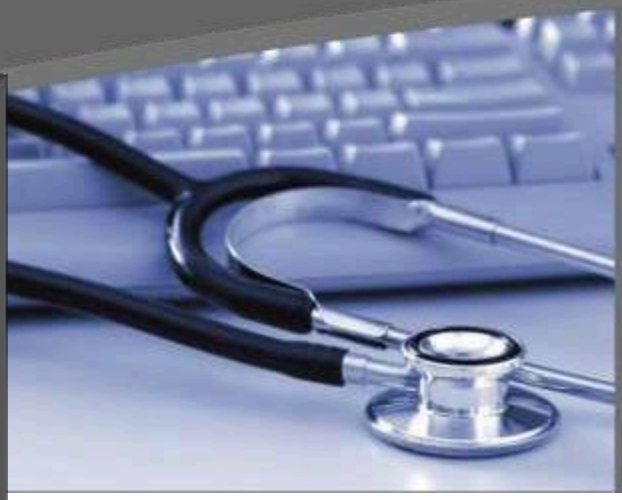
MODERN TECHNICAL EDUCATION SOCIETY

QUALIFICATION PACK - OCCUPATIONAL STANDARDS FOR HEALTHCARE



Contents

What are Occupational Standards (OS)?

OS describe what individuals need to do, know and understand in order to carry out a particular job role or function OS are Performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

Introduction

Qualifications Pack: X-ray Technician

SECTOR SECTOR :- HEALTH

OCCUPATION : Allied Health and Paramedics

REFERENCE ID : : X- ray Technician

HSS/ Q 0701

ALIGNED TO : NCO-2004/3211 .0 100

X-ray Technician: X-ray Technician creates X-ray images of parts of human body to help physicians diagnose and treat various illnesses and injuries as accurately as possible.

Brief Job Description : Individuals at this job need to create X-ray images of parts of the human body using radiographic equipment under the guidance and supervision of Radiologist . They explain medical imaging procedure, prepare X-ray room & patient for procedure, operate & m a i n t a i n X-ray machine, record radiological supplies, prepare report & document under Radiologist's guidance, maintain records and carry out other administrative jobs as needed in the department.

Personal Attributes: This job requires individuals to work in a team and in close collaboration with Radiologist. They must be polite and be able to calm and placate upset individuals. They should be able to remain standing for long periods of time and must have strength to transfer and position patients for scans. They should have t h e capacity to visualize tw o and three -dimensional spatial.

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Qualification Pack for X-Ray Technician

Job Details

Qualifications Pack Code	HSS/ Q 0701		
Job Role	X-ray Technician		
Credits (NSQF)	TBD	Version number	1.0
Sector	Health	Drafted on	19/11/2015
Sub-sector	Allied Health & Paramedics	Last reviewed on	08/04/2016
Occupation	X- Ray Technician	Next review date	07/04/2019
NSQC Clearance on	21/07/2016		

Job Role	X Ray Technician
Role Description	Perform diagnostic imaging examinations such as X-ray images, BMD and Mammography scans under the guidance of a Radiologist. Prepare patient, unit & machine for tests; keep patient records and test recommended along with maintaining equipment. X ray technicians are not permitted to discuss the result of images with any other person. They perform radiological duties in compliance with X- ray department and legal requirements.
NSQF Level	3
Minimum Educational Qualifications	Preferably Class XII, but Class X is also considered in certain situations.
Maximum Educational Qualifications	Not Applicable
Minimum Job Entry Age	18 Years
Training	Not Applicable

Occupational Standards (OS)	Compulsory: HSS/ N 0711: Comprehend conventional radiological needs of patients HSS/ N 0712: Prepare the patient and the room for the conventional radiological procedures HSS/ N 0713: Operate and oversee operation of conventional radiologic equipment HSS/ N 0714: Process X-ray films/ Images HSS/ N 0715: Prepare and document conventional radiological reports HSS/ N 9601: Collate and communicate health information HSS/ N 9602: Ensure availability of medical and diagnostic supplies HSS/ N 9603: Act within the limits of your competence and authority HSS/ N 9606: Maintain a safe, healthy and secure environment HSS/ N 9608: Follow radiation safety guidelines HSS/ N 9609: Follow biomedical waste disposal protocols HSS/ N 9610: Follow infection control policies and procedures HSS/ N 9611: Monitor and assure quality HSS/ N 9614: Recognize healthy body systems Optional: N.A. Note: All standards, procedures and equipment should comply with Atomic Energy Regulatory Board (AERB) regulations and rules.
Performance Criteria	As described in the relevant OS units

Definitions

Key Words / Terms	Descriptions
Core Skills/Generic Skills	Core Skills or Generic Skills are a group of skills that are essential to learning and working in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Computed Tomography Scan	A scan that provides cross-sectional views (slices) of the body. A computed tomography (CT) scan is an imaging method that uses x-rays to create pictures of cross-sections of the body.
Conventional Radiology	Conventional radiography uses an X-ray emitter and a detector image (or radiographic film, now sensors connected to a computer) which is placed between the body segment studied.
Description	bDe scription gives a short summary of the unit content. This would helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Fluoroscopy	Examination of the tissues and deep structures of the body by x-ray, using the fluoroscope or video fluoroscopy
Function	Function is an activity necessary for achieving key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
Mammography	The process of using low-energy X-rays (usually around 30 kVp) to examine the human breast, which is used as a diagnostic and screening tool for early detection of breast cancer.
National Occupational Standards (NOS)	NOS are Occupational Standards which apply uniquely in the Indian context.
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Organizational Context	Organizational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.

Qualifications Pack(QP)	Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Scope	Scope is the set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on the quality of performance required.
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-functions	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Sub-Sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Ultrasound	Ultrasound is a high-frequency sound wave, which reflects off body structures. A computer receives these reflected waves and uses them to create a picture. Ultrasound scan is a well-known for its use in obstetrics & gynecology and is also used to check circulation and examine the heart.
Unit Code	Unit Code is a unique identifier for an OS unit, which can be denoted with either an 'O' or an 'N'.
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Vertical	Verticals may exist within a sub-sector representing different domain areas or the client industries served by the industry.
X-Ray	A scan that looks through tissues to examine bones, cavities and foreign objects. X-rays are a type of electromagnetic radiation, just like visible light. An x-ray machine sends individual x-ray particles through the body. The images are recor ded on a computer or film. Structures that are dense (such as bone) will block most of the x- ray particles, and will appear white Metal and contrast media (special dye used to highlight areas of the body) will also appear white Structures containing air will be black, and muscle, fat, and fluid will appear as shades of grey

Acronyms

Keywords /Terms	Description
HSSC	Health Sector Skill Council
MHRD	Ministry of Human Resource Development
MRI	Magnetic Resonance Imaging
NOS	National Occupational Standard(s)
NVEQF	National Vocational Education Qualifications Framework
NVQF	National Vocational Qualifications Framework
OS	Occupational Standard(s)
QP	Qualifications Pack
SSC	Sector Skills Council

Comprehend conventional radiological needs of patients

National Occupational Standard

Unit Code	HSS/ N 0711 This OS unit is about the knowledge, understanding and skills required
Description	by an X- ray Technician to carry out conventional radiological procedures as per the need of the patient or a request by physician/treating doctor.
Scope	This unit/task covers the following: Reading requests or instructions from physicians/ health service providers, taking medical history of the patient, determining needs as per the recommendations for x-ray type , BMD or Mammography

Performance Criteria (PC) w.r.t. the Scope

Element	Performance Criteria
Patient medical history and interpreting conventional radiological needs	PC1. Explain the subdivisions of anatomy, terms of location and position, fundamental planes, vertebrate structure of man, organisation of the body cells and tissues including: a. The basics of the cardio vascular system (structure and functions of various parts of the heart, arterial and venous system, brief account on common cardiovascular disorders) b. The basics of the respiratory system (various parts of respiratory system and their functions, physiology of respiration) c. The basics of the digestive system (names and various parts of digestive system-liver, spleen, gall bladder, pancreas, buccal cavity, pharynx, oesophagus, stomach, intestine etc.-physiology of digestion and absorption) d. The basics of the urinary system (various parts of urinary system and its function-structure and function of kidneys-physiology of urine formation - pathophysiology of renal disease and oedema) e. The basics of the reproductive system (physiology and anatomy of male & female reproductive system-prostate & uterus & ovaries etc.) f. The basics of the musculoskeletal system (classification of bones & joints, structure of skeleton –structure of skeletal muscle – physiology of muscle contraction) g. The basics of the nervous system (various parts of nervous system-brain and its parts, functions of nervous system - spinal cord & nerves) h. The basics of the ear, nose, throat and eye (elementary knowledge of structure and functions of organs of taste, smell, hearing, vision) The basics of the endocrine system (endocrine glands , hormones and functions-thyroid, parathyroid, suprarenal, pituitary, pituitary and pituitary and thymus)

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	l. The basics of the haemopoietic and lymphatic system (name of the blood vessels & lymph gland locations) m. The basics of the surface anatomy & surface markings of human body n. Common cancers and special radiological techniques for diagnosis and The basics of the endocrine system (endocrine glands , hormones and functions-thyroid, parathyroid, suprarenal, pituitary, pituitary and thymus) o. The basics of the haemopoietic and lymphatic system (name of the blood vessels & lymph gland locations) p. The basics of the surface anatomy & surface markings of human body q. Common cancers and special radiological techniques for diagnosis and management of these e.g. Mammography for breast cancer PC2. Explain the pathology of various systems: cardiovascular system, respiratory asynsdt em, central nervous system, musculoskeletal system, GIT, GUT reproductive system PC3. Explain the pathology of radiation injury and malignancies PC4. Understand specific requests of physicians with respect to the scans required PC5. Take medical history of the patient and document it as required PC6. Understand and interpret instructions and requirements documented by the physician in the patient's prescription PC7. Determine the radiological diagnostic tests required for the patient based on the physician's prescription and the medical history
Knowledge and Un derstanding (K)	
A. Organisational Context (Knowledge of the Healthcare provider/ Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. Internal procedures and policies with respect to radiological equipment and scans KA2. Internal procedures and policies on safety precautions to be taken when operating radiological equipment KKAA34.. MAdamndinaitsotrrayt riveeg uploaltiicoienss aonnd s adfisectiyp alinndar ryi spkr radiological equipment KA5. Routine basic maintenance procedures for radiological equipment KA6. How to contact vendors and suppliers for maintenance and repair of radiological equipment KA7. How to order new supplies based on the inventory policy of the organisation(Clinic, Hospital, Diagnostic centre) with regards to radiological supplies, contrast agents and other materials used in scans KA8.Documentation required in context of medical history of patient, procedures undertaking and reports KA9. Medico-legal considerations for Radiology Technicians including clinical and ethical responsibilities, definitions of misconduct and malpractice and handling female patients KA10. Penalties for misconduct and malpractice

B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. Healthy body systems Basic principles and practical aspects of x-ray machines KB2. Howtotakemedicalhistoryofthepatientanddocumentitasrequired KB3. Howtointerpretinstructionsandrequirementsdocumentedby the physician KB4. in the patient's prescription KB5. Howtodeterminetheradiologicaldiagnostictestsrequiredforthe patient basedonthephysician'sprescriptionandthemedicalhistory
Skills (S)	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. Write short notes to co-workers and clerical staff to compile information about particular patients, describe unusual pathologies or ask for on-site reference material SA2. Write brief observations about pathologies that may affect diagnoses on patients' charts as directed by radiologist SA3. Write descriptions of accidents and incidents on reporting forms when something unusual occurs during patient exams or scanning procedures SA4. Write memos to advise, inform or direct staff working in other hospital or clinic departments or units SA5. Complete patients' medical history forms by entering the patients' names, treatments received to date and current medical conditions
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA6. Read scan instructions in notes attached to patients' files SA7. Read communications about scheduling, training and updates to internal procedures from co-workers, supervisors or hospital administrators SA8. Read protocol updates and hospital policy changes SA9. Read and follow all specified procedures in the multi-page treatment SA10. prescriptions prepared by referring physicians, radiologist Review protocols for scanning and identifying non-routine or atypical pathologies in procedure manuals SA11. Read reports of varying lengths completed by physicians, hospital or clinic administrators and supervising technologists SA12. Read user manuals for various types of radiological equipment in case of faults malfunctioning of scanners or imaging computers
	Oral Communication (Listening and Speaking skills)

HSS/ N 0711: Comprehend conventional radiological needs of patients

	The user/individual on the job needs to know and understand how to: SA13. Speak to patients to explain protocols for procedures or examinations, obtain information about the patient's status SA14. Speak with reception and clerical staff to determine and confirm the number of appointments for the day, request patient information from files and loggings of appointments for patients requiring additional testing or treatment SA15. Discuss scheduling, treatment room assignments and workload responsibilities with employees and co-workers SA16. Order supplies such as contrast media and radioactive pharmaceuticals from suppliers and hospital dispensaries SA17. Discuss procedural suggestions, equipment malfunctions and personnel problems with the senior technologists, unit or department supervisors or administrative staff SA18. Comfort patients who may be frightened or upset during scanning procedures SA19. Discuss patients' status with nurses, social workers, dieticians or other members of the extended health care team
B. Professional Skills	Decision Making
	The user/individual on the job needs to know and understand how to: SB1. Choose the correct film size for the sizes of the areas to be scanned SB2. Decide on a course of action when physicians have requested types of radiographs or scans for patients who cannot be positioned in a typical way SB3. Decide which patients will be processed first when they receive multiple requisitions at the same time, or during emergencies SB4. Decide if examinations can be completed under contraindicative or complicating circumstances
	Plan and Organise
	The user/individual on the job needs to know and understand: SBB56.How to determine the order and priority of work tasks subject to confirmation or approval from supervisors SB7. How to integrate work plans with those of the extended health care teams How to schedule daily work priorities based on the demands of the clinic, laboratory or hospital How to schedule patient-load based on emergency or appointment priority SB8.
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB9. Comfort patients who may be frightened or upset during scanning procedures SB10. Liaise with members of the health care team to ensure the needs of the patient are met

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	Problem Solving
	The user/individual on the job needs to know and understand how to: SB11. Indicate important scanning parameters on x-rays or scanned images, such as appropriate spatial or directional indicators when these have been neglected earlier in the process SB12. Recommend alternate scan types/ positions and discuss these with the radiologist when the scan recommended by the physician is not possible or is difficult for the patient SB13. Re-schedule appointments when patients arriving for exams are late or have not taken the necessary pre-appointment measures such as fasting or refraining from taking interfering medications SB14. Troubleshoot radiological equipment when a minor fault occurs
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB15. Analyse the prescription of the patient and decide on the best position to take the recommended scan SB16. Analyse the scan images to determine quality and clarity SB17. Analyse the inventory of supplies to decide when to place an order to replenish these
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB18. Make preliminary judgements about the seriousness of patients' injuries SB19. Evaluate the quality of radiographs, digital images and scans

NOS Version Control

NOS Code	HSS/ N 0711		
Credits (NSQF)	TBD	Version number	1.0
Industry	Health	Drafted on	19/11/2015
Industry Sub-sector	Allied Health and Paramedics	Last reviewed on	08/04/2016
Occupation	X Ray Technician	Next review Date	07/04/2019

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Overview

This Occupational Standard describes the knowledge, understanding and skills required of an X-ray Technician to prepare the patient and the room for carrying out conventional radiological procedure. This includes positioning the patient correctly and taking safety precautions.

HSS/ N 0712: Prepare the patient and the room for Conventional Radiological procedure

National Occupational Standard

Unit Code	HSS/ N 0712
Unit Title (Task)	Prepare the patient and the room for the procedure
Description	This OS unit is about preparing the room and equipment for conventional radiological procedures and positioning the patient according to the prescription This unit/task covers the following:
Scope	Setting up the equipment to be used, ensuring safety precautions to protect self, patients, staff and others from exposure to radiation, positioning of the patient correctly.

Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Setting up the equipment for images & ensuring safety from radiation to self, coworkers etc.	To be competent, the user/individual on the job must be able to: PC1. Prepare the room, apparatus and instruments for conventional radiological procedures like X-ray, BMD or Mammography PC2. Set up the machine for the desired procedure PC3. Position the patient correctly for an x-ray in the following positions: a.Erect b. Sitting c. Supine d. Prone e. Lateral f. Oblique g. Decubitus PC4. Explain relative positions of x-ray tube and patient and the relevant exposure factors related to these PC5. Explain the use of accessories such as Radiographic cones, grid and positioning PC6. aids Explain the anatomic and physiological basis of the procedure to be undertaken PC7. Explain the radiographic appearances of both normal and common abnormal conditions in order to ensure application of the appropriate radiographic technique PC8. Apply modifications in positioning technique for various disabilities and types of subject PC9. Explain the principles of radiation physics detection and measurement PC10. Explain the biological effects of radiation PC11. Explain the principles of radiation protection: a. Maximum permissible exposure concept b. Annual dose equivalent limits (ADEL) ALARA concept International recommendations and current code of practice for the protection of persons against ionising radiation from medical and dental use

HSS/N 0712: Prepare the patient and the room for Conventional Radiological procedure

	PC12. Explain the use of protective materials: a. Lead b. Lead – impregnated substances c. Building materials d. e. Concept of barriers f. Lead equivalents and variations Design of x-ray tubes related to protection. g. Structural shielding design (work-load, use factor, occupancy factor, distance PC13. Explain the instruments of radiation protection, use of gonad shield and practical methods for reducing radiation dose to the patient PC14. Ensure protection of self, patients, departmental staff and public from radiation through use of protection instruments and monitoring personnel and the work area
Knowledge and Understanding (K)	
A. Organisational Context (Knowledge of the Healthcare provider/ Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. Internal procedures and policies with respect to radiological equipment KA2. aInntde rsncaaln psrocedures and policies on safety precautions to be taken when operating radiological equipment KA3. Administrative policies and disciplinary procedures KA4. Mandatory regulations onsafetyandriskmitigationwhenoperating radiological equipment KA5. Routine basic maintenance procedures for radiological equipment KA6. How to contact vendors and suppliers for maintenance and repair of radiological equipment KA7. How to order new supplies based on the inventory policy of the organisation (Clinic, Hospital, Diagnostic centre) with regards to radiological supplies, contrast agents and other materials used in scans KA8. Documentation required of medical history of patient, procedures undertaken and reports KA9. Medico-legal considerations for Radiology Technicians including clinical and ethical responsibilities, definitions of misconduct and malpractice and handling female patients KA10. Penalties for misconduct and malpractice
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. Various positioning techniques for carrying out conventional radiologic procedures : a. Erect b. Sitting c. Supine d. Prone e. Lateral f. Decubitus etc.

HSS/N 0712: Prepare the patient and the room for Conventional Radiological procedure

	KB2. The supplies and materials required for taking an X-ray KB3. and X- rtaspoce arna te radiographic apparatus required for taking KB4. How to protect self, patients, departmental staff and public from radiation exposure through use of protection instruments and monitoring personnel and the work area
Skills (S)	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. Write short notes to co-workers and clerical staff to compile information about particular patients, describe unusual pathologies or ask for on-site reference material SA2. Write brief observations about pathologies that may affect diagnoses on patients' charts as directed by radiologist SA3. Write detailed notes about scans done SA4. Write descriptions of accidents and incidents on reporting forms when something unusual occurs during patient exams or scanning procedures SA5. Write memos to advise, inform or direct staff working in other hospital or clinic departments or units SA6. Complete patients' medical history forms by entering the patients' names, treatments received to date and current medical conditions
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA7. Read scan instructions in notes attached to patients' files SAA89.. Read communications about scheduling, training and updates to internal procedures from co-workers, supervisors or hospital administrators Read protocol updates and hospital policy changes SA10. Read and follow all specified procedures in the multi-page treatment prescriptions prepared by referring physicians SA11. Review protocols for scanning and identifying non-routine or atypical pathologies in procedure manuals SA12. Read reports of varying lengths completed by physicians, hospital or clinic administrators and supervising technologists SA13. Read user manuals for various types of radiological equipment when troubleshooting faults with scanners or imaging computers
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA14. Speak to patients to explain protocols for procedures or examinations, obtain information about the patient's status and discuss current diagnoses and treatment options

HSS/N 0712: Prepare the patient and the room for Conventional Radiological procedure

	SA15. Speak with reception and clerical staff to determine and confirm the number of appointments for the day, request patient information from files and loggings of appointments for patients requiring additional testing or treatment SA16. Discuss scheduling, treatment room assignments and workload responsibilities with employees and co-workers SA17. Discuss procedural suggestions, equipment malfunctions and personnel problems with the senior technologists, unit or department supervisors or administrative staff SA18. Comfort patients who may be frightened or upset during scanning procedures SA19. Discuss patients' status with nurses, social workers, dieticians or other members of the extended health care team
B. Professional Skills	Decision Making
	The user/individual on the job needs to know and understand how to: SB1. Decide the supplies and materials required for the procedure SB2. Choose the correct film size for the sizes of the areas to be scanned SB3. Decide on a course of action when physicians have requested types of radiographs or scans for patients who cannot be positioned in a typical way SB4. Decide which patients will be processed first when they receive multiple requisitions at the same time, or during emergencies SB5. Decide if examinations can be completed under contraindicative or complicating circumstances
	Plan and Organise
	The user/individual on the job needs to know and understand: SB6. How to determine the order and priority of work tasks subject to confirmation or approval from supervisors SB7. How to integrate work plans with those of the extended health care teams SB8. How to schedule daily work priorities based on the demands of the clinic, laboratory or hospital SB9. How to schedule patient-load based on emergency or appointment priority
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB10. Comfort patients who may be frightened or upset during scanning procedures SB11. Liaise with members of the extended health care team to ensure the needs of the patient are taken care of
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB12. Indicate important scanning parameters on x-rays or scanned images, such as appropriate spatial or directional indicators when these have been neglected earlier in the process

HSS/N 0712: Prepare the patient and the room for Conventional Radiological procedure

	SB13. Recommend alternate scan types/ positions and discuss these with the radiologist when the scan recommended by the physician is not possible or is difficult for the patient SB14. Re-schedule appointments when patients arriving for exams are late or have not taken the necessary pre-appointment measures such as fasting or refraining from taking interfering medications SB15. Troubleshoot radiological equipment when a minor fault occurs
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB16. Analyse the prescription of the patient and decide on the best position to take the recommended scan SB17. Analyse the scan images to determine quality and clarity SB18. Analyse the inventory of supplies to decide when to place an order to replenish these
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB19. Make preliminary judgements about the seriousness of patients' injuries SB20. Evaluate the quality of radiographs, digital images and scans in terms of colour and contrast

NOS Version Control

NOS Code	HSS/ N 0712		
Credits (NSQF)	TBD	Version number	1.0
Industry	Health	Drafted on	19/11/2015
Industry Sub-sector	Allied Health and Paramedics X ray	Last reviewed on	08/04/2016
Occupation	Technician	Next review date	07/04/2019

MODERN TECHNICAL EDUCATION SOCIETY

Overview

This Occupational Standard describes the knowledge, understanding and skills required of an X-ray Technician to operate and oversee operation of conventional radiological equipment to perform scans prescribed for patients.

HSS/ N 0713: Operate and oversee operation of conventional radiological equipment

A. Organisational Context (Knowledge of the Healthcare provider/ Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. Internal procedures and policies with respect to radiological equipment and scans KA2. Internal procedures and policies on safety precautions to be taken when operating radiological equipment KA3. Administrative policies and disciplinary procedures KA4. Mandatory regulations on safety and risk mitigation when operating radiological equipment KA5. Routine basic maintenance procedures for radiological equipment KA6. How to contact vendors and suppliers for maintenance and repair of radiological equipment KA7. How to order new supplies based on the inventory policy of the organisation (Clinic, Hospital, Diagnostic centre) with regards to radiological supplies, contrast agents and other materials used in scans KA8. Documentation required of medical history of patient, procedures undertaken and reports KA9. Medico-legal considerations for Radiology Technicians including clinical and ethical responsibilities, definitions of misconduct and malpractice and handling female patients KA10. Penalties for misconduct and malpractice
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. The basic principles essential for operation of an X-ray machine: a. X-Ray and related equipment b. Main electric supply and distribution c. Diagnostic X-Ray circuits/Exposure timers/AEC etc. d. Specialized X-Ray generators - high frequency/shared e. f. Cassettes/construction/types/care Grid/construction/types/uses Intensifying screens/construction/type/care/uses h. Film/construction/type i. j. kD. ila. gnostic X-Ray tubes (past/present/future) Tube rating and tube supports X-Ray tables/bucky/bucky stands X-Ray films and film processing m. Image characteristics n. Quality assurance o. Presentation and viewing of radiographs KB2. The pathology of various systems: cardiovascular system, respiratory system, central nervous system, musculoskeletal system, gastro-intestinal tract and reproductive system KB3. Basic principles and practical aspects of x-ray machines
Skills (S)	
A. Core Skills/	Writing Skills

MODERN TECHNICAL EDUCATION SOCIETY

HSS/ N 0713: Operate and oversee operation of conventional radiological equipment

National Occupational Standard

Unit UnCito de	HSS/ N 0713
Title	Operate and oversee operation of radiologic equipment
Description	
Scope	This OS unit is about operating and overseeing operation of conventional radiological equipment to perform the scans as per patients prescription This unit/task covers the following: Selecting and performing basic views and conventional studies using appropriate radiographic parameters and equipment, selecting and performing contrast studies using appropriate radiographic parameters and equipment under guidance of radiologist, carrying out routine procedures for troubleshooting and maintenance of imaging and processing systems.

Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Performing basic views and conventional studies using appropriate radiographic parameters and equipment & troubleshooting and maintenance of imaging and processing systems.	To be competent, the user/individual on the job must be able to: PC1. Describe the construction and operation of general radiographic equipment PC2. Reliably perform all non-contrast plain Radiography, and contrast radiography in special situations PC3. Apply quality control procedures for all radiologic equipment PC4. Control and manipulate parameters associated with exposure and processing to produce a required image of desirable quality PC5. Practice the procedures employed in producing a radiographic image PC6. Describe methods of measuring exposure and doses of radiographic beams PC7. Discuss and apply radiation protection principles and codes of practice PC8. Demonstrate an understanding of processing of images in digital form and be familiar with recent advances in imaging PC9. Set up the X-ray machine for the procedure PC10. Carry out routine procedures associated with maintenance of imaging and processing systems PC11. Ensure protection of patients, departmental staff and public from radiation through use of protection instruments and monitoring personnel and the work area

Knowledge and Understanding (K)

HSS/ N 0713: Operate and oversee operation of conventional radiological equipment

Generic Skills	The user/ individual on the job needs to know and understand how to: SA1. Write short notes to co-workers and clerical staff to compile information about particular patients, describe unusual pathologies or ask for on-site reference material SA2. Write brief observations about pathologies that may affect diagnoses on patients' charts as directed by radiologist SA3. Write detailed notes about scans done SA4. Write descriptions of accidents and incidents on reporting forms when something unusual occurs during patient exams or scanning procedures SA5. Write memos to advise, inform or direct staff working in other hospital or clinic departments or units SA6. Complete patients' medical history forms by entering the patients' names, treatments received to date and current medical conditions
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA7. Read scan instructions in notes attached to patients' files SA8. Read communications about scheduling, training and updates to internal procedures from co-workers, supervisors or hospital administrators SA9. Read protocol updates and hospital policy changes SA10. Read and follow all specified procedures in the multi-page treatment prescriptions prepared by referring physicians SA11. Review protocols for scanning and identifying non-routine or atypical pathologies in procedure manuals SA12. Read reports of varying lengths completed by physicians, hospital or clinic administrators and supervising technologists SA13. Read user manuals for various types of radiological equipment when troubleshooting faults with scanners or imaging computers
	Oral Communication (Listening and Speaking skills)

HSS/ N 0713: Operate and oversee operation of conventional radiological equipment

	The user/individual on the job needs to know and understand how to: SA14. Speak to patients to explain protocols for procedures or examinations, obtain information about the patient's status and discuss current diagnoses and treatment options SA15. Speak with reception and clerical staff to determine and confirm the number of appointments for the day, request patient information from files and loggings of appointments for patients requiring additional testing or treatment SA16. Discuss scheduling, treatment room assignments and workload responsibilities with employees and co-workers SA17. Discuss procedural suggestions, equipment malfunctions and personnel problems with the senior technologists, unit or department supervisors or administrative staff SA18. Comfort patients who may be frightened or upset during scanning procedures SA19. Discuss patients' status with nurses, social workers, dieticians or other members of the extended health care team
B. Professional Skills	Decision Making
	The user/individual on the job needs to know and understand how to: SB1. Choose the correct film size for the sizes of the areas to be scanned SB2. Decide on a course of action when physicians have requested types of radiographs or scans for patients who cannot be positioned in a typical way SB3. Decide which patients will be processed first when they receive multiple requisitions at the same time, or during emergencies SB4. Decide if examinations can be completed under contraindicative or complicating circumstances
	Plan and Organise

HSS/ N 0713: Operate and oversee operation of conventional radiological equipment

	The user/individual on the job needs to know and understand: SB5. How to determine the order and priority of work tasks subject to confirmation or approval from supervisors SB6. How to integrate work plans with those of the extended health care team SB7.How to schedule daily work priorities based on the demands of the clinic, laboratory or hospital SB8. How to schedule patient-load based on emergency or appointment priority
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB9. Comfort patients who may be frightened or upset during scanning procedures SB10. Liaise with members of the extended health care team to ensure the needs of the patient are met
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB11. Indicate important scanning parameters on x-rays or scanned images, such as appropriate spatial or directional indicators when these have been neglected earlier in the process SB12. Recommend alternate scan types/ positions and discuss these with the radiologist when the scan recommended by the physician is not possible or is difficult for the patient SB13. Re-schedule appointments when patients arriving for exams are late or have not taken the necessary pre-appointment measures such as fasting or refraining from taking interfering medications SB14. Troubleshoot radiological equipment when a minor fault occurs
	Analytical Thinking

HSS/ N 0713: Operate and oversee operation of conventional radiological equipment

	The user/individual on the job needs to know and understand how to: SB15. Analyse the prescription of the patient and decide on the best position to take the recommended scan SB16. Analyse the scan images to determine quality and clarity SB17. Analyse the inventory of supplies to decide when to place an order to replenish these
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB18. Make preliminary judgements about the seriousness of patients' injuries SB19. Evaluate the quality of radiographs, digital images and scans

NOS Version Control

NOS Code	HSS/ N 0713		
Credits(NSQF)	TBD	Version number	1.0
Industry	Health	Drafted on	12/05/2013
Industry Sub-sector	Allied Health and Paramedics	Last reviewed on	19/11/2015
Occupation	X Ray Technician	Next review date	19/11/2017

MODERN TECHNICAL EDUCATION SOCIETY

Overview

This Occupational Standard describes the knowledge, understanding and skills required of an X- ray Technician to process X-ray films/ Images

HSS/ N 0714: Process X-ray films/ Images

National Occupational Standard

Unit Code	HSS/ N 0714
Unit Title (Task)	Process radiographic images
Description	This OS unit is about processing of X-ray films/ Images
Scope	This unit/task covers the following: Processing X-ray films/ Images & Carrying out quality control tests on images obtained

Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Processing X-ray films & carry out quality control tests on images obtained	To be competent, the user/individual on the job must be able to: PC1. Explain the principles of conventional radiographic imaging PC2. Apply knowledge of conventional radiographic imaging to the production of radiographs and the assessment of image quality PC3. Understand the construction and operation of image processing equipment PC4. Control and manipulate parameters associated with exposure and processing to produce a required image of desirable quality PC5. Perform X-ray film / image processing techniques (including dark room techniques) PC6. Explain and implement the fundamentals, concepts and applications of processing of images in digital form using computer based systems PC7. Carry out quality control for automatic film processing, evaluate and act on results

Knowledge and Understanding (K)	
A. Organisational Context (Knowledge of the Healthcare provider/ Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. Internal procedures and policies with respect to radiological equipment and scans KA2. Internal procedures and policies on safety precautions to be taken when operating conventional radiological equipment KA3. Administrative policies and disciplinary procedures KA4. Mandatory regulations on safety and risk mitigation when operating KA5. Rraoduiotilnoeg ibcaasl iecq muiapinmteenntance procedures for radiological equipmer KA6. How to contact vendors and suppliers for maintenance and repair of radiological equipment KA7. Inventory policy of the organisation with regard to radiological supplies, contrast agents and other materials used in scans How to order new supplies KA8. Documentation required of medical history of patient, procedures undertaken and reports KA9. KA10. Medico-legal considerations for Radiology Technicians including clinical and

HSS/ N0714: Process X-ray films/ Images

	ethical responsibilities, definitions of misconduct and malpractice and handling female patients KA11. Penalties for misconduct and malpractice
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. The equipment for processing X-ray images: a. X-ray Films and X-ray cassettes b. Intensifying screens c. X-ray films types structure & quality – choosing films for different studies d. Dry & wet processing e. film processing methods - manual and automatic processing of conventional & modern images f. types & maintenance of processing rooms and image processing equipment g. systems advantages & disadvantages of day light systems h. Typical processing faults i. j. Production of best quality images in glossy prints and paper prints etc. Uses of intensifying screen, fluorescence and structure of intensifying screens KB2. Functions of equipment used for film processing: a. Functions of various components b. Film roller transport - transport time, film feed system, c. Importance and relation to temp, fixed and variable time cycles. d. Care and maintenance (cleaning routine and methods of cleaning)

HSS/ N0714: Process X-ray films/ Images

KB3. Functions and fundamentals of a Dark Room
- a. Setting up the processing area
- b. Dark room design, construction, illumination, entrance safe lighting - types
- c. Storage, shelving of films
- d. Cleaning and maintenance

KB4. Techniques and principles of Film Processing
- a. Principles of Acidity, alkalinity, pH, the processing cycle, development, developer solution
- b. Principles of Fixing, fixer solution, washing, drying replenishment, checking and adjusting
- c. Replenishment rates, manual and automatic processing
- d. Silver recovery
- e. Auto and manual chemicals

KB5. Fundamentals of X-Ray film and Image processing
- a. Composition of single and double coated radiographic films, structure of emulsion, film characteristics (speed, base + fog, gamma, latitude)
- b. Effect of grain size on film response to exposure, interpretation of characteristics curve
- c. Latent image formation ; process of film developing (composition of fixer, developer and other processing solution)
- d. Common errors and faults while processing (densitometry), automatic processing (processing cycle), developer replenishment, silver recovery and economics
- e. Image intensifiers and cassettes (structure and function)
- f. Types of image intensifiers and relative advantage
- g. Loading and unloading of cassettes and their care/maintenance
- h. Effects of kV and mA on variation of emitted radiation intensity, determination of relative speeds, film contrast, film screen contact
- i. Film storage, handling

KB6. Factors affecting Image Quality
- a. Meaning of radiographic image contrast, density, resolution, sharpness, magnification and distortion of image, noise and blur
- b. Radiographic illuminators and viewing conditions, visual acuity and resolution
- c. Quality assurance of the related equipment and its benefits with respect to visual assessment

HSS/ N 0714: Process X-ray films/ Images

Skills (S)	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. Write short notes to co-workers and clerical staff to compile information about particular patients, describe unusual pathologies or ask for on-site reference material SA2. Write brief observations about pathologies that may affect diagnoses on patients' charts as directed by radiologist SA3. Write descriptions of accidents and incidents on reporting forms when something unusual occurs during patient exams or scanning procedures SA4. Write memos to advise, inform or direct staff working in other hospital or clinic departments or units SA5. Complete patients' medical history forms by entering the patients' names, treatments received to date and current medical conditions
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA6. Read scan instructions in notes attached to patients' files SA7. Read communications about scheduling, training and updates to internal procedures from co-workers, supervisors or hospital administrators SA8. Read protocol updates and hospital policy changes SAA910.Read and follow all specified procedures in the multi-page treatment prescriptions prepared by referring physicians Review protocols for scanning and identifying non-routine or atypical pathologies in procedure manuals SA11. Read reports of varying lengths completed by physicians, hospital or clinic administrators and supervising technologists SA12. Read user manuals for various types of radiological equipment when troubleshooting faults with scanners or imaging computers

HSS/ N0714: Process X-ray films/ Images

	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA13. Speak to patients to explain protocols for procedures or examinations, obtain information about the patient's status and discuss current diagnoses and treatment options SA14. Speak with reception and clerical staff to determine and confirm the number of appointments for the day, request patient information from files and loggings of appointments for patients requiring additional testing or treatment SA15. Discuss scheduling, treatment room assignments and workload responsibilities with employees and co-workers SA16. Order supplies such as contrast media and radioactive pharmaceuticals from suppliers and hospital dispensaries SA17. Discuss procedural suggestions, equipment malfunctions and personnel problems with the senior technologists, unit or department supervisors or administrative staff SA18. Comfort patients who may be frightened or upset during scanning procedures SA19. Discuss patients' status with nurses, social workers, dieticians or other members of the extended health care team
B. Professional Skills	Decision Making
	The user/individual on the job needs to know and understand how to: SB1. Decide the supplies and materials required for the procedure SB2. Choose the correct film size for the sizes of the areas to be scanned SB3. Decide on a course of action when physicians have requested types of radiographs or scans for patients who cannot be positioned in a typical way SB4. Decide which patients will be processed first when they receive multiple requisitions at the same time, or during emergencies SB5. Decide if examinations can be completed under contraindicative or complicating circumstances
	Plan and Organise
	The user/individual on the job needs to know and understand: SB6. How to determine the order and priority of work tasks subject to confirmation SB7. How to [illegible] SB8. How to schedule patient-load based on emergency or appointment priority SB9.
	Customer Centricity
	The user/individual on the job needs to know and understand how to:

HSS/ N0714: Process X-ray films/ Images

	SB10. Comfort patients who may be frightened or upset during scanning procedures SB11. Liaise with members of the extended health care team to ensure the needs of the patient are taken care of
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB12. Indicate important scanning parameters on x-rays or scanned images, such as appropriate spatial or directional indicators when these have been neglected earlier in the process SB13. Recommend alternate scan types/ positions and discuss these with the radiologist when the scan recommended by the physician is not possible or is difficult for the patient SB14. Re-schedule appointments when patients arriving for exams are late or have not taken the necessary pre-appointment measures such as fasting or refraining from taking interfering medications SB15. Troubleshoot radiological equipment when a minor fault occurs
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB16. Analyse the prescription of the patient and decide on the best position to take the recommended scan SB17. Analyse the scan images to determine quality and clarity SB18. Analyse the inventory of supplies to decide when to place an order to replenish these
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB19. Make preliminary judgements about the seriousness of patients' injuries SB20. Evaluate the quality of radiographs, digital images and scans

NOS Version Control

NOS Code	HSS/ N 0714		
Credits(NSQF)	TBD	Version number	1.0
Industry	Health	Drafted on	19/11/2015
Industry Sub-sector	Allied Health and Paramedics	Last reviewed on	08/04/2016
Occupation	X ray Technician	Next review Date	07/04/2019

MODERN TECHNICAL EDUCATION SOCIETY

Overview

This Occupational Standard describes the knowledge, understanding and skills required of an X-ray Technician to prepare and document reports of scans under guidance of Radiologist.

HSS/ N 0715:

National Occupational

Unit Code	HSS/ N 0715
Unit Title (Task)	Prepare and document reports
Description	This OS unit is about taking the advice of a Radiologist on images obtained from scans and preparing a report for the patient and updating relevant document
Scope	This unit/task covers the following: Taking the advice of a radiologist on the scans performed, preparing reports for patient duly checked and signed by radiologist along with relevant documents & updating the same as per advice of Radiologist
Performance Criteri a (PC) w.r.t. the Scope	
Element	Performance Criteria
Prepare draft reports after seeking advice of a radiologist	To be competent, the user/individual on the job must be able to: PC1. Coomrrectly identify anatomical features on the radiographs and identity PC2. 3. the PC4. Maintaining the patient record
Knowledge and Understanding (Kp) a tient	
A. Organisational Context (Knowledge of t he Healthcare provider/ Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. Internal procedures and policies with respect to radiological equipment and scans KA2. Internal procedures and policies on safety precautions to be taken when operating radiological equipment KA3. Administrative policies and disciplinary procedures KA4. Mandatory regulations on safety and risk mitigation when operating radiological equipment KA5. Routine basic maintenance procedures for radiological equipment KA6. How to contact vendors and suppliers for maintenance and repair of radiological equipment KA7. Inventory policy of the organisation with regard to radiological supplies, contrast agents and other materials used in scans KA8. How to order new supplies KA9. Documentation required of medical history of patient, procedures undertaken and reports KA10. Medico-legal considerations for Radiology Technicians including clinical and ethical responsibilities, definitions of misconduct and malpractice and handling female patients KA11. Penalties for misconduct and malpractice

HSS/ N 0715:

B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. The anatomical features on the radiographs KB2. How to identity major pathological and traumatic conditions KB3. Common emergency conditions in radiography like: Misplaced nasogastric tube/endotracheal (E-T) tube/central venous catheter Simple/tension pneumothorax Pleural effusion Lung/lobar collapse Lung consolidation Heart failure Foreign body Pneumoperitoneum (on erect CXR) Small/Large bowel obstruction Bone fractures Joint dislocation Joint effusion Lipohaemarthrosis How to seek the opinion of the radiologist on the scan images/ radiographs produced How to document the comments and diagnosis of the radiologist in a report How to adhere to standards and formats prescribed for reports How to explain the report contents to the patient if required How to maintain and retrieve patient records KB4. KB5. KB6. KB7. KB8.
Skills (S)	
A. Core Skills/ Generic Skills	**Writing Skills** The user/ individual on the job needs to know and understand how to: SA1. Write short notes to co-workers and clerical staff to compile information about particular patients, describe unusual pathologies or ask for on-site reference material SA2. Write brief observations about pathologies that may affect diagnoses on patients' charts as directed by radiologist SA3. Write descriptions of accidents and incidents on reporting forms when something unusual occurs during patient exams or scanning procedures SA4. Write memos to advise, inform or direct staff working in other hospital or clinic departments or units SA5. Complete patients' medical history forms by entering the patients' names, treatments received to date and current medical conditions **Reading Skills**

HSS/N 0715: Prepare and document conventional radiological reports

	The user/individual on the job needs to know and understand how to: SA6. Read scan instructions in notes attached to patients' files SA7. Read communications about scheduling, training and updates to internal procedures from co-workers, supervisors or hospital administrators SA8. Read protocol updates and hospital policy changes SA9. Read and follow all specified procedures in the multi-page treatment prescriptions prepared by referring physicians SA10. Review protocols for scanning and identifying non-routine or atypical pathologies in procedure manuals SA11. Read reports of varying lengths completed by physicians, hospital or clinic administrators and supervising technologists SA12. Read user manuals for various types of radiological equipment when troubleshooting faults with scanners or imaging computers
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA13. Speak to patients to explain protocols for procedures or examinations, obtain information about the patient's status and discuss current diagnoses and treatment options SA14. Speak with reception and clerical staff to determine and confirm the number of
	Decision Making
	The user/individual on the job needs to know and understand how to:
	SB1. Decide the supplies and materials required for the procedure
	Plan and Organise
	The user/individual on the job needs to know and understand:
	SB6. How to determine the order and priority of work tasks subject to confirmation
	Customer Centricity
	The user/individual on the job needs to know and understand how to:
	SB10. Comfort patients who may be frightened or upset during scanning procedures
	Problem Solving

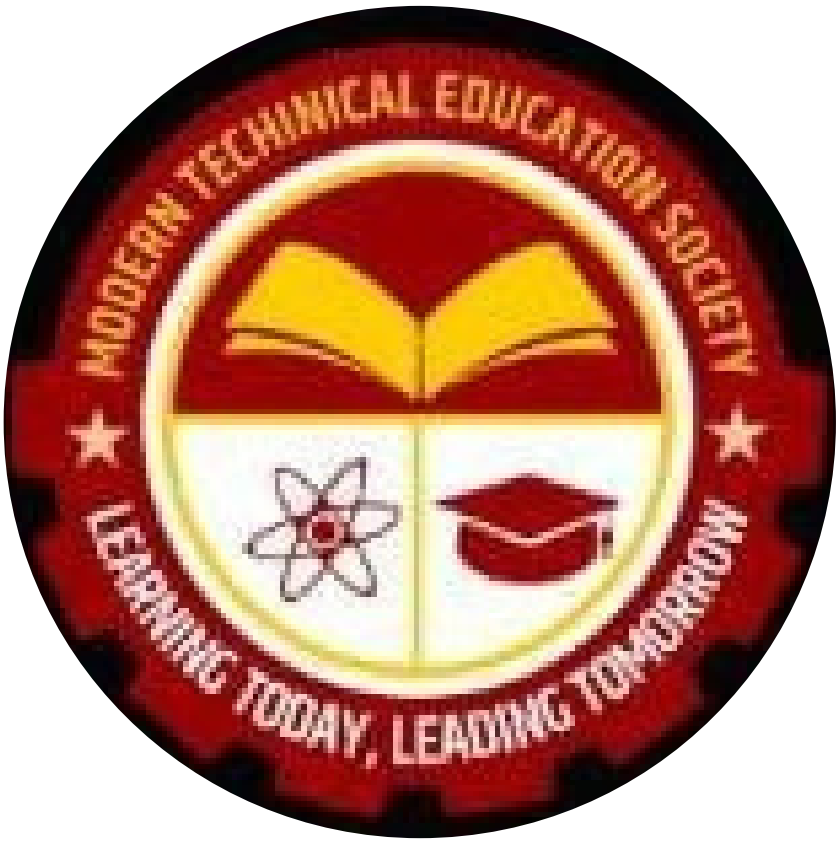
HSS/ N 0715: Prepare and document conventional radiological reports

	The user/individual on the job needs to know and understand how to: SB12. Indicate important scanning parameters on x-rays or scanned images, such as appropriate spatial or directional indicators when these have been neglected earlier in the process SB13. Recommend alternate scan types/ positions and discuss these with the radiologist when the scan recommended by the physician is not possible or is difficult for the patient SB14. Re-schedule appointments when patients arriving for exams are late or have not taken the necessary pre-appointment measures such as fasting or refraining from taking interfering medications SB15. Troubleshoot radiological equipment when a minor fault occurs
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB16. Analyse the prescription of the patient and decide on the best position to take the recommended scan SB17. Analyse the scan images to determine quality and clarity SB18. Analyse the inventory of supplies to decide when to place an order to replenish these
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB19. Make preliminary judgements about the seriousness of patients' injuries SB20. Evaluate the quality of radiographs, digital images and scans

NOS version control

NOS Code	HSS/ N 0715		
Credits (NSQF)	TBD	Version number	1.0
	Health		19/11/2015
Industry Sub-sector	Allied Health and Paramedics X Ray Technician	Last reviewed on	08/04/2016
Occupation		Next review Date	07/04/2019

MODERN TECHNICAL EDUCATION SOCIETY



Overview

This Occupational Standard describes the knowledge, understanding and skills required of an X-ray Technician to work with basic information about the human body and to recognize and promote ways to maintain healthy functioning of the body.

HSS/ N 9614 : Recognize Healthy body systems

Unit Code	HSS/ N 9614
Unit Title (Task)	Recognize Healthy body systems
Description	This OS unit describes the skills and knowledge required to work with basic information about the human body and to recognize and promote ways to maintain heathy functioning of the body.
Scope	This unit/task covers the following: Work with information about the human body & recognize and promote the ways to support healthy functioning of the body.
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Human body structure and support for healthy body functioning	To be competent, the user/individual on the job must be able to: PC1. Correctly use and interpret the medical terminology that describes normal structure, function & location of major body systems. PC2. Correctly use and interpret the information that relates to the interrelationship between major components of each body system and other structure PC3. Review the factors that contribute to maintain whole body health PC4. Evaluate how relationship between different body systems affect and support healthy functioning PC5. Enhance quality of work by using and sharing information about healthy functioning of the body
Knowledge and Understanding (K)	
A. Organisational Context (Knowledge of the Healthcare provider/ Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. The use & interpretation of his/her knowledge as per organizational policies and procedures KA2. Guidelines on communicating with individuals KA3. Guidelines on maintaining confidentiality and respecting need for privacy KA4. Ginudiidveisdoliaufnatedlhsp eaotiregnatnsization/healthprovideroncommunicatingwith

HSS/ N 9614 : Recognize Healthy body systems

B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. Basic structure and function of the body system and associated component including – Cells, tissue & organ Cardiovascular system Respiratory System Musculoskeletal system Endocrine system Digestive system Urinary system Reproductive system I n ' t egumentary system Lymphatic system Nervous system including sensory system- Eye & ears Special senses – smell, taste, visual and equilibrium & Hearing Immune system Process, condition & resources required by the body to support healthy functioning KB2. Body regulation including maintenance of body temperature, fluid & electrolyte balance, elimination of body wastes, maintenance of blood pressure Protection form infection Active & Passive physical activities
Skills (S)	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. Write at least one local/ official language used in the local community SA2. Maintain any records required after the interaction
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA3. Read instructions and pamphlets provided as part of training
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA4. Speak at least one local language SA5. Communicate effectively with all individuals
B. Professional Skills	Decision Making

HSS/ N 9614 : Recognize Healthy body systems

	The user/individual on the job needs to know and understand how to: SB1. Make decisions on information to be communicated based on needs of the individual and various regulations and guidelines
	Plan and Organise
	Not applicable
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB2. Be responsive to problems of the individuals SB3. Be available to guide, counsel and help individuals when required SB4. Be patient and non-judgmental at all times
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB5. Create work-around to overcome problems faced in carrying out roles and duties
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB6. Analyze, use & interpret information regarding patients anatomy & physiology
	Critical Thinking
	Not applicable

NOS Version Control

NOS Code	HSS/ N 9614		
Credits (NSQF)	TBD	Version number	1.0
Industry	Health	Drafted on	12/05/2013
Industry Sub-sector	Allied Health and Paramedics	Last reviewed on	19/11/2015
Occupation		Next review Date	19/11/2017

MODERN TECHNICAL EDUCATION SOCIETY

Overview

ThisOccupational Standard describes the knowledge, understanding and skills required of an Allied Health Professional to collate and communicate health related information.

MODERN TECHNICAL EDUCATION SOCIETY

HSS/ N 9601: Collate and Communicate Health Information

National Occupational Standard

Unit Code	HSS/ N 9601
Unit Title (Task)	Collate and Communicate Health Information
Description	This OS unit is about collating and communicating health information to community members, their family or others in response to queries or as part of health advice and counselling. This OS unit applies to all allied health professionals required to communicate health related information to patients, individuals, families and others
Scope	This unit/task covers the following: Communicating with individuals, patients, their family and others about health issues

Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Communicating with patient and their care givers about health issues	To be competent, the user/individual on the job must be able to: PC1. Respond to queries and information needs of all individuals PC2. Communicate effectively with all individuals regardless of age, caste, gender, community or other characteristics PC3. Communicate with individuals at a pace and level fitting their understanding, without using terminology unfamiliar to them PC4. Utilise all training and information at one's disposal to provide relevant information to the individual PC5. Confirm that the needs of the individual have been met PC6. Adhere to guidelines provided by one's organisation or regulatory body relating to confidentiality PC7. Respect the individual's need for privacy PC8. Maintain any records required at the end of the interaction

Knowledge and Understanding (K)	
A. Organisational Context (Knowledge of the Healthcare provider/ Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. Guidelines on communicating with individuals KA2. Guidelines on maintaining confidentiality and respecting need for priv KA3. Guidaeclyines of the organisation/ health provider on communicating with individuals and patients

HSS/ N 9601: Collate and Communicate Health Information

B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. How to communicate effectively KB2. When to ask for assistance when situations are beyond one's competence KB3. Hanodw a tuot hmoariintyt ain confidentiality and to respect an individual's need for privacy KB4. Howtoensurethatallinformationprovidedtoindividualsisfromreliable sources KB5. How to handle stressful or risky situations when communicating with individuals KB6. Difficulties that can occur when communicating with individuals and family members in stressful situations and how to manage these
Skills (S) (Optional)	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. Write at least one local/ official language used in the local community SA2. Maintain any records required after the interaction
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA3. Read instructions and pamphlets provided as part of training
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA4. Speak at least one local language SA5. Communicate effectively with all individuals
B. Professional Skills	Decision Making
	The user/individual on the job needs to know and understand how to: SB1. Make decisions on information to be communicated based on needs of the individual and various regulations and guidelines
	Plan and Organise
	Not applicable

HSS/ N 9601: Collate and Communicate Health Information

	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB2. Be responsive to problems of the individuals SB3. Be available to guide, counsel and help individuals when required SB4. Be patient and non-judgemental at all times
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB5. Create work-around to overcome problems faced in carrying out roles and duties
	Analytical Thinking
	Not applicable
	Critical Thinking
	Not applicable

NOS Version Control

NOS Code	HSS/ N 9601		
Credits (NSQF)	TBD	Version number	1.0
Industry	Health	Drafted on	12/05/13
Industry Sub-sector	Allied Health and Paramedics	Last reviewed on	19/11/15
		Next review date	19/11/17

MODERN TECHNICAL EDUCATION SOCIETY

Overview

ThisOccupational Standard describes the knowledge, understanding and skills required of an allied health professional to ensure adequate availability of diagnostic kits, primary care medicines, treatment and other medical supplies at all times.

HSS/ N 9602: Ensure availability of medical and diagnostic supplies

National Occupational Standard

Unit Code	HSS/ N 9602
Unit Title (Task)	Ensure availability of medical and diagnostic supplies
Description	This OS unit is about ensuring availability of medical and diagnostic supplies to meet actual and anticipated demand. This OS unit is applicable to all allied health professionals required to maintain a supply of medical or diagnostic materials
Scope	This unit/task covers the following: Anticipating demand and ensuring availability of adequate medical and diagnostic supplies

Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Medical & Diagnostic supplies management	To be competent, the user/individual on the job must be able to: PC1. Maintain adequate supplies of medical and diagnostic supplies PC2. Arrive at actual demand as accurately as possible PC3. Anticipate future demand based on internal, external and other contributing factors as accurately as possible PC4. Handle situations of stock-outs or unavailability of stocks without compromising health needs of patients/ individuals

Knowledge and Understanding (K)	
B. Organisational Context (Knowledge of the Healthcare provider/ Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. Centres for restocking supplies KA2. Guidelines on anticipating demand for medical and diagnostic supplies KA3. Contents of all diagnostic and medical kits KA4. Guidelines on procurement and storage of medical and diagnostic kits
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. How to arrive at actual demand for medical and diagnostic supplies KB2. How to anticipate demand KB3. How to maintain/ safely store existing supplies KB4. How to maintain records of available supplies KB5. How to request additional supplies

HSS/ N 9602: Ensure availability of medical and diagnostic supplies

Skills (S)	
C. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. Write at least one local/ official language used in the local community SA2. Write well enough to be classified as literate SA3. Record availability of supplies SA4. Provide written requests for additional supplies when required
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA5. Read well enough to be classified as literate SA6. Read records and registers for medical supplies SA7. Read instructions and pamphlets provided as part of training for ordering or maintaining supplies
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA8. Speak at least one local language SA9. Communicate effectively to request additional supplies when required
D. Professional Skills	Decision Making
	The user/individual on the job needs to know and understand how to: SB1. Decide on the level of anticipated demand SB2. Decide when to procure additional supplies SB3. Decide quantities of medical supplies to request
	Plan and Organise
	The user/individual on the job needs to know and understand: SB4. How to plan availability of medical supplies SB5. How to place requests for supplies ahead of time in order to have adequate supplies at all times
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB6. Cater to the need of patients/ individuals for specific medical supplies
	Problem Solving

HSS/ N 9602: Ensure availability of medical and diagnostic supplies

	The user/individual on the job needs to know and understand how to: SB7. Handle non-availability of medical supplies or diagnostic kits when required
	Analytical Thinking
	Not applicable
	Critical Thinking
	Not applicable

NOS Version Control

NOS Code	HSS/ N 9602		
Credits (NSQF)	TBD	Version number	1.0
Industry	Health	Drafted on	12/05/13
Industry Sub-sector	Allied Health and Paramedics	Last reviewed on	19/11/15
		Next review date	19/11/17

HSS/ N 9603: Act within the limits of one's competence and authority

MODERN TECHNICAL EDUCATION SOCIETY

Overview

ThisOccupational Standard describes the knowledge, understanding, skills required of an Allied Health Professional to recognise the boundaries of the role and responsibilities and working within the level of competence in accordance with legislation, protocols and guidelines

HSS/ N 9603: Act within the limits of one's competence and authority

National Occupational Standard

Unit Code	HSS/ N 9603
Unit Title (Task)	
Description	This OS unit is about recognising the boundaries of the role and responsibilities and guidelines
Scope	This is applicable to all Allied Health Professionals working in an organised, regulated environment This unit/task covers the following: Acting within the limit of one's competence and authority; o Knowing one's job role o Knowing the following responsibility o Recognising the job role and responsibilities of co workers Reference: 'This National Occupational Standard is from the UK Skills for Health suite [SFHGEN63, Act within the limits of your competence and authority] It has been tailored to apply to healthcare in India and has been reproduced with their permission'.

Performance Criteria (PC) wrt The Scope	
Element	Performance Criteria
Acting within the limit of one's competence and authority	To be competent, the user/individual on the job must be able to: PC1. Adhere to legislation, protocols and guidelines relevant to one's role and field of practice PC2. Work within organisational systems and requirements as appropriate to one's role PC3. Recognise the boundary of one's role and responsibility and seek supervision when situations are beyond one's competence and authority PC4. Maintain competence within one's role and field of practice PC5. Use relevant research based protocols and guidelines as evidence to inform one's practice PC6. Promote and demonstrate good practice as an individual and as a team member at all times PC7. Identify and manage potential and actual risks to the quality and safety of practice PC8. Evaluate and reflect on the quality of one's work and make continuing improvements

Knowledge and Understanding (K)	
A. Organisational Context	The user/individual on the job needs to know and understand:

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(Knowledge of the Healthcare provider/ Organisation and its processes)	KA1. The relevant legislation, standards, policies, and procedures followed in the organisation KA2. The medical procedures and functioning of required medical equipment KA3. Role and importance of assisting other healthcare providers in delivering care
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. The boundaries of one's role and responsibilities and other team members KB2. The reasons for working within the limits of one's competence and authority KB3. The importance of personally promoting and demonstrating good practice KB4. The legislation, protocols and guidelines effecting one's work KB5. The organisational systems and requirements relevant to one's role KB6. The sources of information that can be accessed to maintain an awareness of research and developments in one's area of work KB7. The difference between direct and indirect supervision and autonomous practice, and which combination is most applicable in different circumstances KB8. The risks to quality and safety arising from: o Working outside the boundaries of competence and authority o Not keeping up to date with best practice o Poor communication o Insufficient support o Lack of resources KB9. The importance of individual or team compliance with legislation, protocols, and guidelines and organisational systems and requirements KB10. How to Report and minimise risks KB11. The principle of meeting the organisation's needs, and how this should enable one to recognise one's own limitations and when one should seek support from others KB12. The processes by which improvements to protocols/guidelines and organisational systems/requirements should be reported KB13. The procedure for accessing training, learning and development needs for oneself and/or others within one's organisation KB14. The actions that can be taken to ensure a current, clear and accurate understanding of roles and responsibilities is maintained, and how this affects the way one work as an individual or part of a team
Skills (S)	
A. Core Skills /Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. Document reports, task lists, and schedules SA2. Prepare status and progress reports SA3. Record daily activities SA4. Update other co-workers
	Reading Skills

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	The user/individual on the job needs to know and understand how to: SA5. Read about changes in legislations and organisational policies SA6. Keep updated with the latest knowledge
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA7. Discuss task lists, schedules, and work-loads with co-workers SA8. Give clear instructions to patients and co-workers SA9. Keep patient informed about progress SA10. Avoid using jargon, slang or acronyms when communicating with a patient
B. Professional Skills	Decision Making
	The user/individual on the job needs to know and understand how to: SB1. Make decisions pertaining to the concerned area of work in relation to job role
	Plan and Organise
	Not applicable
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB2. Communicate effectively with patients and their family, physicians, and other members of the health care team SB3. Be responsive and listen empathetically to establish rapport in a way that promotes openness on issues of concern SB4. Be sensitive to potential cultural differences SB5. Maintain patient confidentiality SB6. Respect the rights of the patient(s)
	Problem Solving
	Not applicable
	Analytical Thinking
	Not applicable
	Critical Thinking
	Not applicable

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NOS Version Control

NOS Code	HSS/ N 9603		
Credits (NSQF)	TBD	Version number	1.0
Industry	Health	Drafted on	12/05/13
Industry Sub-sector	Allied Health and Paramedics	Last reviewed on	19/11/15
		Next review date	19/11/17

MODERN TECHNICAL EDUCATION SOCIETY

Overview

ThisOccupational Standard describes the knowledge, understanding, skills required of an Allied Health Professional to monitor the working environment, and making sure it meets health, safety and security requirements.

HSS/ N 9603: Act within the limits of one's competence and authority

MODERN TECHNICAL EDUCATION SOCIETY

Overview

ThisOccupational Standard describes the knowledge, understanding, skills required of an Allied Health Professional to recognise the boundaries of the role and responsibilities and working within the level of competence in accordance with legislation, protocols and guidelines

MODERN TECHNICAL EDUCATION SOCIETY

HSS/ N 9606: Maintain a safe, healthy, and secure working environment

National Occupational Standard

Unit Code	HSS/ N 9606
Unit Title (Task)	Maintain a safe, healthy, and secure working environment
Description	This OS unit is about monitoring the working environment and ensuring a safe, healthy, secure and effective working conditions This OS unit applies to all Allied Health professionals working within an organised workplace
Scope	This unit covers the following: Complying the health, safety and security requirements and procedures for workplace, Handling any hazardous situation with safely, competently and within the limits of authority, Reporting any hazardous situation and breach in procedures to ensure a safe, healthy, secure working environment

Performance Criteria (PC) wrt The Scope	
Element	**Performance Criteria**
Maintain a safe, healthy & secure environment	To be competent, the user/ individual on the job must be able to: PC1. Identify individual responsibilities in relation to maintaining workplace health safety and security requirements PC2. Comply with health, safety and security procedures for the workplace PC3. Report any identified breaches in health, safety, and security procedures to the designated person PC4. Identify potential hazards and breaches of safe work practices PC5. Correct any hazards that individual can deal with safely, competently and within the limits of authority PC6. Promptly and accurately report the hazards that individual is not allowed to deal with, to the relevant person and warn other people who may get affected PC7. Follow the organisation's emergency procedures promptly, calmly, and efficiently PC8. Identify and recommend opportunities for improving health, safety, and security to the designated person PC9. Complete any health and safety records legibly and accurately

Knowledge and Understanding (K)	
A. Organisational Context (Knowledge of the Healthcare provider/ Organisation and its processes)	To be competent, the user/ individual on the job needs to know and understand: KA1. The importance of health, safety, and security in the workplace KA2. The basic requirements of the health and safety and other legislations and regulations that apply to the workplace KA3. The person(s) responsible for maintaining healthy, safe, and secure workplace KA4. The relevant up-to-date information on health, safety, and security that applies to the workplace KA5. How to report the hazard KA6. The responsibilities of individual to maintain safe, healthy and secure workplace

HSS/ N 9606: Maintain a safe, healthy, and secure working environment

B. Technical Knowledge	To be competent, the user / individual on the job needs to know and understand: KB1. Requirements of health, safety and security in workplace KB2. How to create safety records and maintaining them KB3. The importance of being alert to health, safety, and security hazards in the work environment KB4. The common health, safety, and security hazards that affect people working in an administrative role KB5. How to identify health, safety, and security hazards KB6. The importance of warning others about hazards and how to do so until the hazard is dealt with
Skills (S)	
A. Generic Skills	Writing Skills
	To be competent, the user/ individual on the job needs to know and understand how to: SA1. Report and record incidents
	Reading Skills
	To be competent, the user/ individual on the job needs to know and understand how to: SA2. Read and understand company policies and procedures
	Oral Communication (Listening and speaking skills)
	To be competent, the user/ individual on the job needs to know and understand how to: SA3. Clearly report hazards and incidents with the appropriate level of urgency
B. Professional Skills	Decision Making
	To be competent, the user/ individual on the job needs to know and understand how to: SB1. Make decisions pertaining to the area of work
	Plan and Organise
	To be competent, the user / individual on the job needs to know and understand how to: SB2. Plan for safety of the work environment
	Customer Centricity
	To be competent, the user / individual on the job needs to know and understand: SB3. Communicate effectively with patients and their family, physicians, and other members of the health care team SB4. Be capable of being responsive, listen empathetically to establish rapport in a way that promotes openness on issues of concern

HSS/ N 9606: Maintain a safe, healthy, and secure working environment

	SB5. Be sensitive to potential cultural differences SB6. Maintain patient confidentiality SB7. Respect the rights of the patient(s)
	Problem Solving
	To be competent, the user/ individual on the job needs to know and understand how to: SB8. Identify hazards, evaluate possible solutions and suggest effective solutions
	Analytical Thinking
	To be competent, the user needs to know and understand how to: SB9. Analyse the seriousness of hazards
	Critical Thinking
	To be competent, the user needs to know and understand how to: SB10. Analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

NOS Version Control

NOS Code	HSS/ N 9606		
Credits (NSQF)	TBD	Version number	1.0
Industry	Health	Drafted on	12/05/13
Industry Sub-sector	Allied Health and Paramedics	Last reviewed on	19/11/15
		Next review date	19/11/17

MODERN TECHNICAL EDUCATION SOCIETY

Overview

ThisOccupational Standard describes the knowledge, understanding and skills required of an allied health professional to follow radiation safety guidelines and provide safe environment to individuals

HSS/ N 9608: Follow radiation safety guidelines

National Occupational Standard

Unit Code Unit	HSS/ N 9608
Title (Task)	Follow radiation safety guidelines
Description	This OS unit is about following radiation safety guidelines and to provide safe environment to individuals. These individuals include staff working and individuals undergoing treatment or diagnostic procedures. This is applicable to all Allied Health Professionals. This unit/task covers the following:
Scope	Following and complying with radiation safety guidelines Reference : 'The content of this National Occupational Standard is drawn from the UKSkills for HealthNOS[SFHHCS3Ensure thesafety of individuals exposedto radiation within healthcare and SFHHCS4 Measure an individual's healthcare radiation exposure to minimise risk]'

Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Following radiation safety guidelines	To be competent, the user/individual on the job must be able to: PC1. Confirm sources of radiation and likely type of exposure for all individuals within the work area PC2. Apply appropriate assessment methodology suitable for source, type of exposure, dose, level of risk and the recipients' exposure time PC3. Confirm that all required procedures and associated safety measures are compliant with current and relevant legislation requirements PC4. Determine and assess the appropriateness of the projected radiation dose over a suitable period of time for an individual or key staff and other personnel PC5. Record the results of the assessment accurately and in correct format, referencing any monitoring measurements taken to accepted published values to indicate conformance within accepted safety guidance limits for the procedures undertaken within the work practice PC6. Communicate and provide information, advice and guidance effectively in the appropriate medium to meet the individuals needs and preferences PC7. Report actual and potential risks from radiation, in context, to other healthcare professionals and where appropriate seek assistance and advice PC8. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, policies and protocols PC9. Confirm that all required procedures and associated safety measures are current and compliant with relevant legislation PC10. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, local policies and protocols

Knowledge and Understanding (K)	
A. Organisational Context	The user/individual on the job needs to know and understand:

HSS/ N 9608: Follow radiation safety guidelines

(Knowledge of the Healthcare provider/ Organisation and its processes)	KA5. Basic requirements of the health and safety and other legislations and regulations that apply to the organisation KA6. Person(s) responsible for health, safety, and security in the organisation KA7. Relevant up-to-date information on health, safety, and security that applies to the organisation KA8. Organisation's emergency procedures and responsibilities for handling hazardous situations
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. How to communicate effectively in the appropriate medium to meet all recipients' needs in relation to radiation safety KB2. The safety principles for radiation physics including therapy and diagnostic procedures KB3. The range, type and nature of radiation and associated equipment and/or medical devices used within the relevant specialist areas and their work practices KB4. The importance of quality assuring the facilities, equipment and other resources for operational safety and monitoring each operational procedure for radiation safety in accordance with legislation and organisational requirements KB5. The range of permissible exposure limits applicable to diagnostic investigations or therapeutic interventions with radiation and/or radioactive substances within the organisation KB6. The importance and appropriate methodologies for radiation safety assessments within the organisation KB7. The importance and requirements for radiation safety requirements KB8. The importance of environmental monitoring to minimise the risk of accidental exposure to radiation and to identify if an adverse event occurs KB9. How to communicate and provide advice, guidance and information effectively in the appropriate medium to meet individuals needs and preferences for the measurement of radiation exposure KB10. The range, type and dose of radiation used within diagnostic or therapeutic activities KB11. The factors and circumstances of the working environment that contribute to radiation exposure and the importance of environmental monitoring KB12. How to undertake environmental monitoring of controlled work areas and the surrounding area, the acceptable limits and the implications and consequences of adverse results and who to inform
Skills (S)	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. Report and record incidents
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA2. Read and understand company policies and procedures

HSS/ N 9608: Follow radiation safety guidelines

	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA3. Report hazards and incidents clearly with the appropriate level of urgency
B. Professional Skills	Decision Making
	The user/individual on the job needs to know and understand how to: SB1. Make decisions pertaining to the organisation SB2. Exhibit commitment to the organisation and exert effort and perseverance
	Plan and Organise
	The user/individual on the job needs to know and understand how to: SB3. Organise files and documents SB4. Plan for safety of the work environment SB5. Recommend and implement plan of action
	Customer Centricity
	The user/individual on the job needs to know and understand: SB6. How to make exceptional effort to keep the environment and work place safe
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB7. Identify hazards and suggest effective solutions to identified problems
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB8. Analyse the seriousness of hazards
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB9. Evaluate opportunities to improve health, safety and security SB10. Show understanding and empathy for others

HSS/ N 9608: Follow radiation safety guidelines

NOS Version Control

NOS Code	HSS/ N 9608		
Credits (NSQF)	TBD	Version number	1.0
Industry	Health	Drafted on	12/05/13
Industry Sub-sector	Allied Health and Paramedics	Last reviewed on	19/11/15
		Next review date	19/11/17

MODERN TECHNICAL EDUCATION SOCIETY

Overview

This Occupational Standard describes the knowledge, understanding and skills required of an Allied Health professional to manage biomedical waste

HSS/ N 9609: Follow biomedical waste disposal protocols

National Occupational Standard

Unit Code	HSS/ N 9609
Unit Title (Task)	Follow biomedical waste disposal protocols
Description	This OS unit is about the safe handling and management of health care waste. This unit applies to all Allied Health professionals.
Scope	This unit/task covers the following: Classification of the Waste Generated, Segregation of Biomedical Waste & Proper collection and storage of Waste Reference : 'The content of this National Occupational Standard is drawn from the UK Skills for Health NOS [SFHCHS212 Disposal of clinical and non-clinical waste within healthcare and SFHCHS213 Implement an audit trail for managing waste within healthcare]'

Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Bio Medical Waste Management	To be competent, the user/individual on the job must be able to: PC1. Follow the appropriate procedures, policies and protocols for the method of collection and containment level according to the waste type PC2. Apply appropriate health and safety measures and standard precautions for infection prevention and control and personal protective equipment relevant to the type and category of waste PC3. Segregate the waste material from work areas in line with current legislation and organisational requirements PC4. Segregation should happen at source with proper containment, by using different colour coded bins for different categories of waste PC5. Check the accuracy of the labelling that identifies the type and content of waste PC6. Confirm suitability of containers for any required course of action appropriate to the type of waste disposal PC7. Check the waste has undergone the required processes to make it safe for transport and disposal PC8. Transport the waste to the disposal site, taking into consideration its associated risks PC9. Report and deal with spillages and contamination in accordance with current legislation, guidelines, local policies and protocols PC10. Maintain accurate and legible records of information and

Knowledge and Understanding (K)	
A. Organisational Context (Knowledge of the	The user/individual on the job needs to know and understand: KA1. Basic requirements of the health and safety and other legislations and

HSS/ N 9609: Follow biomedical waste disposal protocols

Healthcare provider/ Organisation and its processes)	regulations that apply to the organisation KA2. Person(s) responsible for health, safety, and security in the organisation KA3. Relevant up-to-date information on health, safety, and security that applies to KA4. Othreg aonrgisaantiiosant'iso enmergency procedures and responsibilities for handling hazardous situations
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. How to categorise waste according to national, local and organisational KB2. TguiThhede aeaplinppeprrosopprriiaattee acopnptraoivnemde dnist poor sdails rmoauntet KB3. how to make the waste safe for disposal The importance to adhere to the organisational and national waste management principles and procedures KB4. The hazards and risks associated with the disposal and the importance of risk assessments and how to provide these KB5. The personal protective equipment required to manage the different types of waste generated by different work activities KB6. The importance of working in a safe manner when carrying out procedures for biomedical waste management in line with local and national policies and legislation KB7. The required actions and reporting procedures for any accidents, spillages and contamination involving waste The requirements of the relevant external agencies involved in the transport KB8. and receipt of your waste KB9. KB10. The importance of segregating different types of waste and how to do this KB11. The safe methods of storage and maintaining security of waste and the permitted accumulation times KB12. The methods for transporting and monitoring waste disposal and the appropriateness of each method to a given scenario KB13. How to report any problems or delays in waste collection and where to seek advice and guidance KB14. The importance of the organisation monitoring and obtaining an assessment of the impact the waste has on the environment KB15. The current national legislation, guidelines, local policies and protocols which affect work practice KB16. The policies and guidance that clarify your scope of practice, accountabilities and the working relationship between yourself and others
Skills (S)	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA4. Report and record incidents
	Reading Skills

HSS/ N 9609: Follow biomedical waste disposal protocols

	The user/individual on the job needs to know and understand how to: SA5. Read and understand company policies and procedures for managing biomedical waste
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA6. Report hazards and incidents clearly with the appropriate level of urgency
B. Professional Skills	Decision Making
	The user/individual on the job needs to know and understand how to: SB11. Make decisions pertaining to the area of work SB12. Exhibit commitment to the organisation and exert effort and perseverance
	Plan and Organise
	The user/individual on the job needs to know and understand how to: SB13. Organise files and documents SB14. Plan for safety of the work environment SB15. Recommend and implement plan of action
	Customer Centricity
	The user/individual on the job needs to know and understand: SB16. How to make exceptional effort to keep the environment and work place clean
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB17. Identify hazards and suggest effective solutions to identified problems of waste management
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB18. Analyse the seriousness of hazards and proper waste management
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB19. Evaluate opportunities to improve health, safety and security SB20. Show understanding and empathy for others

HSS/ N 9609: Follow biomedical waste disposal protocols

NOS Version Control

NOS Code	HSS/ N 9609		
Credits (NSQF)	TBD	Version number	1.0
Industry	Health	Drafted on	12/05/13
Industry Sub-sector	Allied Health and Paramedics	Last reviewed on	19/11/15
		Next review date	19/11/17

MODERN TECHNICAL EDUCATION SOCIETY

Overview

ThisOccupational Standard describes the knowledge, understanding, skills required of an Allied Health professional to comply with infection control policies and procedures.

HSS/ N 9610: Follow infection control policies and procedures

National Occupational Standard

Unit Code	HSS/ N 9610
Unit Title (Task)	This OS unit is about complying with infection control policies and procedures.
Description	It is applicable to workers who are responsible for workplace procedures to maintain infection control. This unit applies to all Allied Health professionals.
Scope	This unit/task covers the following: • Complying with an effective infection control protocols that ensures the safety of the patient (or end-user of health-related products/services) & Maintaining personal protection and preventing the transmission of infections from person to person

Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Infection control protocols	To be competent, the user/individual on the job must be able to: PC1. Preform the standard precautions to prevent the spread of infection in accordance with organisation requirements PC2. Preform the additional precautions when standard precautions alone may not be sufficient to prevent transmission of infection PC3. Minimise contamination of materials, equipment and instruments by aerosols and splatter PC4. Identify infection risks and implement an appropriate response within own role and responsibility PC5. Document and report activities and tasks that put patients and/or other workers at risk PC6. Respond appropriately to situations that pose an infection risk in accordance with the policies and procedures of the organization PC7. Follow procedures for risk control and risk containment for specific risks PC8. Follow protocols for care following exposure to blood or other body fluids as required PC9. Place appropriate signs when and where appropriate PC10. Remove spills in accordance with the policies and procedures of the organization PC11. Maintain hand hygiene by washing hands before and after patient contact and/or after any activity likely to cause contamination PC12. Follow hand washing procedures PC13. Implement hand care procedures PC14. Cover cuts and abrasions with water-proof dressings and change as necessary PC15. Wear personal protective clothing and equipment that complies with Indian Standards, and is appropriate for the intended use PC16. Change protective clothing and gowns/aprons daily, more frequently if soiled

HSS/ N 9610: Follow infection control policies and procedures

	and where appropriate, after each patient contact PC17. Demarcate and maintain clean and contaminated zones in all aspects of health care work PC18. Confine records, materials and medicaments to a well-designated clean zone PC19. Confine contaminated instruments and equipment to a well-designated contaminated zone PC20. Wear appropriate personal protective clothing and equipment in accordance with occupational health and safety policies and procedures when handling waste PC21. Separate waste at the point where it has been generated and dispose of into waste containers that are colour coded and identified PC22. Store clinical or related waste in an area that is accessible only to authorised persons PC23. Handle, package, label, store, transport and dispose of waste appropriately to minimise potential for contact with the waste and to reduce the risk to the environment from accidental release PC24. Dispose of waste safely in accordance with policies and procedures of the organisation and legislative requirements PC25. Wear personal protective clothing and equipment during cleaning procedures PC26. Remove all dust, dirt and physical debris from work surfaces PC27. Clean all work surfaces with a neutral detergent and warm water solution before and after each session or when visibly soiled PC28. Decontaminate equipment requiring special processing in accordance with quality management systems to ensure full compliance with cleaning, disinfection and sterilisation protocols PC29. Dry all work surfaces before and after use PC30. Replace surface covers where applicable PC31. Maintain and store cleaning equipment
Knowledge and Understanding (K)	
A. Organisational Context (Knowledge of the Healthcare provider/ Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. The organisation's infection control policies and procedures KA2. Organisation requirements relating to immunisation, where applicable KA3. Standard precautions KA4. Good personal hygiene practice including hand care
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. Additional precautions KB2. Aspects of infectious diseases including: - opportunistic organisms - pathogens KB3. Basic microbiology including: - bacteria and bacterial spores - fungi - viruses

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	KB4. How to clean and sterile techniques KB5. The path of disease transmission: - paths of transmission including direct contact and penetrating injuries - risk of acquisition - sources of infecting microorganisms including persons who are carriers, in the incubation phase of the disease or those who are acutely ill KB6. Effective hand hygiene: - procedures for routine hand wash - procedures for surgical hand wash - when hands must be washed KB7. Good personal hygiene practice including hand care KB8. Identification and management of infectious risks in the workplace KB9. How to use personal protective equipment such as: - guidelines for glove use - guidelines for wearing gowns and waterproof aprons - guidelines for wearing masks as required - guidelines for wearing protective glasses KB10. Susceptible hosts including persons who are immune suppressed, have chronic diseases such as diabetes and the very young or very old KB11. Surface cleaning: - cleaning procedures at the start and end of the day -managing a blood or body fluid spill - routine surface cleaning KB12. Sharps handling and disposal techniques KB13. The following: - Follow infection control guidelines - Identify and respond to infection risks - Maintain personal hygiene - Use personal protective equipment - Limit contamination - Handle, package, label, store transport and dispose of clinical and other waste - Clean environmentalsurfaces
Skills (S)	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. Consistently apply hand washing, personal hygiene and personal protection protocols SA2. Consistently apply clean and sterile techniques SA3. Consistently apply protocols to limit contamination
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA4. Follow instructions as specified in the protocols

HSS/ N 9610: Follow infection control policies and procedures

	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA5. Listen patiently SA6. Provide feedback (verbal and non-verbal) to encourage smooth flow of information
B. Professional Skills	Decision Making
	The user/individual on the job needs to know and understand how to: SB1. Take into account opportunities to address waste minimisation, environmental responsibility and sustainable practice issues SB2. Apply additional precautions when standard precautions are not sufficient
	Plan and Organise
	The user/individual on the job needs to: SB3. Consistently ensure instruments used for invasive procedures are sterile at SB4. Ctim[illegible] asulohre forwa shinganddryinghands SB5. Co rfaces and manage blood and body fluid spills SB6.
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB7. Be a good listener and be sensitive to patient SB8. Avoid unwanted and unnecessary communication with patients SB9. Maintain eye contact and non-verbal communication
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB10. Communicate only facts and not opinions SB11. Give feedback when required
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB12. Coordinate required processes effectively
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB13. Apply, analyse, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to belief and action SB14. Take into account opportunities to address waste minimisation, environmental responsibility and sustainable practice issues

HSS/ N 96110 Follow infection control policies and procedure

NOS Version Control

NOS Code	HSS/ N 9610		
Credits (NSQF)	TBD	Version number	1.0
Industry	Health	Drafted on	12/05/13
Industry Sub-sector	Allied Health and Paramedics	Last reviewed on	19/11/15
		Next review date	19/11/17

MODERN TECHNICAL EDUCATION SOCIETY

Overview

This Occupational Standard describes the knowledge, understanding, skills required of an Allied Health professional to comply with infection control policies and procedures.

HSS/ N 9611: Monitor and assure quality

National Occupational Standard

Unit Code	HSS/ N 9611
Unit Title (Task)	
Description	This OS unit is about assuring quality in all procedures. This unit applies to all Allied Health professionals.
Scope	This unit/task covers the following: Monitor, Identify & Solve treatment process/outcome problems, Attend class/read publications to continue industry education, Identify needs and expectations of patient/health care professionals

Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Monitoring and ensuring quality process	To be competent, the user/individual on the job must be able to: PC1. Conduct appropriate research and analysis PC2. Evaluate potential solutions thoroughly PC3. Participate in education programs which include current techniques, technology and trends pertaining to the radiology industry PC4. Read medical publications related to quality consistently and thoroughly PC5. Report any identified breaches in health, safety, and security procedures to the designated person PC6. Identify and correct any hazards that he/she can deal with safely, competently and within the limits of his/her authority PC7. Promptly and accurately report any hazards that he/she is not allowed to deal PC8. Follow the organization's procedures efficiently PC9. Identify opportunities for improving health, safety, and security procedures to the designated person PC10. Complete any health and safety records legibly and accurately

Knowledge and Understanding (K)	
A. Organisational Context (Knowledge of the Healthcare provider/ Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. Basic requirements of the health and safety and other legislations and regulations that apply to the organisation KA2. Person(s) responsible for health, safety, and security in the organisation KA3. Relevant up-to-date information on health, safety, and security that applies to the organisation KA4. Organisation's emergency procedures and responsibilities for handling hazardous situations

HSS/ N 9611: Monitor and assure quality

B. Technical Knowledge	The user/individual on the job needs to know and understand how to: KB1. Evaluate treatment goals, process and outcomes KB2. Identify problems/deficiencies in treatment goals, processes and outcomes KB3. Accurately identify problems KB4. Conduct research KB5. Select and implement proper hygiene interventions KB6. Obtain informed consent KB7. Conduct an honest self-evaluation to identify personal and professional strengths and weaknesses KB8. Access and interpret medical, and scientific literature KB9. Apply human needs/motivational theory KB10. Provide thorough and efficient individualised care KB11. Employ methods to measure satisfaction
Skills (S)	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. Report and record incidents
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA2. Read and understand company policies and procedures
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA3. Report hazards and incidents clearly with the appropriate level of urgency
B. Professional Skills	Decision Making
	The user/individual on the job needs to know and understand how to: SB1. Make decisions pertaining to the area of work SB2. Exhibit commitment to the organisation and exert effort and perseverance
	Plan and Organise
	The user/individual on the job needs to know and understand how to: SB3. Organise files and documents SB4. Plan for safety of the work environment SB1. Recommend and implement plan of action
	Customer Centricity
	The user/individual on the job needs to know and understand:

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NOS Version Control

	SB2. How to make exceptional effort to meet patient needs and resolve conflict to patient satisfaction
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB3. Identify hazards and suggest effective solutions to identified problems
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB4. Analyse the seriousness of hazards
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB5. Evaluate opportunities to improve health, safety and security SB6. Show understanding and empathy for others

NOS Code	HSS/ N 9611		
Credits (NSQF)	TBD	Version number	1.0
Industry	Health	Drafted on	12/05/13
Industry Sub-sector	Allied Health and Paramedics	Last reviewed on	19/11/15
		Next review date	19/11/17

Assessment Form (To be filled by Assessor for Each Trainee)							
Job Role	X Ray Technician	Trainee Name		UID No.		Batch	
Qualification Pack	HSS/ Q 0701	Taining Partner		Date			
Sector Skill Council	Healthcare	Name of Assessor					
Name & Signature of Representative & Stamp of Assessing Body:							

Skills Practical and Viva (80% weightage)		
	Marks Alloted	Marks Awarded by Assessor
Grand Total-1 (Subject Domain)	400	
Grand Total-2 (Soft Skills and Comunication)	100	
Grand Total-(Skills Practical and Viva)	500	
Passing Marks (80% of Max. Marks)	400	PASS/FAIL

Theory (20% weightage)		
	Marks Alloted	Marks Awarded by Assessor
Grand Total-1 (Subject Domain)	80	
Grand Total-2 (Soft Skills and Comunication)	20	
Grand Total-(Theory)	100	
Passing Marks (50% of Max. Marks)	50	PASS/FAIL
Grand Total-(Skills Practical and Viva + Theory)	600	0
Overall Result	Criteria is to pass in both theory and practical individually. If fail in any one of them, then candidate is fail	PASS/FAIL

Assessment Form (To be filled by Assessor for Each Trainee)							
Job Role	X ray Technician	Trainee Name		UID No.		Batch	
Qualification Pack	HSS/ Q 0701	Taining Partner		Date			
Sector Skill Council		Name of Assessor					
Name & Signature of Representative & Stamp of Assessing Body:							
Grand Total-1 (Subject Domain)		400					
Grand Total-2 (Soft Skills and Comunication)		100					
Grand Total-(Skills Practical and Viva)		500					
Detailed Break Up of Marks		Skills Practical & Viva					
Subject Domain		Pick any 2 NOS each of 200 marks totalling 400					

National Occupational Standards (NOS)	Performance Criteria (PC)	Total Marks (400)	Out Of	Marks Allocation		MarksA wardedby Assessor		Grand Total of Practical
				Viva	Skills Practical	Viva	Skills Practical	
1. HSS/ N 0711: Comprehend conventional radiological needs of patients	PC1. Explain the subdivisions of anatomy, terms of location and position,fundamental planes, vertebrate structure of man, organisation of the body cells and tissues	200	50	20	30			
	PC2. Explain the pathology of various systems: cardiovascular system, respiratory system, central nervous system, musculoskeletal system, GIT, GUT and reproductive system		20	40	20			
	PC3. Explain the pathology of radiation injury and malignancies		20	20	0			
	PC4. Understand specific requests of physicians with respect to the scans required		20	10	10			
	PC5. Take medical history of the patient and document it as required		30	15	15			
	PC6. Understand and interpret instructions and requirements documented by the physician in the patient's prescription		30	20	10			
	PC7. Determine the radiological diagnostic tests required for the patient based on the physician's prescription and the medical history		30	20	10			
	TOTAL		200	145	95	0	0	
2. HSS/ N 0712: Prepare the patient and the room for	PC1. Prepare the room, apparatus and instruments for conventional radiological procedures like X-ray, BMD or Mammography		20	10	10			

Conventional Radiological procedure	PC2. Set up the machine for the desired procedure	200	10	4	6		
	PC3. Position the patient correctly for an x-ray in the following positions: a. Erect b. Sitting c. Supine d. Prone e. Lateral f. Oblique g. Decubitus		30	5	25		
	PC4. Explain relative positions of x-ray tube and patient and the relevant exposure factors related to these		10	5	5		
	PC5. Explain the use of accessories such as Radiographic cones, grid and positioning aids		10	6	4		
	PC6. Explain the anatomic and physiological basis of the procedure to be undertaken		10	5	5		
	PC7. Explain the radiographic appearances of both normal and common abnormal conditions in order to ensure application of the appropriate radiographic technique		10	5	5		
	PC8. Apply modifications in positioning technique for various disabilities and types of subject		15	5	10		
	PC9. Explain the principles of radiation physics detection and measurement		15	7	8		
	PC10. Explain the biological effects of radiation		10	3	7		
	PC11.Explain the principles of radiation protection: Maximum permissible exposure concept b. Annual dose equivalent limits (ADEL) ALARA concept c. International recommendations and current code of practice for the protection of persons against ionising radiation from medical and dental use		10	7	3		
	PC12.Explain the use of protective materials: a. Lead b. Lead – impregnated substances c. Building materials d. Concept of barriers e. Lead equivalents and variations f. Design of x-ray tubes related to protection. g. Structural shielding design (work-load, use factor, occupancy factor, distance		10	6	4		

	PC13. Explain the instruments of radiation protection, use of gonad shield and practical methods for reducing radiation dose to the patient		20	10	10		
	PC14. Ensure protection of self, patients, departmental staff and public from radiation through use of protection instruments and monitoring personnel and the work area		20	10	10		
	TOTAL		200	88	112	0	0
3. HSS/ N 0713: Operate and oversee operation ofequipment conventional radiological equipment	PC1. Describe the construction and operation of general radiographic		20	8	12		
	PC2. Reliably perform all non-contrast plain Radiography, and contrast radiography in special situations		20	15	5		
	PC3. Apply quality control procedures for all radiologic equipment		20	10	10		
	PC4. Control and manipulate parameters associated with exposure and processing to produce a required image of desirable quality		20	15	5		
	PC5. Practice the procedures employed in producing a radiographic image		20	10	10		
	PC6. Describe methods of measuring exposure and doses of radiographic beams	200	10	0	10		
	PC7. Discuss and apply radiation protection principles and codes of practice		30	15	15		
	PC8. Demonstrate an understanding of processing of images in digital form and be familiar with recent advances in imaging		20	5	15		
	PC9. Set up the X-ray machine for the procedure		20	15	5		
	PC10. Carry out routine procedures associated with maintenance of imaging and processing systems		10	4	6		
	PC11. Ensure protection of patients, departmental staff and public from radiation through use of protection instruments and monitoring personnel		10	2	8		
	TOTAL		200	99	101	0	0
4. HSS/ N 0714: Process X-ray films/ Images	PC1. Explain the principles of conventional radiographic imaging		30	30	0		
	PC2. Apply knowledge of conventional radiographic imaging to the production of radiographs and the assessment of image quality		30	10	20		
	PC3. Understand the construction and operation of image processing equipment		20	10	10		
	PC4. Control and manipulate parameters associated with exposure and processing to produce a required image of desirable quality	200	30	15	15		
	PC5. Perform X-ray film / image processing techniques (including dark room techniques)		40	10	30		
	PC6. Explain and implement the fundamentals, concepts and applications of processing of images in digital form using computer based systems		30	10	20		

	PC7. Carry out quality control for automatic film processing, evaluate and act on results		20	5	15		
	TOTAL		200	90	110	0	0
5.HSS/ N 0715: Prepare and document conventional radiological reports	PC1. Correctly identify anatomical features on the radiographs and identity some major pathological and traumatic conditions	200	60	30	40		
	PC2. Seek the advice of the Radiologist on conditions identified		60	40	30		
	PC3. Document the comments and diagnosis of the Radiologist in a report for the patient		60	40	20		
	PC4. Maintaining the patient record		20	5	15		
	TOTAL		200	110	90	0	0
HSS/ N 9614 : Recognize Healthy body systems	PC1. Correctly use and interpret the medical terminology that describes normal structure, function & location of major body systems	200	30	10	20		
	PC2. Correctly use and interpret the information that relates to the interrelationship between major components of each body system and other structure		40	20	20		
	PC3. Review the factors that contribute to maintain whole body health		60	20	40		
	PC4. Evaluate how relationship between different body systems affect and support healthy functioning		40	10	30		
	PC5. Enhance quality of work by using and sharing information about healthy functioning of the body		30	10	20		
	TOTAL		200	70	130		
7. HSS/ N 9608: Follow radiation safety guidelines	PC1. Confirm sources of radiation and likely type of exposure for all individuals within the work area	200	20	15	5		
	PC2. Apply appropriate assessment methodology suitable for source, type of exposure, dose, level of risk and the recipients' exposure time		30	20	10		
	PC3. Confirm that all required procedures and associated safety measures are compliant with current and relevant legislation requirements		20	15	5		
	PC4. Determine and assess the appropriateness of the projected radiation dose over a suitable period of time for an individual or key staff and other personnel		30	20	10		
	PC5. Record the results of the assessment accurately and in correct format, referencing any monitoring measurements taken to accepted published values to indicate conformance within accepted safety guidance limits for the procedures undertaken within the work practice		20	10	10		

	PC6. Communicate and provide information, advice and guidance effectively in the appropriate medium to meet the individuals needs and preferences	20	0	10		
	PC7. Report actual and potential risks from radiation, in context, to other healthcare professionals and where appropriate seek assistance and advice	10	5	5		
	PC8. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, policies and protocols	10	5	5		
	PC9. Confirm that all required procedures and associated safety measures are current and compliant with relevant legislation PC10. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, local policies and protocols	20	5	15		
		20	10	10		
	TOTAL	200	105	85	0	0
8. HSS/ N 9610 (Follow infection control policies and procedures)	PC1. Preform the standard precautions to prevent the spread of infection in accordance with organisation requirements	5	0	5		
	PC2. Preform the additional precautions when standard precautions alone may not be sufficient to prevent transmission of infection	5	0	5		
	PC3. Minimise contamination of materials, equipment and instruments by aerosols and splatter	5	5	0		
	PC4. Identify infection risks and implement an appropriate response within own role and responsibility	20	10	10		
	PC5. Document and report activities and tasks that put patients and/or other workers at risk	5	0	5		
	PC6. Respond appropriately to situations that pose an infection risk in accordance with the policies and procedures of the organization	5	0	5		
	PC7. Follow procedures for risk control and risk containment for specific risks	10	0	10		
	PC8. Follow protocols for care following exposure to blood or other body fluids as required	10	0	10		
	PC9. Place appropriate signs when and where appropriate	20	10	10		
	PC10. Remove spills in accordance with the policies and procedures of the organization	5	0	5		
	PC11. Maintain hand hygiene by washing hands before and after patient contact and/or after any activity likely to cause contamination	5	0	5		
	PC12. Follow hand washing procedures	5	0	5		
	PC13. Implement hand care procedures	5	0	5		
	PC14. Cover cuts and abrasions with water-proof dressings and change as necessary	5	5	0		
	PC15. Wear personal protective clothing and equipment that complies with Indian Standards, and is appropriate for the intended use	5	0	5		

PC16. Change protective clothing and gowns/aprons daily, more frequently if soiled and where appropriate, after each patient contact	200	5	0	5			
PC17. Demarcate and maintain clean and contaminated zones in all aspects of health care work		20	10	10			
PC18. Confine records, materials and medicaments to a well-designated clean zone							
PC19. Confine contaminated instruments and equipment to a well-designated contaminated zone							
PC20. Wear appropriate personal protective clothing and equipment in accordance with occupational health and safety policies and procedures when handling waste		5	0	5			
PC21. Separate waste at the point where it has been generated and dispose of into waste containers that are colour coded and identified		5	0	5			
PC22. Store clinical or related waste in an area that is accessible only to authorised persons		5	5	0			
PC23. Handle, package, label, store, transport and dispose of waste appropriately to minimise potential for contact with the waste and to reduce the risk to the environment from accidental release		5	0	5			
PC24. Dispose of waste safely in accordance with policies and procedures of the organisation and legislative requirements		5	5	0			
PC25. Wear personal protective clothing and equipment during cleaning procedures		5	0	5			
PC26. Remove all dust, dirt and physical debris from work surfaces		5	0	5			
PC27. Clean all work surfaces with a neutral detergent and warm water solution before and after each session or when visibly soiled		5	0	5			
PC28. Decontaminate equipment requiring special processing in accordance with quality management systems to ensure full compliance with cleaning, disinfection and sterilisation protocols		5	0	5			
PC29. Dry all work surfaces before and after use		5	0	5			
PC30. Replace surface covers where applicable		5	0	5			
PC31. Maintain and store cleaning equipment		5	5	0			
		200	55	145			
TOTAL							

Soft Skills and Communication	Pick one field from both parts each carrying 50 marks totalling 100

National Occupational Standards (NOS)	Performance Criteria (PC)	Total Marks (100)	Out Of	Marks Allocation		Marks Awarded by Assessor		Grand Total of Practical
				Viva	Observation / Role Play	Viva	Skills Practical	
Part 1 (Pick one field randomly carrying 50 marks)								
1. Attitude								

HSS/ N 9603 (Act within the limits of one's competence and authority)	PC1. Adhere to legislation, protocols and guidelines relevant to one's role and field of practice	50	5	1	4			
	PC2. Work within organisational systems and requirements as appropriate to one's role		5	2	3			
	PC3. Recognise the boundary of one's role and responsibility and seek supervision when situations are beyond one's competence and authority		10	5	5			
	PC4. Maintain competence within one's role and field of practice		5	2	3			
	PC5. Use relevant research based protocols and guidelines as evidence to inform one's practice		5	2	3			
	PC6. Promote and demonstrate good practice as an individual and as a team member at all times		5	3	2			
	PC7. Identify and manage potential and actual risks to the quality and safety of practice		10	5	5			
	PC8. Evaluate and reflect on the quality of one's work and make continuing improvements		5	2	3			
			50	22	28			
Attitude Total		50						
2. Work Management								
HSS/ N 9602 (Ensure availability of medical and diagnostic supplies)	PC1. Maintain adequate supplies of medical and diagnostic supplies	50	15	10	5			
	PC2. Arrive at actual demand as accurately as possible		8	3	5			
	PC3. Anticipate future demand based on internal, external and other contributing factors as accurately as possible		10	5	5			
	PC4. Handle situations of stock-outs or unavailability of stocks without compromising health needs of patients/ individuals		17	7	10			
			50	25	25			
3. Attiquete								
HSS/ N 9601 (Collate and Communicate Health Information)	PC1. Respond to queries and information needs of all individuals	50	4	2	2			
	PC2. Communicate effectively with all individuals regardless of age, caste, gender, community or other characteristics		10	5	5			
	PC3. Communicate with individuals at a pace and level fitting their understanding, without using terminology unfamiliar to them		10	5	5			
	PC4. Utilise all training and information at one's disposal to provide relevant information to the individual		10	5	5			
	PC5. Confirm that the needs of the individual have been met		4	2	2			
	PC6. Adhere to guidelines provided by one's organisation or regulatory body relating to confidentiality		4	2	2			
	PC7. Respect the individual's need for privacy		4	2	2			
	PC8. Maintain any records required at the end of the interaction		4	2	2			
			50	25	25			
Part 2 (Pick one field as per NOS marked carrying 50 marks)								
1. Team Work (Evaluate with NOS: HSS/N/0304, 0305, 0306, 0307)								
2. Safety management (Evaluate with NOS: HSS/N/0301, 0302, 0303, 0409, 9610)								
HSS/ N 9606 (Maintain a safe, healthy, and secure	PC1. Identify individual responsibilities in relation to maintaining workplace health safety and security requirements		6	2	4			

working environment)	PC2. Comply with health, safety and security procedures for the workplace	50	4	0	4		
	PC3. Report any identified breaches in health, safety, and security procedures to the designated person		4	3	1		
	PC4. Identify potential hazards and breaches of safe work practices		6	4	2		
	PC5. Correct any hazards that individual can deal with safely, competently and within the limits of authority		6	4	2		
	PC6. Promptly and accurately report the hazards that individual is not allowed to deal with, to the relevant person and warn other people who may get affected		6	4	2		
	PC7. Follow the organisation's emergency procedures promptly, calmly, and efficiently		6	2	4		
	PC8. Identify and recommend opportunities for improving health, safety, and security to the designated person		6	4	2		
	PC9. Complete any health and safety records legibly and accurately		6	2	4		
			50	25	25		
3. Waste Management (Evaluate with NOS: HSS/N/5105, 5108, 5114, 5115)							
HSS/ N 9609 (Follow biomedical waste disposal protocols)	PC1.Follow theappropriateprocedures,policiesand protocols for the methodof collectionandcontainmentlevelaccording to the waste type	50	6	2	4		
	PC2.Apply appropriatehealthandsafety measures and standard precautions for infection prevention and control and personal protective equipment relevant to the type and category of waste PC3. Segregate the waste material from work areas in line with current legislation and organisational requirements PC4. Segregation should happen at source with proper containment, by using different colour coded bins for different categories of waste PC5. Check the accuracy of the labelling that identifies the type and content of waste PC6. Confirm suitability of containers for any required course of action appropriate to the type of waste disposal PC7. Check the waste has undergone the required processes to make it safe for transport and disposal PC8. Transport the waste to the disposal site, taking into consideration its associated risks PC9. Report and deal with spillages and contamination in accordance with current legislation and procedures PC10. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, local policies and protocols		8	4	4		
			4	0	4		
			8	4	4		
			4	2	2		
			4	4	0		
			4	4	0		
			4	4	0		
			4	4	0		
			4	4	0		
			50	32	18		
HSS/ N 9611: Monitor and assure quality	PC1. Conduct appropriate research and analysis		6	2	4		
	PC2. Evaluate potential solutions thoroughly		8	4	4		
	PC3. Participate in education programs which include current techniques, technology and trends pertaining to the dental industry		4	0	4		

	PC4. Read Dental hygiene, dental and medical publications related to quality consistently and thoroughly		8	4	4			
	PC5. Report any identified breaches in health, safety, and security procedures to the designated person		4	2	2			
	PC6. Identify and correct any hazards that he/she can deal with safely, competently and within the limits of his/her authority	50	4	4	0			
	PC7. Promptly and accurately report any hazards that he/she is not allowed to deal with to the relevant person and warn other people who may be affected		4	4	0			
	PC8. Follow the organisation's emergency procedures promptly, calmly, and efficiently		4	4	0			
	PC9. Identify and recommend opportunities for improving health, safety, and security to the designated person		4	4	0			
	PC10. Complete any health and safety records legibly and accurately		4	4	0			
			50	32	18			

Assessment Form (To be filled by Assessor for Each Trainee)						
Job Role	X ray Technician	Trainee Name			Batch	
Qualification Pack	HSS/ Q 0701	Taining Partner				
Sector Skill Council		Name of Assessor				
Name & Signature of Representative & Stamp of Assessing Body:						
Grand Total-1 (Subject Domain)		80 20 100				
Grand Total-2 (Soft Skills and Comunication)						
Grand Total-(Theory)						
Detailed Break Up of Marks		Theory				
Subject Domain		Pick each NOS Compulsorily totalling 80				
National Occupational Standards (NOS)	Performance Criteria (PC)	Total Marks (80)	Marks Awarded by Marks Allocation Theory	Assessor Theory	Grand Total of Theory	
1. HSS/ N 0711: Comprehend conventional radiological needs of patients	PC1. Explain the subdivisions of anatomy, terms of location and position,fundamental planes, vertebrate structure of man, organisation of the body cells and tissues	15				
	PC2. Explain the pathology of various systems: cardiovascular system, respiratory system, central nervous system, musculoskeletal system, GIT,					
	PC3. Explain the pathology of radiation injury and malignancies					
	PC4. Understand specific requests of physicians with respect to the scans required					
	PC5. Take medical history of the patient and document it as required					
	PC6. Understand and interpret instructions and requirements documented by the physician in the patient’s prescription					
	PC7. Determine the radiological diagnostic tests required for the patient based on the physician’s prescription and the medical history					
	Total		15			
2.HSS/ N 0712: Prepare the patient and the room for the procedure	PC1. Prepare the room, apparatus and instruments for conventional radiological procedures like X-ray, BMD or Mammography					
	PC2. Set up the machine for the desired procedure					

	PC3. Position the patient correctly for an x-ray in the following positions: a. Erect b. Sitting c. Supine d. Prone e. Lateral f. Oblique g. Decubitus				
	PC4. Explain relative positions of x-ray tube and patient and the relevant exposure factors related to these				
	PC5. Explain the use of accessories such as Radiographic cones, grid and positioning aids				
	PC6. Explain the anatomic and physiological basis of the procedure to be undertaken				
	~~PC7. Explain the radiographic appearances of both normal and common~~ abnormal conditions in order to ensure application of the appropriate radiographic technique ~~PC8. Apply modifications in positioning technique for various disabilities~~ and types of subject ~~PC9. Explain the principles of radiation physics detection and measurement~~	15			
	PC10. Explain the biological effects of radiation				
	PC11.Explain the principles of radiation protection: Maximum permissible exposure concept b. Annual dose equivalent limits (ADEL) ALARA concept c. International recommendations and current code of practice for the protection of persons against ionising radiation from medical and dental use				
	PC12.Explain the use of protective materials: a. Lead b. Lead – impregnated substances c. Building materials d. Concept of barriers e. Lead equivalents and variations f. Design of x-ray tubes related to protection. g. Structural shielding design (work-load, use factor, occupancy factor, distance				
	PC13. Explain the instruments of radiation protection, use of gonad shield and practical methods for reducing radiation dose to the patient				

	PC14. Ensure protection of self, patients, departmental staff and public from radiation through use of protection instruments and monitoring personnel and the work area				
	Total		15		
3. HSS/ N 0713: Operate and oversee operation of conventional radiological equipment	PC1. Describe the construction and operation of general radiographic equipment	10			
	PC2. Reliably perform all non-contrast plain Radiography, and contrast radiography in special situations				
	PC3. Apply quality control procedures for all radiologic equipment				
	PC4. Control and manipulate parameters associated with exposure and processing to produce a required image of desirable quality				
	PC5. Practice the procedures employed in producing a radiographic image				
	PC6. Describe methods of measuring exposure and doses of radiographic beams				
	PC7. Discuss and apply radiation protection principles and codes of practice				
	PC8. Demonstrate an understanding of processing of images in digital form and be familiar with recent advances in imaging				
	PC9. Set up the X-ray machine for the procedure				
	PC10. Carry out routine procedures associated with maintenance of imaging and processing systems				
	PC11. Ensure protection of patients, departmental staff and public from radiation through use of protection instruments and monitoring personnel and the work area				
	Total		10		
4. HSS/ N 0714: Process X-ray films/ Images	PC1. Explain the principles of conventional radiographic imaging	10			
	PC2. Apply knowledge of conventional radiographic imaging to the production of radiographs and the assessment of image quality				
	PC3. Understand the construction and operation of image processing equipment				
	PC4. Control and manipulate parameters associated with exposure and processing to produce a required image of desirable quality				

	PC5. Perform X-ray film / image processing techniques (including dark room techniques)				
	PC6. Explain and implement the fundamentals, concepts and applications of processing of images in digital form using computer based systems				
	PC7. Carry out quality control for automatic film processing, evaluate and act on results				
	Total		10		
5.HSS/ N 0715: Prepare and document conventional radiological reports	PC1. Correctly identify anatomical features on the radiographs and identity some major pathological and traumatic conditions	10			
	PC2. Seek the advice of the Radiologist on conditions identified				
	PC3. Document the comments and diagnosis of the Radiologist in a report for the patient				
	PC4. Maintaining the patient record				
	Total		10		
HSS/ N 9614 : Recognize Healthy body systems	PC1. Correctly use and interpret the medical terminology that describes normal structure, function & location of major body	5			
	PC2. Correctly use and interpret the information that relates to the interrelationship between major components of each body system				
	PC3. Review the factors that contribute to maintain whole body health				
	PC4. Evaluate how relationship between different body systems affect and support healthy functioning				
	PC5. Enhance quality of work by using and sharing information about healthy functioning of the body				
	Total		5		
7. HSS/ N 9608: Follow radiation safety guidelines	PC1. Confirm sources of radiation and likely type of exposure for all individuals within the work area	10			
	PC2. Apply appropriate assessment methodology suitable for source, type				
	PC3. Confirm that all required procedures and associated safety measures are compliant with current and relevant legislation requirements				
	PC4. Determine and assess the appropriateness of the projected radiation dose over a suitable period of time for an individual or key staff and other personnel PC5. Record the results of the assessment accurately and in correct format, referencing any monitoring measurements taken to accepted published values to indicate conformance within accepted safety guidance limits for the procedures undertaken within the work practice				

	PC6. Communicate and provide information, advice and guidance effectively in the appropriate medium to meet the individuals needs and preferences				
	PC7. Report actual and potential risks from radiation, in context, to other healthcare professionals and where appropriate seek assistance and advice				
	PC8. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, policies and protocols				
	PC9. Confirm that all required procedures and associated safety measures are current and compliant with relevant legislation				
	PC10. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, local policies and protocols				
	Total		10		
8. HSS/ N 9610 (Follow infection control policies and procedures)	PC1. Preform the standard precautions to prevent the spread of infection in accordance with organisation requirements				
	PC2. Preform the additional precautions when standard precautions alone may not be sufficient to prevent transmission of infection				
	PC3. Minimise contamination of materials, equipment and instruments by aerosols and splatter				
	PC4. Identify infection risks and implement an appropriate response within own role and responsibility				
	PC5. Document and report activities and tasks that put patients and/or other workers at risk				
	PC6. Respond appropriately to situations that pose an infection risk in accordance with the policies and procedures of the organization				
	PC7. Follow procedures for risk control and risk containment for specific risks				
	PC8. Follow protocols for care following exposure to blood or other body fluids as required				
	PC9. Place appropriate signs when and where appropriate				
	PC10. Remove spills in accordance with the policies and procedures of the organization				
	PC11. Maintain hand hygiene by washing hands before and after patient contact and/or after any activity likely to cause contamination				
	PC12. Follow hand washing procedures				
	PC13. Implement hand care procedures				
	PC14. Cover cuts and abrasions with water-proof dressings and change as necessary				
	PC15. Wear personal protective clothing and equipment that complies with Indian Standards, and is appropriate for the intended use				
	PC16. Change protective clothing and gowns/aprons daily, more frequently if soiled and where appropriate, after each patient contact				

	PC17. Demarcate and maintain clean and contaminated zones in all aspects of health care work				
	PC18. Confine records, materials and medicaments to a well-designated clean zone				
	PC19. Confine contaminated instruments and equipment to a well-designated contaminated zone				
	PC20. Wear appropriate personal protective clothing and equipment in accordance with occupational health and safety policies and procedures when handling waste				
	PC21. Separate waste at the point where it has been generated and dispose of into waste containers that are colour coded and identified				
	PC22. Store clinical or related waste in an area that is accessible only to authorised persons				
	PC23. Handle, package, label, store, transport and dispose of waste appropriately to minimise potential for contact with the waste and to reduce the risk to the environment from accidental release				
	PC24. Dispose of waste safely in accordance with policies and procedures of the organisation and legislative requirements				
	PC25. Wear personal protective clothing and equipment during cleaning procedures				
	PC26. Remove all dust, dirt and physical debris from work surfaces				
	PC27. Clean all work surfaces with a neutral detergent and warm water solution before and after each session or when visibly soiled				
	PC28. Decontaminate equipment requiring special processing in accordance with quality management systems to ensure full compliance with cleaning, disinfection and sterilisation protocols				
	PC29. Dry all work surfaces before and after use				
	PC30. Replace surface covers where applicable				
	PC31. Maintain and store cleaning equipment				
	Total		5		
Soft Skills and Communication		Select each part each carrying 10 marks totalling 20			
National Occupational Standards (NOS)	Performance Criteria (PC)	Total Marks (20)	Marks Allocation	Marks Awarded by Assessor	Grand Total of Theory
			Theory	Theory	
Part 1 (Pick one field randomly carrying 50 marks)					
1. Attitude					
HSS/ N 9603 (Act within the limits of one's competence and field of practice	PC1. Adhere to legislation, protocols and guidelines relevant to one's role				

and authority)	PC2. Work within organisational systems and requirements as appropriate to one's role	3	3		
	PC3. Recognise the boundary of one's role and responsibility and seek supervision when situations are beyond one's competence and authority				
	PC4. Maintain competence within one's role and field of practice				
	PC5. Use relevant research based protocols and guidelines as evidence to inform one's practice				
	PC6. Promote and demonstrate good practice as an individual and as a team member at all times				
	PC7. Identify and manage potential and actual risks to the quality and safety of practice				
	PC8. Evaluate and reflect on the quality of one's work and make continuing improvements				
	Total		3		
Attitude Total					
2. Work Management					
HSS/ N 9602 (Ensure availability of medical and diagnostic supplies)	PC1. Maintain adequate supplies of medical and diagnostic supplies	4	4		
	PC2. Arrive at actual demand as accurately as possible				
	PC3. Anticipate future demand based on internal, external and other contributing factors as accurately as possible				
	PC4. Handle situations of stock-outs or unavailability of stocks without compromising health needs of patients/ individuals				
	Total		4		
3. Attiquete					
HSS/ N 9601 (Collate and Communicate Health Information)	PC1. Respond to queries and information needs of all individuals	3	3		
	PC2. Communicate effectively with all individuals regardless of age, caste, gender, community or other characteristics				
	PC3. Communicate with individuals at a pace and level fitting their understanding, without using terminology unfamiliar to them				
	PC4. Utilise all training and information at one's disposal to provide relevant information to the individual				
	PC5. Confirm that the needs of the individual have been met				
	PC6. Adhere to guidelines provided by one's organisation or regulatory body relating to confidentiality				
	PC7. Respect the individual's need for privacy				
	PC8. Maintain any records required at the end of the interaction				
	Total		3		
Attiquete Total					
Part 2 (Pick one field as per NOS marked carrying 50 marks)					
1. Team Work (Evaluate with NOS: HSS/N/0304, 0305, 0306, 0307)					
2. Safety management (Evaluate with NOS: HSS/N/0301, 0302, 0303, 0409, 9610)					
HSS/ N 9606 (Maintain a safe, healthy, and secure	PC1. Identify individual responsibilities in relation to maintaining workplace health safety and security requirements				

working environment)	PC2. Comply with health, safety and security procedures for the workplace PC3. Report any identified breaches in health, safety, and security procedures to the designated person PC4. Identify potential hazards and breaches of safe work practices PC5. Correct any hazards that individual can deal with safely, competently and within the limits of authority PC6. Promptly and accurately report the hazards that individual is not allowed to deal with, to the relevant person and warn other people who may get affected PC7. Follow the organisation's emergency procedures promptly, calmly, and efficiently PC8. Identify and recommend opportunities for improving health, safety, and security to the designated person PC9. Complete any health and safety records legibly and accurately	3	3		
	Total		3		
3. Waste Management (Evaluate with NOS: HSS/N/5105, 5108, 5114, 5115)					
HSS/ N 9609 (Follow biomedical waste disposal protocols)	PC1. Identify the appropriate type of waste and the precautions for infection prevention and control and personal protective equipment relevant to the type and category of waste PC3. Segregate the waste material from work areas in line with current legislation and organisational requirements PC4. Segregation should happen at source with proper containment, by using different colour coded bins for different categories of waste PC5. Check the accuracy of the labelling that identifies the type and content of waste PC6. Confirm suitability of containers for any required course of action appropriate to the type of waste disposal PC7. Check the waste has undergone the required processes to make it safe for transport and disposal PC8. Transport the waste to the disposal site, taking into consideration its associated risks PC9. Report and deal with spillages and contamination in accordance with current legislation and procedures PC10. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, local policies and protocols	5	5		
	Total		5		
4. Quality Assurance					
HSS/ N 9611: Monitor and assure quality	PC1. Conduct appropriate research and analysis PC2. Evaluate potential solutions thoroughly				

	PC3. Participate in education programs which include current techniques, technology and trends pertaining to the dental industry	2	2		
	PC4. Read Dental hygiene, dental and medical publications related to quality consistently and thoroughly				
	PC5. Report any identified breaches in health, safety, and security procedures to the designated person				
	PC6. Identify and correct any hazards that he/she can deal with safely, competently and within the limits of his/her authority				
	PC7. Promptly and accurately report any hazards that he/she is not allowed to deal with to the relevant person and warn other people who may be affected				
	PC8. Follow the organisation's emergency procedures promptly, calmly, and efficiently				
	PC9. Identify and recommend opportunities for improving health, safety, and security to the designated person				
	PC10. Complete any health and safety records legibly and accurately				
Part 2 Total	10	2			