly prepared and organized with little or no effort made. Presentation made "on-the-fly".	Speaker poorly prepared, occasionally stopping to re-organize and to re-establish the flow of the presentation. May read from notes.	Speaker reasonably prepared. The flow of the presentation was somewhat disrupted due to shortcomings in the organization. May refer to notes.	Occasional hiccup during the presentation, but speaker generally very well organized and prepared.	Extremely well-rehearsed and organized. Speaker knows precisely what is to be said and when and is thoroughly prepared	
Content & Understanding of Presentation	Speaker had not researched material and severely lacked a knowledge base. Thus, explanations of a very poor standard.	Explanations lacking clarity, therefore difficult to follow the material. Not well researched.	Speaker has a reasonable knowledge of the material. Some shortcomings in explanation and clarity. Occasionally difficult to follow.	Generally clear and very well explained. A few possible gaps in knowledge and a few potential shortcomings in explanation.	Clear, exceptionally well explained, easy to follow with the speaker in excellent command of the material.	
Visual Aids	Very poor or non-existent visuals, scrappy or illegible, with lack of effort or care in presentation.	Poor visuals, hard to read, poor selectivity of material. Had a significant detrimental effect on presentation.	Good, but some significant shortcomings in the quality of visuals, perhaps in their clarity and presentation.	Generally, very good quality visuals, with a few shortcomings in readability, use of color etc.	Excellent, well-chosen and readable. An appropriate number of slides and excellent use of color.	
Quality of Speech	Dull, very hesitant, fundamental problems in delivery and possible audibility problems.	Hesitant performance with fits and starts, generally monotone and possible problems with audibility.	Hesitations, uncertain delivery at times, possibly monotone and possible shortcomings inaudibility and speed.	Audible, some hesitation, possible shortcomings in tone and speed of delivery but overall, a very good performance.	Audible, lively, varied tone, no hesitations, and correct speed of delivery.	
Discussion	Unable to discuss the presented material or could not answer any follow up questions.	Need to revise the related background and knowledge.	Hesitant in some aspects of the discussion with reasonable background and related topics knowledge.	A few possible gaps in knowledge and a few potential shortcomings in the student's answer.	Excellent background and related topics knowledge. Confident in answering all follow up questions.	
Total mark =						

Feedback: Comments on any aspects where the report could have been improved.

4.4. Criteria of evaluating oral exam: (CT)

Items	Failure (0)	Unsatisfactory (1)	Marginal (2)	Good/Sufficient (3)	Very Good (4)	Excellent (5)	Mark
Parametrical question	The student did not understand the question nor give a related answer.	The student understood the question but did NOT answer some aspects related to the question and missed/failed to address the main point of the question.	The student understood the question. Answer some aspects of the question but give little information about the main point with hesitation or confusion.	The student understood the question. Answer some aspects related to the question but miss other minor aspects. The student gave a clear answer to the main point of the question	The student understood the question, gave a satisfactory answer, and explained the effect of applying/changing the parameter on the image quality. The student used proper terminology.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Artifact	The student did not understand the question nor give a related answer.	The student understood the question but did NOT answer some aspects related to the question and missed/failed to address the main point of the question.	The student understood the question. Answer some aspects of the question but give little information about the main point with hesitation or confusion.	The student understood the question. Answer some aspects related to the question but miss other minor aspects. The student gave a clear answer to the main point of the question	The student understood the question/identified the image artifact, gave a satisfactory answer, and explained the artifact source and how the artifact could be eliminated/reduced. The student used proper terminology.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Anatomy	The student did not understand the question nor give a related answer.				The student identified the anatomical structure and gave the medical term.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Technique 1	The student did not understand the question nor give a related answer.	The student understood the question but did NOT answer some aspects related to the question and missed/failed to address the main point of the question.	The student understood the question. Answer some aspects of the question but give little information about the main point with hesitation or confusion.	The student understood the question. Answer some aspects related to the question but miss other minor aspects. The student gave a clear answer to the main point of the question	The student understood the question addressed the main point and all other related aspects of the question. The student used proper terminology.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Technique 2	The student did not understand the question nor give a related answer.	The student understood the question but did NOT answer some aspects related to the question and missed/failed to address the main point of the question.	The student understood the question. Answer some aspects of the question but give little information about the main point with hesitation or confusion.	The student understood the question. Answer some aspects related to the question but miss other minor aspects. The student gave a clear answer to the main point of the question	The student understood the question addressed the main point and all other related aspects of the question. The student used proper terminology.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Total mark	Total mark= /25						

4.5. Criteria of evaluating oral exam: (MRI)

Items	Failure (0)	Unsatisfactory (1)	Marginal (2)	Good/Sufficient (3)	Very Good (4)	Excellent (5)	Mark
Physics	The student did not understand the question nor give a related answer.	The student understood the question but did NOT answer some aspects related to the question and missed/failed to address the main point of the question.	The student understood the question. Answer some aspects of the question but give little information about the main point with hesitation or confusion.	The student understood the question. Answer some aspects related to the question but miss other minor aspects. The student gave a clear answer to the main point of the question	The student understood the question, gave a satisfactory answer, and explained the effect of applying/changing the parameter on the image quality. The student used proper terminology.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Artifact	The student did not understand the question nor give a related answer.	The student understood the question but did NOT answer some aspects related to the question and missed/failed to address the main point of the question.	The student understood the question. Answer some aspects of the question but give little information about the main point with hesitation or confusion.	The student understood the question. Answer some aspects related to the question but miss other minor aspects. The student gave a clear answer to the main point of the question	The student understood the question/identified the image artifact, gave a satisfactory answer, and explained the artifact source and how the artifact could be eliminated/reduced. The student used proper terminology.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Anatomy	The student did not understand the question nor give a related answer.				The student identified the anatomical structure and gave the medical term.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Technique	The student did not understand the question nor give a related answer.	The student understood the question but did NOT answer some aspects related to the question and missed/failed to address the main point of the question.	The student understood the question. Answer some aspects of the question but give little information about the main point with hesitation or confusion.	The student understood the question. Answer some aspects related to the question but miss other minor aspects. The student gave a clear answer to the main point of the question	The student understood the question addressed the main point and all other related aspects of the question. The student used proper terminology.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Safety	The student did not understand the question nor give a related answer.	The student understood the question but did NOT answer some aspects related to the question and missed/failed to address the main point of the question.	The student understood the question. Answer some aspects of the question but give little information about the main point with hesitation or confusion.	The student understood the question. Answer some aspects related to the question but miss other minor aspects. The student gave a clear answer to the main point of the question	The student understood the question addressed the main point and all other related aspects of the question. The student used proper terminology.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Total mark	Total mark =						

4.6. Criteria of evaluating oral exam: (NM)

Items	Failure (0)	Unsatisfactory (1)	Marginal (2)	Good/Sufficient (3)	Very Good (4)	Excellent (5)	Mark
Physics	The student did not understand the question nor give a related answer.	The student understood the question but did NOT answer some aspects related to the question and missed/failed to address the main point of the question.	The student understood the question. Answer some aspects of the question but give little information about the main point with hesitation or confusion.	The student understood the question. Answer some aspects related to the question but miss other minor aspects. The student gave a clear answer to the main point of the question	The student understood the question, gave a satisfactory answer, and explained the effect of applying/changing the parameter on the image quality. The student used proper terminology.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Radiopharmaceutical	The student failed in verifying correct radiopharmaceutical, correct dose or route of administration.					The student failed in verifying correct radiopharmaceutical, correct dose or route of administration.	
Image data evaluation and processing	The student did not understand the question nor give a related answer.				The student identified the anatomical structure and gave the medical term.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Technique	The student did not understand the question nor give a related answer.	The student understood the question but did NOT answer some aspects related to the question and missed/failed to address the main point of the question.	The student understood the question. Answer some aspects of the question but give little information about the main point with hesitation or confusion.	The student understood the question. Answer some aspects related to the question but miss other minor aspects. The student gave a clear answer to the main point of the question	The student understood the question addressed the main point and all other related aspects of the question. The student used proper terminology.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Safety	The student did not understand the question nor give a related answer.	The student understood the question but did NOT answer some aspects related to the question and missed/failed to address the main point of the question.	The student understood the question. Answer some aspects of the question but give little information about the main point with hesitation or confusion.	The student understood the question. Answer some aspects related to the question but miss other minor aspects. The student gave a clear answer to the main point of the question	The student understood the question addressed the main point and all other related aspects of the question. The student used proper terminology.	The student understood the question and gave a detailed answer with a full explanation using proper terminology.	
Total mark	Total mark =						

4.7. Criteria of evaluation the patient care and ethics for CT, and MRI.

Items		Score				Mark
		0	1	2	3	
1	Appearance (Index 2)	The student failed to appear as a professional radiology specialist. Medical uniform	The student failed in completing most of criteria related to radiology specialist (medical uniform, TLD (index 10), footwear and student ID)	The student completed most of criteria related to radiology specialist (medical uniform, TLD (index 10), footwear and student ID)	The student completed ALL of criteria related to radiology specialist (medical uniform, TLD (index 10), footwear and student ID)	
2	Attitude (Index 3)	The student failed to show any good attitude toward the patient (Self-introduction, greeting, helping the patient or maintain the patient confidentiality, modesty/decency)	The student failed to show requirements (Self-introduction, greeting, helping the patient or maintain the patient confidentiality, modesty/decency)	The student showed most requirements (Self-introduction, greeting, helping the patient or maintain the patient confidentiality, modesty/decency)	The student showed ALL requirements (Self-introduction, greeting, helping the patient or maintain the patient confidentiality, modesty/decency)	
3	Excellent reading of the request	The student did not read/understand the radiological request carefully or confirm it with the patient.		The student partially missed to understand some of the request details or confirm it with the patient.	The student read the request carefully, understood it and confirmed all the details with the patient.	
4	Identify the clinical information and checking the patient history	The student did not check the patient pregnancy chance or medical history.	The student failed to complete most of the requirements (checking history, pregnancy, understanding terminology or confirm the details with the patient or physician)	The student completed most of the requirements (checking history, pregnancy, understanding terminology or confirm the details with the patient or physician)	The student completed ALL of the requirements (checking history, pregnancy, understanding terminology or confirm the details with the patient or physician)	
5	Patient identification (patient name + MRN + DOB) (Index 7)	The student failed to identify the patient by all the patient identifiers.			Identify the patient by all of the patient identifiers.	
6	Explain the procedure to the patient	The student did not explain the procedure to the patient, Inform the patient about the time required, Reassure the patient, or use clear wording.	The student failed to complete most of the requirements (explain the procedure to the patient, Inform the patient about the time required, Reassure the patient, or use clear wording.)	The student completed most of the requirements (explain the procedure to the patient, Inform the patient about the time required, Reassure the patient, or use clear wording.)	The student completed ALL of the requirements (explain the procedure to the patient, Inform the patient about the time required, Reassure the patient, or use clear wording.)	
7	Giving instructions to the patient.	The student did not check/remove metallic objects, Explain/demonstrate the patient instructions, or rehearse the patient instruction.	The student failed to complete most of the requirements (check/remove metallic objects, Explain/demonstrate the patient instructions, or rehearse the patient instruction)	The student completed most of the requirements (check/remove metallic objects, Explain/demonstrate the patient instructions, or rehearse the patient instruction)	The student completed ALL of the requirements (check/remove metallic objects, Explain/demonstrate the patient instructions, or rehearse the patient instruction)	
8	Helping the patient after the examination (Index 4)	The student failed to help the patient out and greet them with a smile.			The student helped the patient out and greeted them with a smile.	
9	Preparing the room for the next patient (Index 9)	The student failed to clean/prepare the room/machine after the examination.			The student cleaned/prepared the room/machine after the examination.	
10	Infection control (Index 5)	The student failed to apply All Infection control procedures.			Apply All Infection control procedures.	
Total mark						

4.8. Criteria of evaluation the patient care and ethics for NM

Items		Score				Mark
		0	1	2	3	
1	Appearance (Index 2)	The student failed to appear as a professional radiology specialist. Medical uniform	The student failed in completing most of criteria related to radiology specialist (medical uniform, footwear and student ID)	The student completed most of criteria related to radiology specialist (medical uniform, footwear and student ID)	The student completed ALL of criteria related to radiology specialist (medical uniform, footwear and student ID)	
2	Attitude (Index 3)	The student failed to show any good attitude toward the patient (Self-introduction, greeting, helping the patient or maintain the patient confidentiality, modesty/decency)	The student failed to show requirements (Self-introduction, greeting, helping the patient or maintain the patient confidentiality, modesty/decency)	The student showed most requirements (Self-introduction, greeting, helping the patient or maintain the patient confidentiality, modesty/decency)	The student showed ALL requirements (Self-introduction, greeting, helping the patient or maintain the patient confidentiality, modesty/decency)	
3	Excellent reading of the request	The student did not read/understand the radiological request carefully, confirm it with the patient or confirm with examination schedule.		The student partially missed to understand some, the request details or confirm it with the patient or confirm with examination schedule.	The student read the request carefully, understood it, confirmed all the details with the patient and confirm with examination schedule.	
4	Identify the clinical information and checking the patient history	The student did not check the patient pregnancy/breast feeding chance or medical history.	The student failed to complete most of the requirements (checking history, pregnancy/breast feeding, understanding terminology or confirm the details with the patient or physician)	The student completed most of the requirements (checking history, pregnancy/breast feeding, understanding terminology or confirm the details with the patient or physician)	The student completed ALL the requirements (checking history, pregnancy breast feeding, understanding terminology or confirm the details with the patient or physician)	
5	Patient identification (patient name + MRN + DOB) (Index 7)	The student failed to identify the patient by all the patient identifiers.			Identify the patient by all the patient identifiers.	
6	Explain the procedure to the patient	The student did not explain the procedure to the patient, Inform the patient about the time required, Reassure the patient, or use clear wording.	The student failed to complete most of the requirements (explain the procedure to the patient, Inform the patient about the time required, Reassure the patient, or use clear wording.)	The student completed most of the requirements (explain the procedure to the patient, Inform the patient about the time required, Reassure the patient, or use clear wording.)	The student completed ALL the requirements (explain the procedure to the patient, Inform the patient about the time required, Reassure the patient, or use clear wording.)	
7	Giving instructions to the patient.	The student did not check examination preparation, Explain/demonstrate the patient instructions, or rehearse the patient instruction.	The student failed to complete most of the requirements (check examination preparation,, Explain/demonstrate the patient instructions, or rehearse the patient instruction)	The student completed most of the requirements (check examination preparation,, Explain/demonstrate the patient instructions, or rehearse the patient instruction)	The student completed ALL the requirements (check examination preparation, Explain/demonstrate the patient instructions, or rehearse the patient instruction)	
8	Helping the patient after the examination (Index 4)	The student failed to help the patient out and greet them with a smile.			The student helped the patient out and greeted them with a smile.	
9	Preparing the room for the next patient (Index 9)	The student failed to clean/prepare the room/machine after the examination.			The student cleaned/prepared the room/machine after the examination.	
10	Infection control (Index 5)	The student failed to apply All Infection control procedures.			Apply All Infection control procedures.	
Total mark						

4.9. Criteria of evaluation of the X-ray examination technique.

1- Section (A) - Communication with the patient

Communication with the patient		Score			Mark
		0	2	4	
1	Student appearance and hygiene.	The student failed to appear as a professional health provider and didn't meet the standard infection control procedures. (e.g. no medical uniform, proper footwear, gloves, TLD, student card etc...)	The student showed some professionalism and hygiene in the clinic, although they didn't follow the policy strictly.	The student appeared as a professional health provider and met all the standards and procedures of infection control.	4
2	Excellent reading of the request	The student failed to read, understand the radiological examination request or confirm it with patient condition.	The student understood the requested examination but showed some hesitation or confusion or did not confirm the requested examination with the patient.	The student showed a full understanding of the request/procedure and approve it with the patient's condition/complaint.	
3	Identifying patient preparation	The student did not check patient preparation.	The student checked a patient preparation but did not ask all questions.	The student checked all the clinical patient preparation and confirm it with the patient.	
4	Explain the procedure and Giving instructions to the patient	The student did not explain the procedure/patient position, how long would it take and reassure the patient.	The student gave good instructions but did not clarify the patient position, the time required and reassure the patient.	The student gave very clear explanation of the examination, the position, the time required, and they reassure the patient.	
5	Patient care during and after examination	The student did not make patient care during and after examination	The student made some of patient care during and after examination	The student made patient care during and after examination	
Total mark section (A)					

2- Section (B) - Technical Skills

Technical Skills		Score			Mark
		0	1.5	3	
1	Patient position	The student failed to position the in proper way for the intended examination.	The student positioned the patient with a degree of miss alignment on the IR or with a slight rotation/tilting that could affect the x-ray image.	The student positioned the patient perfectly as mentioned in theory or made some error with explanation depending on the patient condition.	
2	Part position	The student failed to position the patient or the effected body part in proper way for the intended examination.	The student positioned the body part with a degree of miss alignment on the IR or with a slight rotation/tilting that could affect the x-ray image.	The student positioned the body part perfectly as mentioned in theory or made some error with explanation depending on the patient condition.	
3	Handling of X-ray machine	The student failed to move the x-ray tube, adjust the IR, use grid or give exposure.	The student made error/s in moving the x-ray tube, adjusting the IR, using grid or giving exposure.	The student perfectly moved the x-ray tube, adjusted the IR, used grid and gave exposure.	
4	Central ray	The student failed to angle the tube for the central ray or did not know what the central ray for the examination was.	The student angled the tube with an error margin of 3 ^o -5 ^o	The student angled the tube perfectly for their examination.	
5	Centre point	The student was not able to identify the centre point for the examination and could not centre the ray.	The student was able to identify the centre point but did not adjust the beam correctly to be centred.	The student identified the centre point and adjusted the ray perfectly.	
6	Proper collimation	The student was not able to adjust the collimator.	The student managed to collimate the beam but with a slight over exposure or a slight cut in the image in both axes.	The student perfectly collimated the beam with no over exposure or cut in the image.	
7	Breathing technique	The student failed to use the breathing technique if required.		The student used the breathing technique if required.	
8	Radiation protection	The student failed to protect the patient or him/herself form the radiation hazard or did not have TLDs on them.	The student used a shielding but misplaced it on the radiation sensitive areas or used the wrong size of shielding.	The student had no issue in choosing the shielding type/size, and minimising the exposure time.	
9	Radiographic anatomy	The student failed to know radiographic anatomy of the image	The student knows some of the radiographic anatomy	The student showed a full understanding and know all radiographic anatomy	
		0		1	1
10	Proper FFD	The student failed to choose or to set the prober FFD for their examination.		The student chose the right FFD.	
11	Use R & L marker	The student did not use a marker or misplaced it.		The student used a marker and placed it correctly.	
12	Time Management	The student wasted all their time trying to figure out what to do but no results.		The student perfectly knew what to do and wasted no time.	
Total mark section (B)					
Total exam mark					

4.10. Criteria of evaluation of the CT examination technique.

Items		Score				Mark
		0	1	2	3	
1	Patient position and body part position/orientation	The student failed to position the patient use correct orientation or use the CT accessories.		The student positioned the patient, used correct orientation and used the CT accessories with minor errors	The student positioned the patient, used correct orientation and used the CT accessories with No errors	
2	Protocol/setup	The student failed to set the correct start/end points, set the correct pitch or slice thickness.	The student failed in one of the followings: set the correct start/end points, set the correct pitch or slice thickness.	The student set the correct start/end points, set the correct pitch or slice thickness with minor errors.	The student set the correct start/end points, set the correct pitch or slice thickness with No errors.	
4	Gantry Angulation	The student failed to set/state the gantry angulation.		Angle the gantry with an error margin of 3°-5° (e.g., according to the patient condition/AP diameter)	Angle the gantry with an error margin of 1°-3° (e.g., according to the patient condition/AP diameter)	
5	Centre point	The student failed to identify the center point or center the beam to the theoretical point.		The student identified the center point and centered the beam to the theoretical point with minor errors.	The student identified the center point and centered the beam to the theoretical point with No errors.	
6	Scouts	The student failed to state the scout image required or plan/adjust the scout.		The student stated the scout image required and planed/adjusted the scout with minor errors.	The student stated the scout image required and planed/adjusted the scout with No errors.	
7	Radiation protection	The student failed to use the correct shield, apply ALARA (index 1) or protect themselves		The student used the correct shield, applied ALARA (index 1) or protected themselves with minor errors.	The student used the correct shield, applied ALARA (index 1) or protected themselves with No errors.	
8	Time Management	Accomplish 25% of the exam within 8 minutes	Accomplish 50% of their work within 8 minutes.	Accomplish 75% of their work within 8 minutes.	Accomplish 100% of their work within 8 minutes.	
9	Contrast Media (CM)	The student failed to check for CM requirement, allergy, type, amount or administer the CM.			The student checked for CM requirement, allergy, type, amount or administered the CM with No error.	
10	Breathing technique*	The student failed to use the breathing technique if required.			The student used the breathing technique if required.	
11	Examine the requested body part	The student failed to confirm the affected body part with the patient and examined the affected area.			The student confirmed the affected body part with the patient and examined the affected area.	
12	Landmark	The student failed to selects the landmark correctly.			The student selects the landmark correctly.	
Total Mark						

4.11. Criteria of evaluation of the special radiological examination technique.

Criteria		Score				Mark
		0	1	2	3	
1	Patient position and body part position	The student failed to position or align the patient.		Patient positioned and aligned over/against the IR with minor errors.	Patient positioned correctly with modification if needed and correctly aligned over/against the IR.	
2	Proper radiographic projection	The patient/tube positioned correctly with an error margin of (3°-5° for the tube and 10°-15° for the patient rotation/tilt)	The patient/ tube positioned correctly with an error margin of (2°-3° for the tube and 5°-10° for the patient rotation/tilt)	The patient and tube are positioned perfectly with an error margin of (3°-5° for the patient rotation/tilt).	Explain why the patient needed more/less rotation according to the patient's need	
3	Contrast Media (CM)	The student failed to check for CM requirement, allergy, type, amount or administer the CM.			The student checked for CM requirement, allergy, type, amount or administered the CM with No error.	
4	Patient preparation & room preparation	The student failed to Psychologically prepare the patient, check for fasting, drug usage or prepare the trolley	The student failed in two or more of the followings: Psychologically prepare the patient, check for fasting, drug usage or prepare the trolley	The student failed in one of the followings: Psychologically prepare the patient, check for fasting, drug usage or prepare the trolley	The student psychologically prepared the patient, checked for fasting, drug usage and prepared the trolley with No errors.	
5	Central ray & Centre point	The student failed to angle the X-ray tube or state the central ray/center point required		Angle the tube with an error margin of 3°-5° (e.g., according to the patient condition/AP diameter) and state the central ray/center point required	Angle the tube with an error margin of 1°-3° (e.g., according to the patient condition/AP diameter) and state the central ray/center point required	
6	Proper collimation	The student failed to adjust the collimator, reduce exposure or cut the image.		The student made minor errors in adjusting the collimator with minor cut/overexposure in the image.	The collimator was adjusted perfectly with NO overexposure or cuts.	
7	Radiation protection	The student failed to use the correct shield, apply ALARA (index 1) or protect themselves		The student used the correct shield, applied ALARA (index 1) or protected themselves with minor errors.	The student used the correct shield, applied ALARA (index 1) or protected themselves with No errors.	
8	Time Management	Accomplish 25% of the exam within 5 minutes	Accomplish 50% of their work within minutes.	Accomplish 75% of their work within 5 minutes.	Accomplish 100% of their work within 5 minutes.	
9	Proper FFD	The student failed to choose the correct FFD.			The student chose the correct FFD.	
10	Breathing technique*	The student failed to use the breathing technique if required.			The student used the breathing technique if required.	
11	Examine the requested body part	The student failed to confirm the affected body part with the patient and examined the affected area.			The student confirmed the affected body part with the patient and examined the affected area.	
12	Use R & L marker	The student failed to use a marker and placed it correctly.			The student used a marker and placed it correctly.	
Total Mark						

4.12. Criteria of evaluation the MRI examination technique.

Criteria		Score				Mark
		0	1	2	3	
1	Patient preparation	The student failed to prepare the patient for the exam, did not explain the procedure to the patient and did not take the patient's weight.	The student showed inappropriate patient preparation and inadequate instructions.	The student showed good patient preparation and instructions.	The student showed excellent patient preparation and instructions.	
2	Patient positioning	Incorrect positioning of the patient, incorrect orientation, did not use any immobilization techniques, did not make sure that the wires are touching the patient or not crossing his arms/legs.	The student fails to perform two of the following: positioning of the patient, orientation, use of immobilization techniques, making sure that the wires are touching the patient or not crossing his arms/legs.	The student fails to perform one of the following: positioning of the patient, orientation, use of immobilization techniques, making sure that the wires are touching the patient or not crossing his arms/legs.	The student showed excellent positioning of the patient, orientation, use of immobilization techniques and ensuring that the wires are touching the patient or not crossing his arms/legs.	
3	Handling of MRI machine	Incorrect use of the coil, not offering headphone to the patient, incorrect use of the laser beam and not entering the patient information.	The student fails to perform two of the following: use of the coil, not offering headphone to the patient, use of the laser beam and entering the patient information.	The student fails to perform one of the following: use of the coil, not offering headphone to the patient, use of the laser beam and entering the patient information.	The student showed excellent use of the coil, offering headphone to the patient, use of the laser beam and entering the patient information.	
4	Scan protocol	Incorrect use of the localizer, slice orientation, coverage and failure to optimize the image based on the patient's condition.	The student fails to perform two of the following: use of the localizer, slice orientation, coverage and optimizing the image based on the patient's condition.	The student fails to perform one of the following: use of the localizer, slice orientation, coverage and optimizing the image based on the patient's condition.	The student showed excellent use of the localizer, slice orientation, coverage and optimizing the image based on the patient's condition.	
5	Monitoring	Failure to give the patient the instruction on how to use the alarm in case of emergency, poor knowledge of the physical monitoring techniques, failure to verbally and visually monitor the patient during the exam.	The student fails to perform two of the following: give the patient the instruction on how to use the alarm in case of emergency, poor knowledge of the physical monitoring techniques, verbally and visually monitor the patient during the exam.	The student fails to perform one of the following: give the patient the instruction on how to use the alarm in case of emergency, poor knowledge of the physical monitoring techniques, verbally and visually monitor the patient during the exam.	The student showed excellent skills and knowledge in case of emergency and monitoring the patient during the exam.	
6	Breathing technique*	Incorrect use of respiratory compensation techniques.			Correct use of respiratory compensation techniques.	
7	MRI Safety procedures	Failure to check on the metallic objects, contraindications, touching wires or laying down with the arms and legs are not crossed.			Following the MRI safety procedures.	
8	Contrast Media	Failure to check on contraindications, poor knowledge of the recommended dose and type of contrast media, poor knowledge of the adverse reaction.	The student fails to in two of the following: to check on contraindications, poor knowledge of the recommended dose and type of contrast media, poor knowledge of the adverse reaction.	The student fails to in one of the following: to check on contraindications, poor knowledge of the recommended dose and type of contrast media, poor knowledge of the adverse reaction.	Excellent knowledge on contraindications, the recommended dose, type of contrast media and the adverse reaction.	
9	Time management	Failure to minimize the scan time as possible without affecting the image quality			Excellent use of the procedures to minimize the scan time.	
Total Mark						

4.13. Criteria of evaluation of the NM technique/procedures.

Criteria	Score				Mark
	0	1	2	3	
1 Radio pharmacy	The student failed in participating in generator elution, dose calibration, kit preparation, verifying syringe labelling, wearing gloves or disposable of radioactive/ biological waste.	The student failed in two or more of the followings: participating in generator elution, dose calibration, kit preparation, verifying syringe labelling, wearing gloves or disposable of radioactive/ biological waste.	The student failed in one of the followings: participating in generator elution, dose calibration, kit preparation, verifying syringe labelling, wearing gloves or disposable of radioactive/ biological waste.	The student participated in generator elution, dose calibration, kit preparation, verifying syringe labelling, wearing gloves or disposable of radioactive/ biological waste.	
2 Radiopharmaceutical	The student failed in verifying correct radiopharmaceutical, correct dose or route of administration.			The student verified correct radiopharmaceutical, correct dose or route of administration with No errors.	
3 Clinical imaging skills	The student failed in confirming the proper collimator, perform routine clinical imaging procedures, set parameters for the scan or operate the scanner.	The student failed in two or more of the followings: confirming the proper collimator, perform routine clinical imaging procedures, set parameters for the scan or operate the scanner.	The student failed in one of the followings: confirming the proper collimator, perform routine clinical imaging procedures, set parameters for the scan or operate the scanner.	The student confirmed the proper collimator, perform routine clinical imaging procedures, set parameters for the scan or operate the scanner.	
4 Radiation safety	The student failed in using syringe shields, applying ALARA (index 1), knowing protocols for radioactive spills containment or Maintain radiation protection after radioactivity administration.	The student failed in two or more of the followings: using syringe shields, applying ALARA (index 1), knowing protocols for radioactive spills containment or maintain radiation protection after radioactivity administration.	The student failed in one of the followings: using syringe shields, applying ALARA (index 1), knowing protocols for radioactive spills containment or maintain radiation protection after radioactivity administration	The student used syringe shields, applying ALARA (index 1), knows protocols for radioactive spills containment or maintained radiation protection after radioactivity administration.	
5 Image data evaluation and processing	The student failed in Images evaluation, organization, and processing.			The student evaluated, organized and processed the images.	
6 Quality control	The student failed to show understanding or applying quality controls procedures.			Participate and understand quality controls procedures	
Total Mark					

4.14. Criteria of continuous assessment evaluation.

	Items	Poor (0)	Satisfactory (1)	Good (1.5)	Excellent (2)	Mark
1	Knowledge	The student has limited background regarding the modality, patient care, technique or safety.	The student has modest background regarding the modality, patient care, technique or safety.	The student has good background regarding the modality, patient care, technique or safety.	The student has excellent background regarding the modality, patient care, technique or safety.	
2	Problem-solving	Failed to identify issues/problems arising during the examination.	Aware of the issues/problems arising but did not provide solutions nor trying to solve the issues/problems.	Aware of the issues/problems arising and trying to solve the issues/problems but needs some assistance.	Aware of the issues/problems at an early stage and provided solutions to solve the issues/problems alone.	
3	Perseverance and dedication.	No effort is shown to complete the training.	An effort is shown but quickly lose motivation when the examination is repeated.	Perseveres and repeats examination until satisfactory results are obtained.	High perseverance and motivation.	
4	Work positively and ethically.	The student was typically negative toward tasks and/or others. Does not consider ethics while working on examinations or with others	The student occasionally shows a negative attitude towards tasks, examinations and/or others. Sometimes does not apply ethics while working on patients.	The student was constructive with criticism when working with others. Has a positive attitude towards tasks, examinations and others. Applies values and ethics to all work completed.	The student was consistently applying ethics to all aspects of work. He/she has a positive outlook and creates a positive work environment while working with patients.	
5	Manages time and examination effectively.	Always off task and does not complete the work.	Occasionally off-task regarding accomplishing timeline. Thus, only a portion of the work is completed.	Develops a timeline of the work to be completed and stays focused throughout the process.	Consistently stays focused, prioritizes tasks, recognizes time constraints, and estimates the time to completion and using time effectively.	
6	Independence under supervision.	Always rely on the help of others in performing a particular task/s.	Occasionally show self-reliance in performing some tasks.	Show self-reliance to accomplish most of the given tasks.	Always show self-reliance to accomplish all given tasks	
7	Technical skills	The student is not able to work with the imaging system or PACS (index 8)	The student is familiar with the imaging system and PACS (index 8) but needs more training.	The student is able work with the imaging system and PACS (index 8) with some assistant	The student has excellent skills with both the imaging system and PACS (index 8)	
8	Work Relationship.	He/she a poor relationship with supervisor(s) and colleagues.	A modest relationship with supervisor(s) and colleagues.	A good relationship with supervisor(s) and colleagues.	Has a strong relationship with supervisor(s) and colleagues?	
9	Following department regulations.	The student did not follow the radiology department/hospital regulations (index 11), or the student training has been suspended	The radiology department/hospital has remarks on the student and the student had to be noticed literally or verbally.	The student complied to the radiology department/hospital regulations (index 11) with minor observations.	The student complied to the radiology department/hospital regulations (index 11)	
10	Attendance	The student attends less than 60% of the clinical practice	The student attended 60% of the clinical practice	The student attended 80% of the clinical practice	The student attended 100% of the clinical practice	
Total Mark						

4.15. Criteria of evaluation the ultrasound examination.

Section (A):

Communication with the patient		Score			Max Marks
		0	1	2	2
1	Student appearance and hygiene.	The student failed to appear as a professional radiology specialist. Medical uniform	The student completed most of criteria related to radiology specialist (medical uniform, footwear and student ID)	The student completed ALL of criteria related to radiology specialist (medical uniform, footwear and student ID)	
2	Excellent reading of the request	The student did not read/understand the radiological request carefully or confirm it with the patient.	The student partially missed to understand some of the request details or confirm it with the patient.	The student read the request carefully, understood it and confirmed all the details with the patient.	
3	Identify the clinical information and checking the patient history	The student did not identify and checking the clinical information and medical history.	The student completed most of the requirements (Identify and checking the clinical information and medical history)	The student completed ALL the requirements (Identify and checking the clinical information and medical history)	
4	Explain the procedure and Giving instructions to the patient	The student did not explain the procedure to the patient, Inform the patient about the time required, Reassure the patient, or use clear wording.	The student completed most of the requirements (explain the procedure to the patient, Inform the patient about the time required, Reassure the patient, or use clear wording.)	The student completed ALL the requirements (explain the procedure to the patient, Inform the patient about the time required, Reassure the patient, or use clear wording.)	
5	Patient care during and after examination	The student failed to do Patient care during and after examination	The student partially missed to do Patient care during and after examination	The student do Patient care during and after examination	
Total mark section (A)					

Section (B):

Criteria		Score				Mark
		0	1	2	3	
1	Patient position	The student failed to position the patient.		Patient positioned /Modify the patient position/body part position if required with minor errors.	Patient positioned correctly/Modify the patient position/body part position if required. (With explanation)	
2	Proper transducer selection	Failed to select a proper transducer according to the area under examination			Selection of a proper transducer according to the area under examination	
3	Handling of US machine	The student failed to select focus, field of view, time gain compensation, depth or mode.		The student selected focus, field of view, time gain compensation, depth or mode with minor errors.	The student selected focus, field of view, time gain compensation, depth or mode with <u>No</u> errors.	
4	Apply a coupling gel	The student failed to aware the patient of the gel temperature and using the coupling gel.		Aware the patient of the gel temperature and using the coupling gel with minor errors.	Aware the patient of the gel temperature and using the coupling gel (e.g., at the specific area under examination)	
5	Breathing technique	Failed to apply breathing technique			Apply breathing technique	
6	Probe manipulation	The student failed to locate the affected area, position the probe accurately or correct movement of the probe		Locate the affected area and position the probe accurately, correct movement of the probe and applying pressure if needed with minor errors.	Locate the affected area and position the probe accurately, correct movement of the probe and applying pressure if needed	
7	Proper US image quality.	The student failed to scan the patient with taking multiple projections, show shape, texture or size of the organ.	The student failed in two or more of the followings: scan the patient with taking multiple projections, show shape, texture or size of the organ.	The student failed in one of the followings: scan the patient with taking multiple projections, show shape, texture or size of the organ.	The student scanned the patient with taking multiple projections, showed shape, texture and size of the organ.	
8	Ability to interpret ultrasound findings	Unable to differentiate the sonographic texture between the normal and abnormal for the different body organs			Able to differentiate the sonographic texture between the normal and abnormal for the different body organs	
9	Safety in ultrasound scanning	Failed to minimize the ultrasound exposure time to the patient as possible			Minimizing the ultrasound exposure time to the patient as possible	
10	Time Management	Accomplish 25% of the exam within 6 minutes	Accomplish 50% of their work within 6 minutes.	Accomplish 75% of their work within 6 minutes.	Accomplish 100% of their work within 6 minutes.	
Total Mark section B						
Total Mark						

5. ASSIGNMENT

5.1. Case report

Radiology Case Report

Describe the patient history, clinical course, and imaging for a notable or unusual case. The case may be intended to aid other practitioners'/radiology specialists in the image's technique and interpretation. However, the rarity of cases is meant more to amuse or entertain the reader.

Acceptable Radiology cases:

Clinical Practice 1: Upper and lower extremities, vertebral spine, and bony thorax X-ray cases.

Clinical Practice 2: Chest, abdominal, skull, dental and mammogram X-ray cases.

Advance clinical Practice 1: CT, US, and contrast media cases.

Advance clinical Practice 2: MRI and NM cases.

There is no standard format for writing the radiological report due to the variety of cases; nevertheless, one might consider the following:

- Abstract: a summary of the report gives the reader a brief idea about the case, examination, and results.
- Introduction: should include general information about the patient (age, gender, condition, and detailed case history)². Also, details about previous/follow up examinations and radiological examinations are mandatory in such a report.
- Discussion: description of the patient case and explaining the pathology/trauma with referring to similar cases. In addition, discussing the radiological examination used and the possible treatment/follow up examinations might be helpful.
- Conclusion: sum up the report in case it was a bit lengthy³
- Illustrations/Photos: must be included in the introduction or dissection with captions that explain what the reader is supposed to understand from the photo (e.g., projection, body part, trauma/pathology, etc.).
- References: all the information, photos or medical cases should be referred to their origin in a scientific referencing style.
- 500-word limit - Font Times New Roman - size 12 - double-spaced – Permissible Quotation (plagiarism) 30%.
- Illustrations include captions and references if applicable.
- This assignment is an individual assignment (Not for groups) due on DAY xx/xx/xxxx at 12:00 midnight.
- The assignment is worth 30 Marks.
- Copying or sharing your assignment is not allowed. Copying over 30% of an assignment will deny your right to marking (0 marks).
- Sharing your assignment with others will result in a 30% penalty of the total mark, and a new assignment should be resubmitted within the next 48 hours; otherwise, a mark of zero will be allocated.

A good example can be founded in:

[1] Ciou-Nan Ye, Ming-Chieh Lin, Chien-Lin Huang, (2020). Double penetration wound: A nail gun injury involving the head and heart. *Radiology Case Reports*; 334-338.

[2] Enrico B Arkink, Annelies van der Plas, Ruth W Sneep Monique Reijnierse. (2017). Bilateral trampoline fracture of the proximal tibia in a child. *Radiology Case Reports*; 798-800.

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² Some pieces of information might violate the patient privacy rights such as (name, patient photos, etc.). If necessary for the report the patient declaration must be taken.

³ One must not present new points that have not discussed/mentioned in the report.

5.2. Case study presentation

Radiology Case presentation

Describe the patient history, clinical course, technique, and imaging for a radiology case. The case may aid other practitioners'/radiology specialists in the image's technique and interpretation. However, the rarity of radiological cases is meant more to amuse or entertain the audience but is not mandatory. Only real cases are acceptable.

Acceptable Radiology cases:

Clinical Practice 1: Upper and lower extremities, vertebral spine, and bony thorax X-ray cases.

Clinical Practice 2: Chest, abdominal, skull, dental and mammogram X-ray cases.

Advance clinical Practice 1: CT, US, Fluoroscopy and contrast media cases.

Advance clinical Practice 2: MRI and NM cases.

There is no standard format for making the radiological presentation due to the variety of cases; nevertheless, one might consider the following:

- Introduction: should include general information about the patient (age, gender, condition, and detailed case history)⁴. Also, details about previous/follow up examinations and radiological examinations are mandatory in such presentation.
- Radiological technique: description of the radiological technique used with patient case, any modification needed, patient care, protection etc...
- discussion: description of the patient case and explaining the pathology/trauma with referring to similar cases. In addition, discussing the radiological examination used and the possible treatment/follow up examinations might be helpful.
- Conclusion: sum-up the presentation in case the presentation was a bit lengthy⁵
- Illustrations/Photos: must be included in the introduction or dissection with captions that explain what the reader is supposed to understand from the photo (e.g., projection, body part, trauma/pathology, etc.).
- References: all the information, photos or medical cases should be referred to their origin in a scientific referencing style.
- The permissible Quotation (plagiarism) is 30%.
- Illustrations include captions and references if applicable.
- This is an individual assignment (Not for groups) due on the tenth week on training day.
- The assignment is worth 30 Marks.
- Copying or sharing your assignment is not allowed. Copying over 30% of an assignment will deny your right to marking (0 marks).
- Sharing your assignment with others will result in a 30% penalty of the total mark. A new assignment should be resubmitted within the next 48 hours; otherwise, a mark of zero will be allocated.

⁴ Some pieces of information might violate the patient privacy rights such as (name, patient photos, etc.). If necessary for the report the patient declaration must be taken.

⁵ One must not present new points that have not discussed/mentioned in the report.

6. Safety in Training

The student must adhere to the safety regulations in radiology department in the hospital and apply the radiation protection principles regarding themselves, the patient, and the public.

6.1. Convictions of safety violations

Any violations in safety procedures will be reported to the Training Committees and Radiology Sciences Department and action will be taken accordingly.

Also, exceeding the trainee radiation dose limit will result in terminating the student's training and further training for a period recommended for each case.

7. ADDITIONAL FORMES

7.1. Training consent

The student must fill in the training consent form, sign it and hand in the form to the faculty staff at the beginning of any training period. The consent form can be downloaded from [here](#).

7.2. Changing hospital form

To change hospital, the student must get the three parties' approval, the Clinical training committee, the former hospital, and the new hospital. The form can be download from [here](#), filled by the student and provide copies to all parties.

7.3. Logbook form

All logbook sections should be filled in accurately, along with the student comment on each case. The logbook form can be download from [here](#).

7.4. Logbook evaluation form

The logbook evaluation form should be printed and handed to the hospital along with the evaluation criteria. The student MUST NOT collect the evaluation from the hospital under any circumstances. A faculty member will collect the student evaluation at the end of the semester. The evaluation form can be downloaded from [here](#).

7.5. Violation form

The violations of all kinds are reported to the Training Committee by the academic supervisor or the training hospital. The violations include breaking the training hospital regulations, exceeding the allowed absence limit (25% of the training sessions) without formal excuse, breaking the safety regulations or any other violations might occur. The final decision should be reported to the student, department administration and hospital [here](#).

7.6. Other Forms and Instructions can be found in the appendix

Appendix

الآلية التسجيل في منشأة التدريب

نوع المنشأة

مستشفيات عسكرية

- الهدا العسكري
- مستشفى الأمير منصور
- مستشفى الأمير سلطان

المستندات المطلوبة:

- صورة الهوية
- صورة شخصية (اختياري للطالبات)
- خطاب التدريب و جدول التدريب
- استمارة التدريب (يتم الحصول عليها من ادارة التدريب بالهدا)

- التوجه لإدارة التدريب بالهدا
- اكمال الإجراءات
- الحصول على خطاب توجيه من ادارة التدريب بالهدا

- التوجه لمكتب الأمن للحصول على تصريح دخول (يستغرق بضعة ايام)
- مكتب الأمن إما بالهدا او بمستشفى الأمير منصور (الرجاء التأكد من ادارة التدريب الى أي مكتب تتوجه)

- بعد الحصول على تصريح الدخول يتم التوجه لمسؤول التدريب بقسم الأشعة:
- مستشفى الهدا
- 1. عساف الخثعمي
- 2. مستشفى الامير منصور
- 3. امصلح الغامدي
- 4. مستشفى الأمير سلطان
- 5. اماطر العصيمي

بدء التدريب في متطلبات المقرر

مستشفيات وزارة الصحة

- مستشفى الملك عبد العزيز
- مستشفى الملك فيصل
- مستشفى الأطفال

المستندات المطلوبة:
جدول التدريب

- التوجه لإدارة التدريب بالمستشفى
- اكمال الاجراءات
- الحصول على بطاقة زائر او متدرب

- التوجه لمسؤول التدريب بقسم الأشعة:
- مستشفى الملك عبد العزيز
- 1. عدنان الطلحي
- مستشفى الملك فيصل
- 1. هبه
- مستشفى الأطفال
- 1. سلطان القرشي

بدء التدريب في متطلبات المقرر

- بعض المستشفيات تتطلب وجود TLD يمكن الحصول عليه من ا. محمد الغريبي بشرط الطلاب
- يجب الإلتزام بتعليمات المنشأة الطبية و المظهر المهني
- في حال وجود اي اشكالية يجب التواصل مع مشرف الكلية او مشرف المستشفى



المملكة العربية السعودية
وزارة التعليم
جامعة الطائف
كلية العلوم الطبية التطبيقية
قسم علوم الأشعة

إعلان مهم بخصوص تدريب ما قبل الامتياز

عزيزي الطالب/الطالبة بداية فصل دراسي موفقة بإذن الله.

يرجى من الجميع الالتزام بالتعليمات التالية بخصوص التدريب في مستشفيات وزارة الصحة ومستشفيات القوات المسلحة على حد سواء:

- يحتمل الطالب/ة المسؤولية الكاملة في إنهاء إجراءات التدريب في المستشفى الموزع عليها قبل فترة التدريب بسبعة أيام في المستشفيات العسكرية وفي اول يوم تدريب بمستشفيات وزارة الصحة.
- يجب على الطالب/ة إبلاغ المشرف/ة في حال إنهاء إجراءات التدريب واستلام (بطاقة متدرب / تصريح الدخول).
- في حال بدء فترة التدريب ولم ينه الطالب/ة إجراءات التدريب فعليه يعتبر الطالب/ة غائب/ة.
- غياب عن فترات التدريب سيعرض الطالب/ة للحرمان من المادة.
- يجب على الطالب/ة التواجد في قسم الأشعة بالمستشفى خلال فترة تدريبه سواء صباحية او مساءية.
- يجب على الطالب/ة الالتزام الكامل بما ورد في لائحة التدريب في المستشفى مثل ارتداء زي الممارس الصحي ومراعاة إجراءات منع انتقال العدوى بالمستشفى كما يجب على الطالب/ة إبراز بطاقة متدرب (إن وجد) او البطاقة الجامعية و TLD بشكل دائم (ان وجد).
- يجب على الطالب الاستفادة من جميع الحالات المقررة له/ا في توصيف المقرر خلال التدريب وتسجيل كل الحالات بالتفصيل الدقيق.
- مخالفة أي من النقاط السابقة سيؤثر سلباً على تقييم الطالب/ة.

إقرار:

أقر انا الطالب/ة: بالتعهد بالالتزام بالتعليمات أعلاه خلال فترة التدريب المقررة لي حسب
الجدول في مستشفى: وفترة تدريبي من/...../202..... إلى/...../202......

الاسم:

التوقيع:

الرقم الجامعي:

التاريخ:

*يسلم الإقرار بعد التوقيع لمشرف/ة التدريب المعين من قبل قسم علوم الأشعة حسب جدول المشرفين لكل مستشفى.

الاية التدريب والتقييم بمقررات الممارسة الكلينيكة

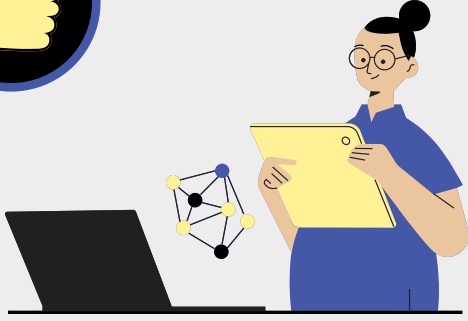
التدريب

يتدرب الطالبة على الأجهزة
والفحوصات الإشعاعية المنصوص
عليها في توصيف المقرر



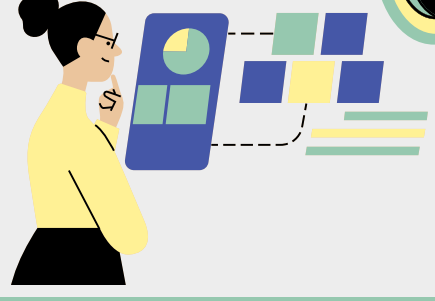
logbook

يقوم الطالب/ة بتسجيل جميع الحالات في
logbook مع الحرص على اضافة تفاصيل
وملاحظات على الحالة/التكنيك
• سيقم من قبل مشرف المستشفى



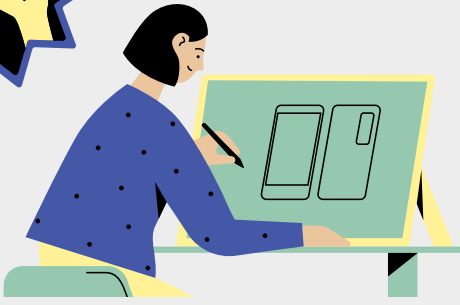
Assignment

يقوم الطالب/ة بتقديم المهام
المطلوبة منه بشكل فردي بعد
الاختبارات النصيفة وفق الشروط و
المعايير الأكاديمية والمعلنة في
كتيب CCAG



المتابعة

سيقوم كل من مشرف الكلية و
مشرف المستشفى بمتابعة تدريب
الطالب طوال فترة التدريب



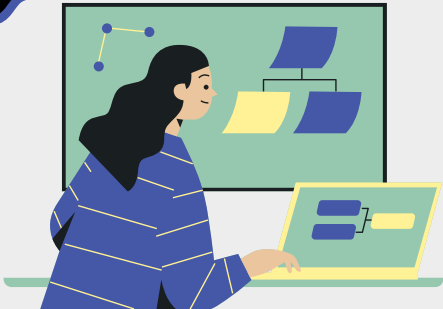
OSPE

سيعد الاختبار العملي النهائي بالكلية وفق
المعايير المعلنة في كتيب CCAG
في حال عدم توفر الجهاز سيعقد اختبار
شفهي



Marks

ترصد جميع الدرجات بنهاية
الفصل الدراسي وتعلن
للمتدربين/ات



نموذج طلب تغيير مركز تدريب – (طلاب/طالبات ما قبل الامتياز)

الرجاء تعبئة كامل البيانات المطلوبة في النموذج أدناه بكل دقة وخط واضح

الموافق:				تاريخ تقديم الطلب: اليوم:	
رقم الجوال	الرقم الجامعي	التوقيع	الاسم	بريد الكتروني	
السلام عليكم ورحمة الله وبركاته سعادة رئيس لجنة التدريب بقسم علوم الأشعة نرجو من سعادتكم الموافقة على تحويل مركز التدريب من الى وذلك بسبب					
وتقبلوا فائق القبول والاحترام					
<u>تعهد وإقرار:</u> اتعهد بإتمام الطلب وعدم طلب أي تحويل آخر خلال فتره التدريب					
الاسم:				التاريخ: 2022/...../.....	
التوقيع:					

تعباً من قبل طالب / طالبة

الموافقة <input type="checkbox"/>		عدم الموافقة <input type="checkbox"/>		الموافقة		لجنة التدريب الاكلينيكي بقسم علوم الأشعة
التوقيع:				الاسم: د. سامح عوض التاريخ: 2022/...../.....		
الموافقة <input type="checkbox"/>		عدم الموافقة <input type="checkbox"/>		اسم المستشفى		موافقة المستشفى المراد التحويل لها
الختم				التوقيع:		
الموافقة <input type="checkbox"/>		عدم الموافقة <input type="checkbox"/>		اسم المستشفى		موافقة المستشفى الحالية
الختم				التوقيع:		
الموافقة <input type="checkbox"/>		عدم الموافقة <input type="checkbox"/>		الاسم:		
التوقيع:				التاريخ: 2022/...../.....		

• تسلّم صورة لقسم علوم الأشعة من قبل الطالب/ة

نموذج مخالفة

		اسم الطالب/ة	
	المستوى الدراسي	الرقم الجامعي	
	حالة الطالب	المقرر الدراسي	
<input type="checkbox"/> قانونية <input type="checkbox"/> غياب <input type="checkbox"/> سلامة <input type="checkbox"/> تعليمات التدريب <input type="checkbox"/> أخرى		نوع المخالفة	
وصف المخالفة وحيثياتها:			
رأي لجنة التدريب:			
قرار لجنة التدريب:			