

## QUALIFICATION PACK - OCCUPATIONAL STANDARDS FOR HEALTHCARE

### 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

### Contact Us:

Healthcare Sector Skill Council  
711, 7th Floor, DLF Tower A,  
Jasola District Centre  
New Delhi - 110025  
Ph : 011 40505850  
Website: [www.healthcare-ssc.in](http://www.healthcare-ssc.in)  
Email ID : [info@healthcare-ssc.in](mailto:info@healthcare-ssc.in)



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## Introduction

### Qualifications Pack: X-ray Technician

**SECTOR** : HEALTH

**SUB-SECTOR** : Allied Health and Paramedics

**OCCUPATION** : X- ray Technician

**REFERENCE ID** : 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 & maintain 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 the capacity to visualize two and three-dimensional spatial.

|             |                          |                            |                  |            |
|-------------|--------------------------|----------------------------|------------------|------------|
| 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                   | <p>Perform diagnostic imaging examinations such as X-ray images, BMD and Mammography scans under the guidance of a Radiologist. Prepare patient, unit &amp; machine for tests; keep patient records and test recommended along with maintaining equipment.</p> <p>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.</p> |
| 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  |

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

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                           | Description gives a short summary of the unit content. This would be 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.  |

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| 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                   | <p>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 recorded on a computer or film.</p> <ul style="list-style-type: none"> <li>Structures that are dense (such as bone) will block most of the x-ray particles, and will appear white</li> <li>Metal and contrast media (special dye used to highlight areas of the body) will also appear white</li> <li>Structures containing air will be black, and muscle, fat, and fluid will appear as shades of grey</li> </ul> |

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                                  |

HSS/ N 0711:

Comprehend conventional radiological needs of patients

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# National Occupational Standards



## A Overview

This Occupational Standard describes the knowledge, understanding and skills required of an X-ray Technician to carry out conventional radiological procedures as per the need of the patient.



HSS/ N 0711:

Comprehend conventional radiological needs of patients

National Occupational Standard

| Unit Code  | HSS/ N 0711   |
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| Description  | This OS unit is about the knowledge, understanding and skills required 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  | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>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</li> </ul>   |
| Performance Criteria (PC) w.r.t. the Scope   |   |
| Element  | Performance Criteria  |
| <ul style="list-style-type: none"> <li>Patient medical history and interpreting conventional radiological needs</li> </ul> | <p>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:</p> <ol style="list-style-type: none"> <li>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)</li> <li>The basics of the respiratory system (various parts of respiratory system and their functions, physiology of respiration)</li> <li>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)</li> <li>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)</li> <li>The basics of the reproductive system (physiology and anatomy of male &amp; female reproductive system-prostate &amp; uterus &amp; ovaries etc.)</li> <li>The basics of the musculoskeletal system (classification of bones &amp; joints, structure of skeleton –structure of skeletal muscle – physiology of muscle contraction)</li> <li>The basics of the nervous system (various parts of nervous system-brain and its parts, functions of nervous system - spinal cord &amp; nerves)</li> <li>The basics of the ear, nose, throat and eye (elementary knowledge of structure and functions of organs of taste, smell, hearing, vision)</li> </ol> <p>The basics of the endocrine system (endocrine glands , hormones and functions-thyroid, parathyroid, suprarenal, pituitary, pituitary and pituitary and thymus)</p> |

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|  | <ul style="list-style-type: none"> <li>l. The basics of the haemopoietic and lymphatic system (name of the blood vessels &amp; lymph gland locations)</li> <li>m. The basics of the surface anatomy &amp; surface markings of human body</li> <li>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)</li> <li>o. The basics of the haemopoietic and lymphatic system (name of the blood vessels &amp; lymph gland locations)</li> <li>p. The basics of the surface anatomy &amp; surface markings of human body</li> <li>q. Common cancers and special radiological techniques for diagnosis and management of these e.g. Mammography for breast cancer</li> </ul> <p>PC2. Explain the pathology of various systems: cardiovascular system, respiratory system, central nervous system, musculoskeletal system, GIT, GUT and reproductive system</p> <p>PC3. Explain the pathology of radiation injury and malignancies</p> <p>PC4. Understand specific requests of physicians with respect to the scans required</p> <p>PC5. Take medical history of the patient and document it as required</p> <p>PC6. Understand and interpret instructions and requirements documented by the physician in the patient's prescription</p> <p>PC7. Determine the radiological diagnostic tests required for the patient based on the physician's prescription and the medical history</p> |
| Knowledge and Understanding (K)  |   |
| <p><b>A. Organisational Context</b><br/>(Knowledge of the Healthcare provider/ Organisation and its processes)</p> | <p>The user/individual on the job needs to know and understand:</p> <ul style="list-style-type: none"> <li>KA1. Internal procedures and policies with respect to radiological equipment and scans</li> <li>KA2. Internal procedures and policies on safety precautions to be taken when operating radiological equipment</li> <li>KA3. Administrative policies and disciplinary procedures</li> <li>KA4. Mandatory regulations on safety and risk mitigation when operating radiological equipment</li> <li>KA5. Routine basic maintenance procedures for radiological equipment</li> <li>KA6. How to contact vendors and suppliers for maintenance and repair of radiological equipment</li> <li>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</li> <li>KA8. Documentation required in context of medical history of patient, procedures undertaking and reports</li> <li>KA9. Medico-legal considerations for Radiology Technicians including clinical and ethical responsibilities, definitions of misconduct and malpractice and handling female patients</li> <li>KA10. Penalties for misconduct and malpractice</li> </ul>  |



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

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|                               | <p>The user/individual on the job needs to know and understand how to:</p> <p>SA13. Speak to patients to explain protocols for procedures or examinations, obtain information about the patient's status</p> <p>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</p> <p>SA15. Discuss scheduling, treatment room assignments and workload responsibilities with employees and co-workers</p> <p>SA16. Order supplies such as contrast media and radioactive pharmaceuticals from suppliers and hospital dispensaries</p> <p>SA17. Discuss procedural suggestions, equipment malfunctions and personnel problems with the senior technologists, unit or department supervisors or administrative staff</p> <p>SA18. Comfort patients who may be frightened or upset during scanning procedures</p> <p>SA19. Discuss patients' status with nurses, social workers, dieticians or other members of the extended health care team</p> |
| <b>B. Professional Skills</b> | <b>Decision Making</b>   |
|                               | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. Choose the correct film size for the sizes of the areas to be scanned</p> <p>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</p> <p>SB3. Decide which patients will be processed first when they receive multiple requisitions at the same time, or during emergencies</p> <p>SB4. Decide if examinations can be completed under contraindicative or complicating circumstances</p>   |
|                               | <b>Plan and Organise</b>   |
|                               | <p>The user/individual on the job needs to know and understand:</p> <p>SB5. How to determine the order and priority of work tasks subject to confirmation or approval from supervisors</p> <p>SB6. How to integrate work plans with those of the extended health care teams</p> <p>SB7. How to schedule daily work priorities based on the demands of the clinic, laboratory or hospital</p> <p>SB8. How to schedule patient-load based on emergency or appointment priority</p>   |
|                               | <b>Customer Centricity</b>   |
|                               | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB9. Comfort patients who may be frightened or upset during scanning procedures</p> <p>SB10. Liaise with members of the health care team to ensure the needs of the patient are met</p>  |

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|  | <b>Problem Solving</b>   |
|  | <p>The user/individual on the job needs to know and understand how to:</p> <p>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</p> <p>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</p> <p>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</p> <p>SB14. Troubleshoot radiological equipment when a minor fault occurs</p> |
|  | <b>Analytical Thinking</b>   |
|  | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB15. Analyse the prescription of the patient and decide on the best position to take the recommended scan</p> <p>SB16. Analyse the scan images to determine quality and clarity</p> <p>SB17. Analyse the inventory of supplies to decide when to place an order to replenish these</p>  |
|  | <b>Critical Thinking</b>   |
|  | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB18. Make preliminary judgements about the seriousness of patients' injuries</p> <p>SB19. Evaluate the quality of radiographs, digital images and scans</p>   |

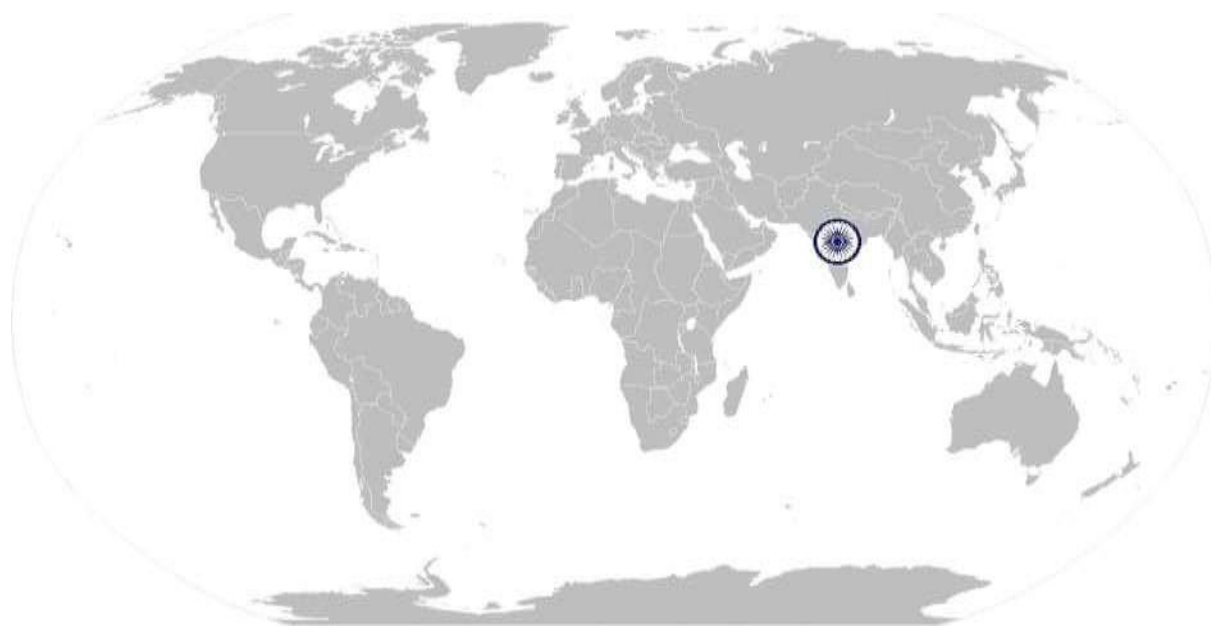
## NOS Version Control

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

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

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# National Occupational Standards



## 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

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| <b>Unit Code</b>   | <b>HSS/ N 0712</b>   |
| <b>Unit Title (Task)</b>   | <b>Prepare the patient and the room for the procedure</b>  |
| <b>Description</b>   | This OS unit is about preparing the room and equipment for conventional radiological procedures and positioning the patient according to the prescription  |
| <b>Scope</b>   | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>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.</li> </ul>   |
| <b>Performance Criteria (PC) w.r.t. the Scope</b>  |  |
| <b>Element</b>   | <b>Performance Criteria</b>  |
| <ul style="list-style-type: none"> <li>Setting up the equipment for images &amp; ensuring safety from radiation to self, coworkers etc.</li> </ul> | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Prepare the room, apparatus and instruments for conventional radiological procedures like X-ray, BMD or Mammography</p> <p>PC2. Set up the machine for the desired procedure</p> <p>PC3. Position the patient correctly for an x-ray in the following positions:</p> <ol style="list-style-type: none"> <li>Erect</li> <li>Sitting</li> <li>Supine</li> <li>Prone</li> <li>Lateral</li> <li>Oblique</li> <li>Decubitus</li> </ol> <p>PC4. Explain relative positions of x-ray tube and patient and the relevant exposure factors related to these</p> <p>PC5. Explain the use of accessories such as Radiographic cones, grid and positioning aids</p> <p>PC6. Explain the anatomic and physiological basis of the procedure to be undertaken</p> <p>PC7. Explain the radiographic appearances of both normal and common abnormal conditions in order to ensure application of the appropriate radiographic technique</p> <p>PC8. Apply modifications in positioning technique for various disabilities and types of subject</p> <p>PC9. Explain the principles of radiation physics detection and measurement</p> <p>PC10. Explain the biological effects of radiation</p> <p>PC11. Explain the principles of radiation protection:</p> <ol style="list-style-type: none"> <li>Maximum permissible exposure concept</li> <li>Annual dose equivalent limits (ADEL) ALARA concept</li> </ol> <p>International recommendations and current code of practice for the protection of persons against ionising radiation from medical and dental use</p> |



HSS/ N 0712:

Prepare the patient and the room for Conventional Radiological procedure

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|  | <p>PC12. Explain the use of protective materials:</p> <ol style="list-style-type: none"> <li>Lead</li> <li>Lead – impregnated substances</li> <li>Building materials</li> <li>Concept of barriers</li> <li>Lead equivalents and variations</li> <li>Design of x-ray tubes related to protection.</li> <li>Structural shielding design (work-load, use factor, occupancy factor, distance</li> </ol> <p>PC13. Explain the instruments of radiation protection, use of gonad shield and practical methods for reducing radiation dose to the patient</p> <p>PC14. Ensure protection of self, patients, departmental staff and public from radiation through use of protection instruments and monitoring personnel and the work area</p>  |
| <b>Knowledge and Understanding (K)</b>   |   |
| <p><b>A. Organisational Context</b><br/>(Knowledge of the Healthcare provider/ Organisation and its processes)</p> | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. Internal procedures and policies with respect to radiological equipment and scans</p> <p>KA2. Internal procedures and policies on safety precautions to be taken when operating radiological equipment</p> <p>KA3. Administrative policies and disciplinary procedures</p> <p>KA4. Mandatory regulations on safety and risk mitigation when operating radiological equipment</p> <p>KA5. Routine basic maintenance procedures for radiological equipment</p> <p>KA6. How to contact vendors and suppliers for maintenance and repair of radiological equipment</p> <p>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</p> <p>KA8. Documentation required of medical history of patient, procedures undertaken and reports</p> <p>KA9. Medico-legal considerations for Radiology Technicians including clinical and ethical responsibilities, definitions of misconduct and malpractice and handling female patients</p> <p>KA10. Penalties for misconduct and malpractice</p> |
| <p><b>B. Technical Knowledge</b></p>   | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. Various positioning techniques for carrying out conventional radiologic procedures :</p> <ol style="list-style-type: none"> <li>Erect</li> <li>Sitting</li> <li>Supine</li> <li>Prone</li> <li>Lateral</li> <li>Decubitus etc.</li> </ol>   |



HSS/ N 0712:

## Prepare the patient and the room for Conventional Radiological procedure

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|   | <p>KB2. The supplies and materials required for taking an X-ray</p> <p>KB3. How to operate radiographic apparatus required for taking an X-ray scan</p> <p>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</p>  |
| <b>Skills (S)</b>                         |  |
| <b>A. Core Skills/<br/>Generic Skills</b> | <p><b>Writing Skills</b></p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>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</p> <p>SA2. Write brief observations about pathologies that may affect diagnoses on patients' charts as directed by radiologist</p> <p>SA3. Write detailed notes about scans done</p> <p>SA4. Write descriptions of accidents and incidents on reporting forms when something unusual occurs during patient exams or scanning procedures</p> <p>SA5. Write memos to advise, inform or direct staff working in other hospital or clinic departments or units</p> <p>SA6. Complete patients' medical history forms by entering the patients' names, treatments received to date and current medical conditions</p>                                |
|   | <p><b>Reading Skills</b></p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA7. Read scan instructions in notes attached to patients' files</p> <p>SA8. Read communications about scheduling, training and updates to internal procedures from co-workers, supervisors or hospital administrators</p> <p>SA9. Read protocol updates and hospital policy changes</p> <p>SA10. Read and follow all specified procedures in the multi-page treatment prescriptions prepared by referring physicians</p> <p>SA11. Review protocols for scanning and identifying non-routine or atypical pathologies in procedure manuals</p> <p>SA12. Read reports of varying lengths completed by physicians, hospital or clinic administrators and supervising technologists</p> <p>SA13. Read user manuals for various types of radiological equipment when troubleshooting faults with scanners or imaging computers</p> |
|   | <p><b>Oral Communication (Listening and Speaking skills)</b></p> <p>The user/individual on the job needs to know and understand how to:</p> <p>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</p>  |
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HSS/ N 0712:

## Prepare the patient and the room for Conventional Radiological procedure

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|                               | <p>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</p> <p>SA16. Discuss scheduling, treatment room assignments and workload responsibilities with employees and co-workers</p> <p>SA17. Discuss procedural suggestions, equipment malfunctions and personnel problems with the senior technologists, unit or department supervisors or administrative staff</p> <p>SA18. Comfort patients who may be frightened or upset during scanning procedures</p> <p>SA19. Discuss patients' status with nurses, social workers, dieticians or other members of the extended health care team</p>  |
| <b>B. Professional Skills</b> | <p><b>Decision Making</b></p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. Decide the supplies and materials required for the procedure</p> <p>SB2. Choose the correct film size for the sizes of the areas to be scanned</p> <p>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</p> <p>SB4. Decide which patients will be processed first when they receive multiple requisitions at the same time, or during emergencies</p> <p>SB5. Decide if examinations can be completed under contraindicative or complicating circumstances</p> <p><b>Plan and Organise</b></p> <p>The user/individual on the job needs to know and understand:</p> <p>SB6. How to determine the order and priority of work tasks subject to confirmation or approval from supervisors</p> <p>SB7. How to integrate work plans with those of the extended health care teams</p> <p>SB8. How to schedule daily work priorities based on the demands of the clinic, laboratory or hospital</p> <p>SB9. How to schedule patient-load based on emergency or appointment priority</p> <p><b>Customer Centricity</b></p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB10. Comfort patients who may be frightened or upset during scanning procedures</p> <p>SB11. Liaise with members of the extended health care team to ensure the needs of the patient are taken care of</p> <p><b>Problem Solving</b></p> <p>The user/individual on the job needs to know and understand how to:</p> <p>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</p> |

HSS/ N 0712:

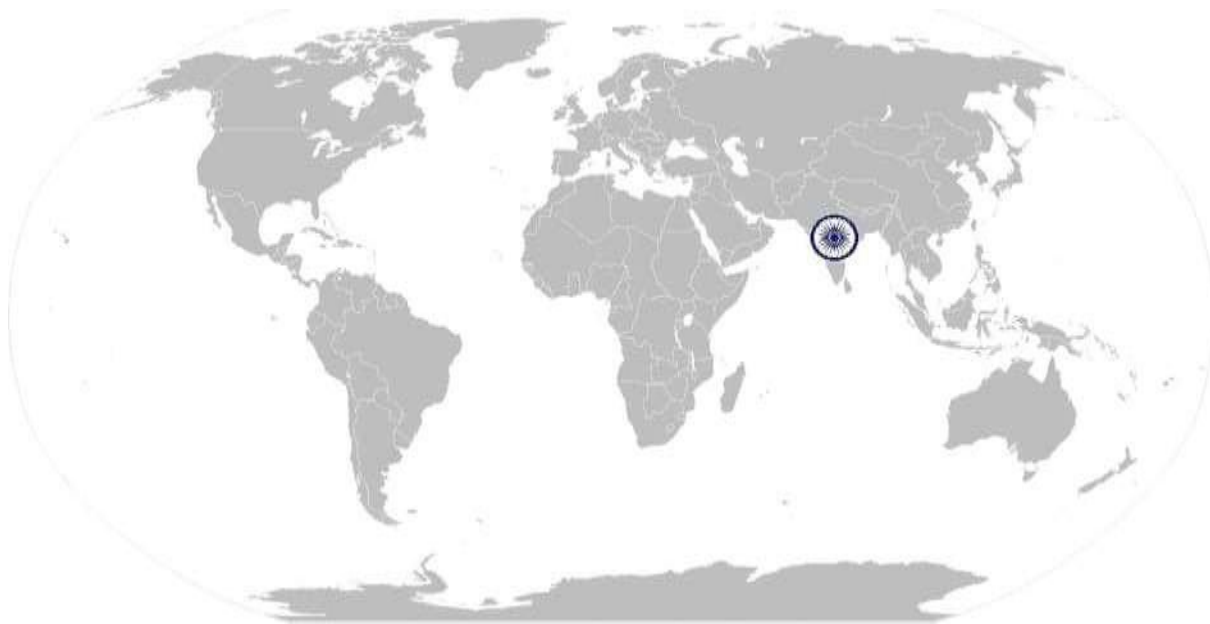
Prepare the patient and the room for Conventional Radiological procedure

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|  | 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   |
|  | <b>Analytical Thinking</b>  |
|  | 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   |
|  | <b>Critical Thinking</b>  |
|  | 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 | Last reviewed on | 08/04/2016 |
| Occupation          | X ray Technician             | Next review date | 07/04/2019 |

# National Occupational Standards



## 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

National Occupational Standard

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| <b>Unit Code</b>   | <b>HSS/ N 0713</b>   |
| <b>Unit Title</b>  | <b>Operate and oversee operation of radiologic equipment</b>   |
| <b>Description</b>   | This OS unit is about operating and overseeing operation of conventional radiological equipment to perform the scans as per patients prescription  |
| <b>Scope</b>   | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>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.</li> </ul>   |
| <b>Performance Criteria (PC) w.r.t. the Scope</b>  |  |
| <b>Element</b>   | <b>Performance Criteria</b>  |
| <ul style="list-style-type: none"> <li>Performing basic views and conventional studies using appropriate radiographic parameters and equipment &amp; troubleshooting and maintenance of imaging and processing systems.</li> </ul> | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Describe the construction and operation of general radiographic equipment</p> <p>PC2. Reliably perform all non-contrast plain Radiography, and contrast radiography in special situations</p> <p>PC3. Apply quality control procedures for all radiologic equipment</p> <p>PC4. Control and manipulate parameters associated with exposure and processing to produce a required image of desirable quality</p> <p>PC5. Practice the procedures employed in producing a radiographic image</p> <p>PC6. Describe methods of measuring exposure and doses of radiographic beams</p> <p>PC7. Discuss and apply radiation protection principles and codes of practice</p> <p>PC8. Demonstrate an understanding of processing of images in digital form and be familiar with recent advances in imaging</p> <p>PC9. Set up the X-ray machine for the procedure</p> <p>PC10. Carry out routine procedures associated with maintenance of imaging and processing systems</p> <p>PC11. Ensure protection of patients, departmental staff and public from radiation through use of protection instruments and monitoring personnel and the work area</p> |
| <b>Knowledge and Understanding (K)</b>   |  |



HSS/ N 0713:

**Operate and oversee operation of conventional radiological equipment**

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| <b>A. Organisational Context</b><br>(Knowledge of the Healthcare provider/ Organisation and its processes) | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. Internal procedures and policies with respect to radiological equipment and scans</p> <p>KA2. Internal procedures and policies on safety precautions to be taken when operating radiological equipment</p> <p>KA3. Administrative policies and disciplinary procedures</p> <p>KA4. Mandatory regulations on safety and risk mitigation when operating radiological equipment</p> <p>KA5. Routine basic maintenance procedures for radiological equipment</p> <p>KA6. How to contact vendors and suppliers for maintenance and repair of radiological equipment</p> <p>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</p> <p>KA8. Documentation required of medical history of patient, procedures undertaken and reports</p> <p>KA9. Medico-legal considerations for Radiology Technicians including clinical and ethical responsibilities, definitions of misconduct and malpractice and handling female patients</p> <p>KA10. Penalties for misconduct and malpractice</p> |
| <b>B. Technical Knowledge</b>  | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. The basic principles essential for operation of an X-ray machine:</p> <ol style="list-style-type: none"> <li>X-Ray and related equipment</li> <li>Main electric supply and distribution</li> <li>Diagnostic X-Ray circuits/Exposure timers/AEC etc.</li> <li>Specialized X-Ray generators - high frequency/shared</li> <li>Cassettes/construction/types/care</li> <li>Grid/construction/types/uses</li> <li>Intensifying screens/construction/type/care/uses</li> <li>Film/construction/type</li> <li>Diagnostic X-Ray tubes (past/present/future)</li> <li>Tube rating and tube supports</li> <li>X-Ray tables/bucky/bucky stands</li> <li>X-Ray films and film processing</li> <li>Image characteristics</li> <li>Quality assurance</li> <li>Presentation and viewing of radiographs</li> </ol> <p>KB2. The pathology of various systems: cardiovascular system, respiratory system, central nervous system, musculoskeletal system, gastro-intestinal tract and reproductive system</p> <p>KB3. Basic principles and practical aspects of x-ray machines</p>  |
| <b>Skills (S)</b>  |  |
| <b>A. Core Skills/</b>   | <b>Writing Skills</b>  |



HSS/ N 0713:

## Operate and oversee operation of conventional radiological equipment

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| <b>Generic Skills</b> | <p>The user/ individual on the job needs to know and understand how to:</p> <ul style="list-style-type: none"> <li>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</li> <li>SA2. Write brief observations about pathologies that may affect diagnoses on patients' charts as directed by radiologist</li> <li>SA3. Write detailed notes about scans done</li> <li>SA4. Write descriptions of accidents and incidents on reporting forms when something unusual occurs during patient exams or scanning procedures</li> <li>SA5. Write memos to advise, inform or direct staff working in other hospital or clinic departments or units</li> <li>SA6. Complete patients' medical history forms by entering the patients' names, treatments received to date and current medical conditions</li> </ul>                                  |
|                       | <b>Reading Skills</b>  |
|                       | <p>The user/individual on the job needs to know and understand how to:</p> <ul style="list-style-type: none"> <li>SA7. Read scan instructions in notes attached to patients' files</li> <li>SA8. Read communications about scheduling, training and updates to internal procedures from co-workers, supervisors or hospital administrators</li> <li>SA9. Read protocol updates and hospital policy changes</li> <li>SA10. Read and follow all specified procedures in the multi-page treatment prescriptions prepared by referring physicians</li> <li>SA11. Review protocols for scanning and identifying non-routine or atypical pathologies in procedure manuals</li> <li>SA12. Read reports of varying lengths completed by physicians, hospital or clinic administrators and supervising technologists</li> <li>SA13. Read user manuals for various types of radiological equipment when troubleshooting faults with scanners or imaging computers</li> </ul> |
|                       | <b>Oral Communication (Listening and Speaking skills)</b>  |

HSS/ N 0713:

## Operate and oversee operation of conventional radiological equipment

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|                                      | <p>The user/individual on the job needs to know and understand how to:</p> <p>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</p> <p>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</p> <p>SA16. Discuss scheduling, treatment room assignments and workload responsibilities with employees and co-workers</p> <p>SA17. Discuss procedural suggestions, equipment malfunctions and personnel problems with the senior technologists, unit or department supervisors or administrative staff</p> <p>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</p> |
| <p><b>B. Professional Skills</b></p> | <p><b>Decision Making</b></p>   |
|                                      | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. Choose the correct film size for the sizes of the areas to be scanned</p> <p>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</p> <p>SB3. Decide which patients will be processed first when they receive multiple requisitions at the same time, or during emergencies</p> <p>SB4. Decide if examinations can be completed under contraindicative or complicating circumstances</p> <p><b>Plan and Organise</b></p>  |

HSS/ N 0713:

## Operate and oversee operation of conventional radiological equipment

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|  | <p>The user/individual on the job needs to know and understand:</p> <p>SB5. How to determine the order and priority of work tasks subject to confirmation or approval from supervisors</p> <p>SB6. How to integrate work plans with those of the extended health care team</p> <p>SB7. How to schedule daily work priorities based on the demands of the clinic, laboratory or hospital</p> <p>SB8. How to schedule patient-load based on emergency or appointment priority</p>  |
|  | <b>Customer Centricity</b>   |
|  | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB9. Comfort patients who may be frightened or upset during scanning procedures</p> <p>SB10. Liaise with members of the extended health care team to ensure the needs of the patient are met</p>   |
|  | <b>Problem Solving</b>   |
|  | <p>The user/individual on the job needs to know and understand how to:</p> <p>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</p> <p>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</p> <p>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</p> <p>SB14. Troubleshoot radiological equipment when a minor fault occurs</p> |
|  | <b>Analytical Thinking</b>   |

HSS/ N 0713:

## Operate and oversee operation of conventional radiological equipment

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

### 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<br>and Paramedics | Last reviewed on | 19/11/2015 |
| Occupation          | X Ray Technician                | Next review date | 19/11/2017 |

# National Occupational Standards



## 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

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| <b>Unit Code</b>  | HSS/ N 0714  |
| <b>Unit Title<br/>(Task)</b>  | Process radiographic images  |
| <b>Description</b>  | This OS unit is about processing of X-ray films/ Images  |
| <b>Scope</b>  | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>Processing X-ray films/ Images &amp; Carrying out quality control tests on images obtained</li> </ul>   |
| <b>Performance Criteria (PC) w.r.t. the Scope</b>   |  |
| <b>Element</b>  | <b>Performance Criteria</b>  |
| <ul style="list-style-type: none"> <li>Processing X-ray films &amp; carry out quality control tests on images obtained</li> </ul> | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Explain the principles of conventional radiographic imaging</p> <p>PC2. Apply knowledge of conventional radiographic imaging to the production of radiographs and the assessment of image quality</p> <p>PC3. Understand the construction and operation of image processing equipment</p> <p>PC4. Control and manipulate parameters associated with exposure and processing to produce a required image of desirable quality</p> <p>PC5. Perform X-ray film / image processing techniques (including dark room techniques)</p> <p>PC6. Explain and implement the fundamental concepts and applications of processing of images in digital form using computer based systems</p> <p>PC7. Carry out quality control for automatic film processing, evaluate and act on results</p>   |
| <b>Knowledge and Understanding (K)</b>  |  |
| <b>A. Organisational Context</b><br>(Knowledge of the Healthcare provider/ Organisation and its processes)                        | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. Internal procedures and policies with respect to radiological equipment and scans</p> <p>KA2. Internal procedures and policies on safety precautions to be taken when operating conventional radiological equipment</p> <p>KA3. Administrative policies and disciplinary procedures</p> <p>KA4. Mandatory regulations on safety and risk mitigation when operating radiological equipment</p> <p>KA5. Routine basic maintenance procedures for radiological equipment</p> <p>KA6. How to contact vendors and suppliers for maintenance and repair of radiological equipment</p> <p>KA7. Inventory policy of the organisation with regard to radiological supplies, contrast agents and other materials used in scans</p> <p>KA8. How to order new supplies</p> <p>KA9. Documentation required of medical history of patient, procedures undertaken and reports</p> <p>KA10. Medico-legal considerations for Radiology Technicians including clinical and</p> |



HSS/ N 0714:

Process X-ray films/ Images

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|                               | <p>ethical responsibilities, definitions of misconduct and malpractice and handling female patients</p> <p>KA11. Penalties for misconduct and malpractice</p>   |
| <b>B. Technical Knowledge</b> | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. The equipment for processing X-ray images:</p> <ol style="list-style-type: none"> <li>X-ray Films and X-ray cassettes</li> <li>Intensifying screens</li> <li>X-ray films types structure &amp; quality – choosing films for different studies</li> <li>Dry &amp; wet processing</li> <li>film processing methods - manual and automatic processing of conventional &amp; modern images</li> <li>types &amp; maintenance of processing rooms and image processing equipment</li> <li>systems advantages &amp; disadvantages of day light systems</li> <li>Typical processing faults</li> <li>Production of best quality images in glossy prints and paper prints etc.</li> <li>Uses of intensifying screen, fluorescence and structure of intensifying screens</li> </ol> <p>KB2. Functions of equipment used for film processing:</p> <ol style="list-style-type: none"> <li>Functions of various components</li> <li>Film roller transport - transport time, film feed system,</li> <li>Importance and relation to temp, fixed and variable time cycles.</li> <li>Care and maintenance (cleaning routine and methods of cleaning)</li> </ol> |

HSS/ N 0714:

## Process X-ray films/ Images

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|  | <p>KB3. Functions and fundamentals of a Dark Room</p> <ol style="list-style-type: none"> <li>Setting up the processing area</li> <li>Dark room design, construction, illumination, entrance safe lighting - types</li> <li>Storage, shelving of films</li> <li>Cleaning and maintenance</li> </ol> <p>KB4. Techniques and principles of Film Processing</p> <ol style="list-style-type: none"> <li>Principles of Acidity, alkalinity, pH, the processing cycle, development, developer solution</li> <li>Principles of Fixing, fixer solution, washing, drying replenishment, checking and adjusting</li> <li>Replenishment rates, manual and automatic processing</li> <li>Silver recovery</li> <li>Auto and manual chemicals</li> </ol> <p>KB5. Fundamentals of X-Ray film and Image processing</p> <ol style="list-style-type: none"> <li>Composition of single and double coated radiographic films, structure of emulsion, film characteristics (speed, base + fog, gamma, latitude)</li> <li>Effect of grain size on film response to exposure, interpretation of characteristics curve</li> <li>Latent image formation ; process of film developing (composition of fixer, developer and other processing solution)</li> <li>Common errors and faults while processing (densitometry), automatic processing (processing cycle), developer replenishment, silver recovery and economics</li> <li>Image intensifiers and cassettes (structure and function)</li> <li>Types of image intensifiers and relative advantage</li> <li>Loading and unloading of cassettes and their care/maintenance</li> <li>Effects of kV and mA on variation of emitted radiation intensity, determination of relative speeds, film contrast, film screen contact</li> <li>Film storage, handling</li> </ol> <p>KB6. Factors affecting Image Quality</p> <ol style="list-style-type: none"> <li>Meaning of radiographic image contrast, density, resolution, sharpness, magnification and distortion of image, noise and blur</li> <li>Radiographic illuminators and viewing conditions, visual acuity and resolution</li> <li>Quality assurance of the related equipment and its benefits with respect to visual assessment</li> </ol> |
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HSS/ N 0714:

Process X-ray films/ Images

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

HSS/ N 0714:

Process X-ray films/ Images

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|  | <b>Oral Communication (Listening and Speaking skills)</b><br><br>The user/individual on the job needs to know and understand how to: <ul style="list-style-type: none"> <li>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</li> <li>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</li> <li>SA15. Discuss scheduling, treatment room assignments and workload responsibilities with employees and co-workers</li> <li>SA16. Order supplies such as contrast media and radioactive pharmaceuticals from suppliers and hospital dispensaries</li> <li>SA17. Discuss procedural suggestions, equipment malfunctions and personnel problems with the senior technologists, unit or department supervisors or administrative staff</li> <li>SA18. Comfort patients who may be frightened or upset during scanning procedures</li> <li>SA19. Discuss patients' status with nurses, social workers, dieticians or other members of the extended health care team</li> </ul>   |
|  | <b>B. Professional Skills</b><br><br><b>Decision Making</b><br><br>The user/individual on the job needs to know and understand how to: <ul style="list-style-type: none"> <li>SB1. Decide the supplies and materials required for the procedure</li> <li>SB2. Choose the correct film size for the sizes of the areas to be scanned</li> <li>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</li> <li>SB4. Decide which patients will be processed first when they receive multiple requisitions at the same time, or during emergencies</li> <li>SB5. Decide if examinations can be completed under contraindicative or complicating circumstances</li> </ul> <b>Plan and Organise</b><br><br>The user/individual on the job needs to know and understand: <ul style="list-style-type: none"> <li>SB6. How to determine the order and priority of work tasks subject to confirmation or approval from supervisors</li> <li>SB7. How to integrate work plans with those of the extended health care teams</li> <li>SB8. How to schedule daily work priorities based on the demands of the clinic, laboratory or hospital</li> <li>SB9. How to schedule patient-load based on emergency or appointment priority</li> </ul> <b>Customer Centricity</b><br><br>The user/individual on the job needs to know and understand how to: |

HSS/ N 0714:

Process X-ray films/ Images

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|  | SB10. Comfort patients who may be frightened or upset during scanning procedures<br>SB11. Liaise with members of the extended health care team to ensure the needs of the patient are taken care of   |
|  | <b>Problem Solving</b>  |
|  | The user/individual on the job needs to know and understand how to:<br><br>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<br>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<br>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<br>SB15. Troubleshoot radiological equipment when a minor fault occurs |
|  | <b>Analytical Thinking</b>  |
|  | The user/individual on the job needs to know and understand how to:<br><br>SB16. Analyse the prescription of the patient and decide on the best position to take the recommended scan<br>SB17. Analyse the scan images to determine quality and clarity<br>SB18. Analyse the inventory of supplies to decide when to place an order to replenish these  |
|  | <b>Critical Thinking</b>  |
|  | The user/individual on the job needs to know and understand how to:<br><br>SB19. Make preliminary judgements about the seriousness of patients' injuries<br>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 |

# National Occupational Standards



## 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:

Prepare and document conventional radiological reports

National Occupational Standard

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| Unit Code  | HSS/ N 0715  |
| Unit Title<br>(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  | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>Taking the advice of a radiologist on the scans performed, preparing reports for patient duly checked and signed by radiologist along with relevant documents &amp; updating the same as per advice of Radiologist</li> </ul>   |
| Performance Criteria (PC) w.r.t. the Scope   |  |
| Element  | Performance Criteria   |
| <ul style="list-style-type: none"> <li>Prepare draft reports after seeking advice of a radiologist</li> </ul>      | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Correctly identify anatomical features on the radiographs and identify some major pathological and traumatic conditions</p> <p>PC2. Seek the advice of the Radiologist on conditions identified</p> <p>PC3. Document the comments and diagnosis of the Radiologist in a report for the patient</p> <p>PC4. Maintaining the patient record</p>  |
| Knowledge and Understanding (K)  |  |
| <p><b>A. Organisational Context</b><br/>(Knowledge of the Healthcare provider/ Organisation and its processes)</p> | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. Internal procedures and policies with respect to radiological equipment and scans</p> <p>KA2. Internal procedures and policies on safety precautions to be taken when operating radiological equipment</p> <p>KA3. Administrative policies and disciplinary procedures</p> <p>KA4. Mandatory regulations on safety and risk mitigation when operating radiological equipment</p> <p>KA5. Routine basic maintenance procedures for radiological equipment</p> <p>KA6. How to contact vendors and suppliers for maintenance and repair of radiological equipment</p> <p>KA7. Inventory policy of the organisation with regard to radiological supplies, contrast agents and other materials used in scans</p> <p>KA8. How to order new supplies</p> <p>KA9. Documentation required of medical history of patient, procedures undertaken and reports</p> <p>KA10. Medico-legal considerations for Radiology Technicians including clinical and ethical responsibilities, definitions of misconduct and malpractice and handling female patients</p> <p>KA11. Penalties for misconduct and malpractice</p> |

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| <b>B. Technical Knowledge</b>             | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. The anatomical features on the radiographs</p> <p>KB2. How to identify major pathological and traumatic conditions</p> <p>KB3. Common emergency conditions in radiography like:</p> <ul style="list-style-type: none"> <li>• Misplaced nasogastric tube/endotracheal (E-T) tube/central venous catheter</li> <li>• Simple/tension pneumothorax</li> <li>• Pleural effusion</li> <li>• Lung/lobar collapse</li> <li>• Lung consolidation</li> <li>• Heart failure</li> <li>• Foreign body</li> <li>• Pneumoperitoneum (on erect CXR)</li> <li>• Small/Large bowel obstruction</li> <li>• Bone fractures</li> <li>• Joint dislocation</li> <li>• Joint effusion</li> <li>• Lipohaemarthrosis</li> </ul> <p>KB4. How to seek the opinion of the radiologist on the scan images/ radiographs produced</p> <p>KB5. How to document the comments and diagnosis of the radiologist in a report</p> <p>KB6. How to adhere to standards and formats prescribed for reports</p> <p>KB7. How to explain the report contents to the patient if required</p> <p>KB8. How to maintain and retrieve patient records</p> |
| <b>Skills (S)</b>                         |  |
| <b>A. Core Skills/<br/>Generic Skills</b> | <p><b>Writing Skills</b></p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>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</p> <p>SA2. Write brief observations about pathologies that may affect diagnoses on patients' charts as directed by radiologist</p> <p>SA3. Write descriptions of accidents and incidents on reporting forms when something unusual occurs during patient exams or scanning procedures</p> <p>SA4. Write memos to advise, inform or direct staff working in other hospital or clinic departments or units</p> <p>SA5. Complete patients' medical history forms by entering the patients' names, treatments received to date and current medical conditions</p> <p><b>Reading Skills</b></p>   |

HSS/ N 0715:

**Prepare and document conventional radiological reports**

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

HSS/ N 0715:

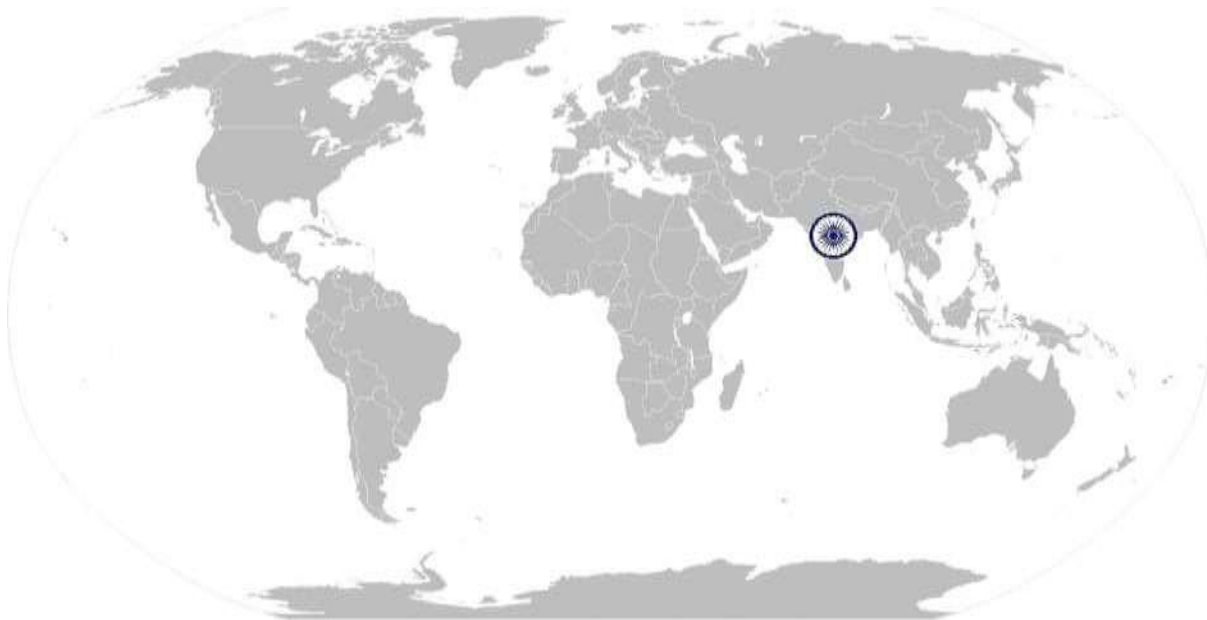
## Prepare and document conventional radiological reports

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|  | <p>The user/individual on the job needs to know and understand how to:</p> <p>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</p> <p>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</p> <p>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</p> <p>SB15. Troubleshoot radiological equipment when a minor fault occurs</p> |
|  | <b>Analytical Thinking</b>   |
|  | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB16. Analyse the prescription of the patient and decide on the best position to take the recommended scan</p> <p>SB17. Analyse the scan images to determine quality and clarity</p> <p>SB18. Analyse the inventory of supplies to decide when to place an order to replenish these</p>  |
|  | <b>Critical Thinking</b>   |
|  | <p>The user/individual on the job needs to know and understand how to:</p> <p>SB19. Make preliminary judgements about the seriousness of patients' injuries</p> <p>SB20. Evaluate the quality of radiographs, digital images and scans</p>   |

## NOS version control

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

# National Occupational Standards



## 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

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|---|--|
| <b>Unit Code</b>  | HSS/ N 9614  |
| <b>Unit Title (Task)</b>  | Recognize Healthy body systems   |
| <b>Description</b>  | 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 healthy functioning of the body.  |
| <b>Scope</b>  | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>Work with information about the human body &amp; recognize and promote the ways to support healthy functioning of the body.</li> </ul>  |
| <b>Performance Criteria (PC) w.r.t. the Scope</b>   |  |
| <b>Element</b>  | <b>Performance Criteria</b>  |
| <ul style="list-style-type: none"> <li>Human body structure and support for healthy body functioning</li> </ul> | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Correctly use and interpret the medical terminology that describes normal structure, function &amp; location of major body systems.</p> <p>PC2. Correctly use and interpret the information that relates to the interrelationship between major components of each body system and other structure</p> <p>PC3. Review the factors that contribute to maintain whole body health</p> <p>PC4. Evaluate how relationship between different body systems affect and support healthy functioning</p> <p>PC5. Enhance quality of work by using and sharing information about healthy functioning of the body</p> |
| <b>Knowledge and Understanding (K)</b>  |  |
| <b>A. Organisational Context</b><br>(Knowledge of the Healthcare provider/ Organisation and its processes)      | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. The use &amp; interpretation of his/her knowledge as per organizational policies and procedures</p> <p>KA2. Guidelines on communicating with individuals</p> <p>KA3. Guidelines on maintaining confidentiality and respecting need for privacy</p> <p>KA4. Guidelines of the organization/ health provider on communicating with individuals and patients</p>  |



HSS/ N 9614 :

Recognize Healthy body systems

|                                   |   |
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| B. Technical Knowledge            | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. Basic structure and function of the body system and associated component including –</p> <ul style="list-style-type: none"> <li>• Cells, tissue &amp; organ</li> <li>• Cardiovascular system</li> <li>• Respiratory System</li> <li>• Musculoskeletal system</li> <li>• Endocrine system</li> <li>• Digestive system</li> <li>• Urinary system</li> <li>• Reproductive system</li> <li>• Integumentary system</li> <li>• Lymphatic system</li> <li>• Nervous system including sensory system- Eye &amp; ears</li> <li>• Special senses – smell, taste, visual and equilibrium &amp; Hearing</li> <li>• Immune system</li> </ul> <p>KB2. Process, condition &amp; resources required by the body to support healthy functioning</p> <ul style="list-style-type: none"> <li>• Body regulation including maintenance of body temperature, fluid &amp; electrolyte balance, elimination of body wastes, maintenance of blood pressure</li> <li>• Protection from infection</li> <li>• Active &amp; Passive physical activities</li> </ul> |
| <b>Skills (S)</b>                 |   |
| A. Core Skills/<br>Generic Skills | <b>Writing Skills</b>   |
|                                   | <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Write at least one local/ official language used in the local community</p> <p>SA2. Maintain any records required after the interaction</p>   |
|                                   | <b>Reading Skills</b>   |
|                                   | <p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. Read instructions and pamphlets provided as part of training</p>   |
|                                   | <b>Oral Communication (Listening and Speaking skills)</b>   |
|                                   | <p>The user/individual on the job needs to know and understand how to:</p> <p>SA4. Speak at least one local language</p> <p>SA5. Communicate effectively with all individuals</p>   |
| B. Professional Skills            | <b>Decision Making</b>  |

HSS/ N 9614 :

**Recognize Healthy body systems**

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|  | 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 |
|  | <b>Plan and Organise</b>  |
|  | Not applicable  |
|  | <b>Customer Centricity</b>  |
|  | 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   |
|  | <b>Problem Solving</b>  |
|  | 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   |
|  | <b>Analytical Thinking</b>  |
|  | The user/individual on the job needs to know and understand how to:   |
|  | SB6. Analyze, use & interpret information regarding patients anatomy & physiology   |
|  | <b>Critical Thinking</b>  |
|  | Not applicable  |
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## NOS Version Control

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

# National Occupational Standards



## Overview

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

HSS/ N 9601:

Collate and Communicate Health Information

National Occupational Standard

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|--|---|
| <b>Unit Code</b>   | HSS/ N 9601   |
| <b>Unit Title (Task)</b>   | Collate and Communicate Health Information  |
| <b>Description</b>   | 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  |
| <b>Scope</b>   | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>Communicating with individuals, patients, their family and others about health issues</li> </ul>   |
| <b>Performance Criteria (PC) w.r.t. the Scope</b>  |   |
| <b>Element</b>   | <b>Performance Criteria</b>   |
| <ul style="list-style-type: none"> <li>Communicating with patient and their care givers about health issues</li> </ul> | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Respond to queries and information needs of all individuals</p> <p>PC2. Communicate effectively with all individuals regardless of age, caste, gender, community or other characteristics</p> <p>PC3. Communicate with individuals at a pace and level fitting their understanding, without using terminology unfamiliar to them</p> <p>PC4. Utilise all training and information at one's disposal to provide relevant information to the individual</p> <p>PC5. Confirm that the needs of the individual have been met</p> <p>PC6. Adhere to guidelines provided by one's organisation or regulatory body relating to confidentiality</p> <p>PC7. Respect the individual's need for privacy</p> <p>PC8. Maintain any records required at the end of the interaction</p> |
| <b>Knowledge and Understanding (K)</b>   |   |
| <b>A. Organisational Context</b><br>(Knowledge of the Healthcare provider/ Organisation and its processes)             | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. Guidelines on communicating with individuals</p> <p>KA2. Guidelines on maintaining confidentiality and respecting need for privacy</p> <p>KA3. Guidelines of the organisation/ health provider on communicating with individuals and patients</p>   |

HSS/ N 9601:

**Collate and Communicate Health Information**

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

HSS/ N 9601:

**Collate and Communicate Health Information**

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|  | <b>Customer Centricity</b>  |
|  | 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                                    |
|  | <b>Problem Solving</b>  |
|  | 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 |
|  | <b>Analytical Thinking</b>  |
|  | Not applicable  |
|  | <b>Critical Thinking</b>  |
|  | Not applicable  |

**NOS Version Control**

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



HSS/ N 9602:

Ensure availability of medical and diagnostic supplies

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# National Occupational Standards



## Overview

This Occupational 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

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| <b>Unit Code</b>   | HSS/ N 9602  |
| <b>Unit Title (Task)</b>   | Ensure availability of medical and diagnostic supplies   |
| <b>Description</b>   | 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   |
| <b>Scope</b>   | This unit/task covers the following: <ul style="list-style-type: none"> <li>Anticipating demand and ensuring availability of adequate medical and diagnostic supplies</li> </ul>   |
| <b>Performance Criteria (PC) w.r.t. the Scope</b>  |  |
| <b>Element</b>   | <b>Performance Criteria</b>  |
| <ul style="list-style-type: none"> <li>Medical &amp; Diagnostic supplies management</li> </ul>             | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Maintain adequate supplies of medical and diagnostic supplies</p> <p>PC2. Arrive at actual demand as accurately as possible</p> <p>PC3. Anticipate future demand based on internal, external and other contributing factors as accurately as possible</p> <p>PC4. Handle situations of stock-outs or unavailability of stocks without compromising health needs of patients/ individuals</p> |
| <b>Knowledge and Understanding (K)</b>   |  |
| <b>B. Organisational Context</b><br>(Knowledge of the Healthcare provider/ Organisation and its processes) | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. Centres for restocking supplies</p> <p>KA2. Guidelines on anticipating demand for medical and diagnostic supplies</p> <p>KA3. Contents of all diagnostic and medical kits</p> <p>KA4. Guidelines on procurement and storage of medical and diagnostic kits</p>   |
| <b>B. Technical Knowledge</b>  | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. How to arrive at actual demand for medical and diagnostic supplies</p> <p>KB2. How to anticipate demand</p> <p>KB3. How to maintain/ safely store existing supplies</p> <p>KB4. How to maintain records of available supplies</p> <p>KB5. How to request additional supplies</p>   |

HSS/ N 9602:

Ensure availability of medical and diagnostic supplies

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

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

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|  | 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 |
|  | <b>Analytical Thinking</b>  |
|  | Not applicable  |
|  | <b>Critical Thinking</b>  |
|  | Not applicable  |

**NOS Version Control**

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

HSS/ N 9603:

Act within the limits of one's competence and authority

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# National Occupational Standards



## Overview

This Occupational 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) | Act within the limits of one's competence and authority   |
|   | Description       | <p>This OS unit is about recognising the boundaries of the role and responsibilities and working within the level of competence in accordance with legislation, protocols and guidelines</p> <p>This is applicable to all Allied Health Professionals working in an organised, regulated environment</p>  |
|   | Scope             | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>Acting within the limit of one's competence and authority; <ul style="list-style-type: none"> <li>Knowing one's job role</li> <li>Knowing one's job responsibility</li> <li>Recognising the job role and responsibilities of co workers</li> </ul> </li> </ul> <p><b>Reference:</b> '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'.</p>  |
| Performance Criteria (PC) wrt The Scope   |                   |   |
| Element   |                   | Performance Criteria  |
| <ul style="list-style-type: none"> <li>Acting within the limit of one's competence and authority</li> </ul> |                   | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Adhere to legislation, protocols and guidelines relevant to one's role and field of practice</p> <p>PC2. Work within organisational systems and requirements as appropriate to one's role</p> <p>PC3. Recognise the boundary of one's role and responsibility and seek supervision when situations are beyond one's competence and authority</p> <p>PC4. Maintain competence within one's role and field of practice</p> <p>PC5. Use relevant research based protocols and guidelines as evidence to inform one's practice</p> <p>PC6. Promote and demonstrate good practice as an individual and as a team member at all times</p> <p>PC7. Identify and manage potential and actual risks to the quality and safety of practice</p> <p>PC8. Evaluate and reflect on the quality of one's work and make continuing improvements</p> |
| Knowledge and Understanding (K)   |                   |   |
| A. Organisational Context   |                   | The user/individual on the job needs to know and understand:  |



HSS/ N 9603:

Act within the limits of one's competence and authority

|  |  |
|--|--|
| (Knowledge of the Healthcare provider/ Organisation and its processes) | <p>KA1. The relevant legislation, standards, policies, and procedures followed in the organisation</p> <p>KA2. The medical procedures and functioning of required medical equipment</p> <p>KA3. Role and importance of assisting other healthcare providers in delivering care</p>   |
| <b>B. Technical Knowledge</b>  | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. The boundaries of one's role and responsibilities and other team members</p> <p>KB2. The reasons for working within the limits of one's competence and authority</p> <p>KB3. The importance of personally promoting and demonstrating good practice</p> <p>KB4. The legislation, protocols and guidelines effecting one's work</p> <p>KB5. The organisational systems and requirements relevant to one's role</p> <p>KB6. The sources of information that can be accessed to maintain an awareness of research and developments in one's area of work</p> <p>KB7. The difference between direct and indirect supervision and autonomous practice, and which combination is most applicable in different circumstances</p> <p>KB8. The risks to quality and safety arising from:</p> <ul style="list-style-type: none"> <li>○ Working outside the boundaries of competence and authority</li> <li>○ Not keeping up to date with best practice</li> <li>○ Poor communication</li> <li>○ Insufficient support</li> <li>○ Lack of resources</li> </ul> <p>KB9. The importance of individual or team compliance with legislation, protocols, and guidelines and organisational systems and requirements</p> <p>KB10. How to Report and minimise risks</p> <p>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</p> <p>KB12. The processes by which improvements to protocols/guidelines and organisational systems/requirements should be reported</p> <p>KB13. The procedure for accessing training, learning and development needs for oneself and/or others within one's organisation</p> <p>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</p> |
| <b>Skills (S)</b>  |  |
| <b>A. Core Skills /Generic Skills</b>                                  | <b>Writing Skills</b>  |
|  | <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Document reports, task lists, and schedules</p> <p>SA2. Prepare status and progress reports</p> <p>SA3. Record daily activities</p> <p>SA4. Update other co-workers</p>  |
|  | <b>Reading Skills</b>  |

HSS/ N 9603:

Act within the limits of one's competence and authority

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

HSS/ N 9603:

Act within the limits of one's competence and authority

## 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 |



HSS/ N 9606:

Maintain a safe, healthy, and secure working environment

# National Occupational Standards



## Overview

This Occupational 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 9606:

Maintain a safe, healthy, and secure working environment

National Occupational Standard

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|--|--|
| <b>Unit Code</b>   | HSS/ N 9606  |
| <b>Unit Title (Task)</b>   | Maintain a safe, healthy, and secure working environment   |
| <b>Description</b>   | <p>This OS unit is about monitoring the working environment and ensuring a safe, healthy, secure and effective working conditions</p> <p>This OS unit applies to all Allied Health professionals working within an organised workplace</p>   |
| <b>Scope</b>   | <p>This unit covers the following:</p> <ul style="list-style-type: none"> <li>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</li> </ul>   |
| <b>Performance Criteria (PC) wrt The Scope</b>   |  |
| <b>Element</b>   | <b>Performance Criteria</b>  |
| <ul style="list-style-type: none"> <li>Maintain a safe, healthy &amp; secure environment</li> </ul>        | <p>To be competent, the user/ individual on the job must be able to:</p> <p>PC1. Identify individual responsibilities in relation to maintaining workplace health safety and security requirements</p> <p>PC2. Comply with health, safety and security procedures for the workplace</p> <p>PC3. Report any identified breaches in health, safety, and security procedures to the designated person</p> <p>PC4. Identify potential hazards and breaches of safe work practices</p> <p>PC5. Correct any hazards that individual can deal with safely, competently and within the limits of authority</p> <p>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</p> <p>PC7. Follow the organisation's emergency procedures promptly, calmly, and efficiently</p> <p>PC8. Identify and recommend opportunities for improving health, safety, and security to the designated person</p> <p>PC9. Complete any health and safety records legibly and accurately</p> |
| <b>Knowledge and Understanding (K)</b>   |  |
| <b>A. Organisational Context</b><br>(Knowledge of the Healthcare provider/ Organisation and its processes) | <p>To be competent, the user/ individual on the job needs to know and understand:</p> <p>KA1. The importance of health, safety, and security in the workplace</p> <p>KA2. The basic requirements of the health and safety and other legislations and regulations that apply to the workplace</p> <p>KA3. The person(s) responsible for maintaining healthy, safe, and secure workplace</p> <p>KA4. The relevant up-to-date information on health, safety, and security that applies to the workplace</p> <p>KA5. How to report the hazard</p> <p>KA6. The responsibilities of individual to maintain safe, healthy and secure workplace</p>  |



HSS/ N 9606:

**Maintain a safe, healthy, and secure working environment**

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



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)   |
|  | <b>Problem Solving</b>  |
|  | 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  |
|  | <b>Analytical Thinking</b>  |
|  | To be competent, the user needs to know and understand how to:  |
|  | SB9. Analyse the seriousness of hazards   |
|  | <b>Critical Thinking</b>  |
|  | 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 |

# National Occupational Standards



## Overview

This Occupational 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   | HSS/ N 9608  |
|---|--|
| Unit 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.<br>This is applicable to all Allied Health Professionals.   |
| Scope   | This unit/task covers the following: <ul style="list-style-type: none"> <li>Following and complying with radiation safety guidelines</li> </ul> <p><b>Reference :</b> 'The content of this National Occupational Standard is drawn from the UK Skills for Health NOS [SFHHCS3 Ensure the safety of individuals exposed to radiation within healthcare and SFHHCS4 Measure an individual's healthcare radiation exposure to minimise risk ]'</p>  |
| Performance Criteria (PC) w.r.t. the Scope  |  |
| Element   | Performance Criteria   |
| <ul style="list-style-type: none"> <li>Following radiation safety guidelines</li> </ul> | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Confirm sources of radiation and likely type of exposure for all individuals within the work area</p> <p>PC2. Apply appropriate assessment methodology suitable for source, type of exposure, dose, level of risk and the recipients' exposure time</p> <p>PC3. Confirm that all required procedures and associated safety measures are compliant with current and relevant legislation requirements</p> <p>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</p> <p>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</p> <p>PC6. Communicate and provide information, advice and guidance effectively in the appropriate medium to meet the individuals needs and preferences</p> <p>PC7. Report actual and potential risks from radiation, in context, to other healthcare professionals and where appropriate seek assistance and advice</p> <p>PC8. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, policies and protocols</p> <p>PC9. Confirm that all required procedures and associated safety measures are current and compliant with relevant legislation</p> <p>PC10. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, local policies and protocols</p> |
| 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**

|  |   |
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| (Knowledge of the Healthcare provider/ Organisation and its processes) | <p>KA5. Basic requirements of the health and safety and other legislations and regulations that apply to the organisation</p> <p>KA6. Person(s) responsible for health, safety, and security in the organisation</p> <p>KA7. Relevant up-to-date information on health, safety, and security that applies to the organisation</p> <p>KA8. Organisation's emergency procedures and responsibilities for handling hazardous situations</p>  |
| <b>B. Technical Knowledge</b>  | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. How to communicate effectively in the appropriate medium to meet all recipients' needs in relation to radiation safety</p> <p>KB2. The safety principles for radiation physics including therapy and diagnostic procedures</p> <p>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</p> <p>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</p> <p>KB5. The range of permissible exposure limits applicable to diagnostic investigations or therapeutic interventions with radiation and/or radioactive substances within the organisation</p> <p>KB6. The importance and appropriate methodologies for radiation safety assessments within the organisation</p> <p>KB7. The importance and requirements for radiation safety requirements</p> <p>KB8. The importance of environmental monitoring to minimise the risk of accidental exposure to radiation and to identify if an adverse event occurs</p> <p>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</p> <p>KB10. The range, type and dose of radiation used within diagnostic or therapeutic activities</p> <p>KB11. The factors and circumstances of the working environment that contribute to radiation exposure and the importance of environmental monitoring</p> <p>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</p> |
| <b>Skills (S)</b>  |   |
| <b>A. Core Skills/<br/>Generic Skills</b>                              | <b>Writing Skills</b>   |
|  | The user/ individual on the job needs to know and understand how to:  |
|  | SA1. Report and record incidents  |
|  | <b>Reading Skills</b>   |
|  | 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

|                        |   |
|------------------------|---|
| B. Professional Skills | <b>Oral Communication (Listening and Speaking skills)</b>                       |
|                        | 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>Decision Making</b>  |
|                        | 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   |
|                        | <b>Plan and Organise</b>  |
|                        | 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                                     |
|                        | <b>Customer Centricity</b>  |
|                        | 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 |
|                        | <b>Problem Solving</b>  |
|                        | The user/individual on the job needs to know and understand how to:             |
|                        | SB7. Identify hazards and suggest effective solutions to identified problems    |
|                        | <b>Analytical Thinking</b>  |
|                        | The user/individual on the job needs to know and understand how to:             |
|                        | SB8. Analyse the seriousness of hazards   |
|                        | <b>Critical Thinking</b>  |
|                        | 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 |





HSS/ N 9609:

Follow biomedical waste disposal protocols

# National Occupational Standards



## 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  | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>Classification of the Waste Generated, Segregation of Biomedical Waste &amp; Proper collection and storage of Waste</li> </ul> <p><b>Reference :</b> '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 ]'</p>  |
| Performance Criteria (PC) w.r.t. the Scope                                     |   |
| Element  | Performance Criteria  |
| <ul style="list-style-type: none"> <li>Bio Medical Waste Management</li> </ul> | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Follow the appropriate procedures, policies and protocols for the method of collection and containment level according to the waste type</p> <p>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</p> <p>PC3. Segregate the waste material from work areas in line with current legislation and organisational requirements</p> <p>PC4. Segregation should happen at source with proper containment, by using different colour coded bins for different categories of waste</p> <p>PC5. Check the accuracy of the labelling that identifies the type and content of waste</p> <p>PC6. Confirm suitability of containers for any required course of action appropriate to the type of waste disposal</p> <p>PC7. Check the waste has undergone the required processes to make it safe for transport and disposal</p> <p>PC8. Transport the waste to the disposal site, taking into consideration its associated risks</p> <p>PC9. Report and deal with spillages and contamination in accordance with current legislation and procedures</p> <p>PC10. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, local policies and protocols</p> |
| Knowledge and Understanding (K)  |   |
| A. Organisational Context<br>(Knowledge of the                                 | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. Basic requirements of the health and safety and other legislations and</p>  |

HSS/ N 9609:

Follow biomedical waste disposal protocols

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

HSS/ N 9609:

**Follow biomedical waste disposal protocols**

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

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 |



HSS/ N 9610:

Follow infection control policies and procedures

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# National Occupational Standards



## 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 9610:

Follow infection control policies and procedures

National Occupational Standard

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| Unit Code   | HSS/ N 9610  |
| Unit Title (Task)   | Follow infection control policies and procedures   |
| Description   | <p>This OS unit is about complying with infection control policies and procedures. It is applicable to workers who are responsible for workplace procedures to maintain infection control.</p> <p>This unit applies to all Allied Health professionals.</p>  |
| Scope   | <p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>Complying with an effective infection control protocols that ensures the safety of the patient (or end-user of health-related products/services) &amp; Maintaining personal protection and preventing the transmission of infections from person to person</li> </ul>   |
| Performance Criteria (PC) w.r.t. the Scope                                    |  |
| Element   | Performance Criteria   |
| <ul style="list-style-type: none"> <li>Infection control protocols</li> </ul> | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Preform the standard precautions to prevent the spread of infection in accordance with organisation requirements</p> <p>PC2. Preform the additional precautions when standard precautions alone may not be sufficient to prevent transmission of infection</p> <p>PC3. Minimise contamination of materials, equipment and instruments by aerosols and splatter</p> <p>PC4. Identify infection risks and implement an appropriate response within own role and responsibility</p> <p>PC5. Document and report activities and tasks that put patients and/or other workers at risk</p> <p>PC6. Respond appropriately to situations that pose an infection risk in accordance with the policies and procedures of the organization</p> <p>PC7. Follow procedures for risk control and risk containment for specific risks</p> <p>PC8. Follow protocols for care following exposure to blood or other body fluids as required</p> <p>PC9. Place appropriate signs when and where appropriate</p> <p>PC10. Remove spills in accordance with the policies and procedures of the organization</p> <p>PC11. Maintain hand hygiene by washing hands before and after patient contact and/or after any activity likely to cause contamination</p> <p>PC12. Follow hand washing procedures</p> <p>PC13. Implement hand care procedures</p> <p>PC14. Cover cuts and abrasions with water-proof dressings and change as necessary</p> <p>PC15. Wear personal protective clothing and equipment that complies with Indian Standards, and is appropriate for the intended use</p> <p>PC16. Change protective clothing and gowns/aprons daily, more frequently if soiled</p> |

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|  | <p>and where appropriate, after each patient contact</p> <p>PC17. Demarcate and maintain clean and contaminated zones in all aspects of health care work</p> <p>PC18. Confine records, materials and medicaments to a well-designated clean zone</p> <p>PC19. Confine contaminated instruments and equipment to a well-designated contaminated zone</p> <p>PC20. Wear appropriate personal protective clothing and equipment in accordance with occupational health and safety policies and procedures when handling waste</p> <p>PC21. Separate waste at the point where it has been generated and dispose of into waste containers that are colour coded and identified</p> <p>PC22. Store clinical or related waste in an area that is accessible only to authorised persons</p> <p>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</p> <p>PC24. Dispose of waste safely in accordance with policies and procedures of the organisation and legislative requirements</p> <p>PC25. Wear personal protective clothing and equipment during cleaning procedures</p> <p>PC26. Remove all dust, dirt and physical debris from work surfaces</p> <p>PC27. Clean all work surfaces with a neutral detergent and warm water solution before and after each session or when visibly soiled</p> <p>PC28. Decontaminate equipment requiring special processing in accordance with quality management systems to ensure full compliance with cleaning, disinfection and sterilisation protocols</p> <p>PC29. Dry all work surfaces before and after use</p> <p>PC30. Replace surface covers where applicable</p> <p>PC31. Maintain and store cleaning equipment</p> |
| <b>Knowledge and Understanding (K)</b>   |   |
| <p><b>A. Organisational Context</b><br/>(Knowledge of the Healthcare provider/ Organisation and its processes)</p> | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. The organisation's infection control policies and procedures</p> <p>KA2. Organisation requirements relating to immunisation, where applicable</p> <p>KA3. Standard precautions</p> <p>KA4. Good personal hygiene practice including hand care</p>   |
| <p><b>B. Technical Knowledge</b></p>   | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. Additional precautions</p> <p>KB2. Aspects of infectious diseases including:</p> <ul style="list-style-type: none"> <li>- opportunistic organisms</li> <li>- pathogens</li> </ul> <p>KB3. Basic microbiology including:</p> <ul style="list-style-type: none"> <li>- bacteria and bacterial spores</li> <li>- fungi</li> <li>- viruses</li> </ul>   |

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|   | <p>KB4. How to clean and sterile techniques</p> <p>KB5. The path of disease transmission:</p> <ul style="list-style-type: none"> <li>- paths of transmission including direct contact and penetrating injuries</li> <li>- risk of acquisition</li> <li>- sources of infecting microorganisms including persons who are carriers, in the incubation phase of the disease or those who are acutely ill</li> </ul> <p>KB6. Effective hand hygiene:</p> <ul style="list-style-type: none"> <li>- procedures for routine hand wash</li> <li>- procedures for surgical hand wash</li> <li>- when hands must be washed</li> </ul> <p>KB7. Good personal hygiene practice including hand care</p> <p>KB8. Identification and management of infectious risks in the workplace</p> <p>KB9. How to use personal protective equipment such as:</p> <ul style="list-style-type: none"> <li>- guidelines for glove use</li> <li>- guidelines for wearing gowns and waterproof aprons</li> <li>- guidelines for wearing masks as required</li> <li>- guidelines for wearing protective glasses</li> </ul> <p>KB10. Susceptible hosts including persons who are immune suppressed, have chronic diseases such as diabetes and the very young or very old</p> <p>KB11. Surface cleaning:</p> <ul style="list-style-type: none"> <li>- cleaning procedures at the start and end of the day</li> <li>- managing a blood or body fluid spill</li> <li>- routine surface cleaning</li> </ul> <p>KB12. Sharps handling and disposal techniques</p> <p>KB13. The following:</p> <ul style="list-style-type: none"> <li>- Follow infection control guidelines</li> <li>- Identify and respond to infection risks</li> <li>- Maintain personal hygiene</li> <li>- Use personal protective equipment</li> <li>- Limit contamination</li> <li>- Handle, package, label, store transport and dispose of clinical and other waste</li> <li>- Clean environmental surfaces</li> </ul> |
| <b>Skills (S)</b>   |   |
| <b>A. Core Skills/<br/>Generic Skills</b>                           | <b>Writing Skills</b>   |
|   | The user/ individual on the job needs to know and understand how to:  |
|   | <p>SA1. Consistently apply hand washing, personal hygiene and personal protection protocols</p> <p>SA2. Consistently apply clean and sterile techniques</p> <p>SA3. Consistently apply protocols to limit contamination</p>   |
|   | <b>Reading Skills</b>   |
| The user/individual on the job needs to know and understand how to: |   |
| SA4. Follow instructions as specified in the protocols              |   |

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

HSS/ N 96110

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## 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 |



# National Occupational Standards



## 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

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|--|---|
| <b>Unit Code</b>   | <b>HSS/ N 9611</b>  |
| <b>Unit Title (Task)</b>   | <b>Monitor and assure quality</b>   |
| <b>Description</b>   | This OS unit is about assuring quality in all procedures.<br>This unit applies to all Allied Health professionals.  |
| <b>Scope</b>   | This unit/task covers the following: <ul style="list-style-type: none"> <li>Monitor, Identify &amp; Solve treatment process/outcome problems, Attend class/read publications to continue industry education, Identify needs and expectations of patient/health care professionals</li> </ul>  |
| <b>Performance Criteria (PC) w.r.t. the Scope</b>  |   |
| <b>Element</b>   | <b>Performance Criteria</b>   |
| <ul style="list-style-type: none"> <li>Monitoring and ensuring quality process</li> </ul>                  | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Conduct appropriate research and analysis</p> <p>PC2. Evaluate potential solutions thoroughly</p> <p>PC3. Participate in education programs which include current techniques, technology and trends pertaining to the radiology industry</p> <p>PC4. Read medical publications related to quality consistently and thoroughly</p> <p>PC5. Report any identified breaches in health, safety, and security procedures to the designated person</p> <p>PC6. Identify and correct any hazards that he/she can deal with safely, competently and within the limits of his/her authority</p> <p>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</p> <p>PC8. Follow the organisation's emergency procedures promptly, calmly, and efficiently</p> <p>PC9. Identify and recommend opportunities for improving health, safety, and security to the designated person</p> <p>PC10. Complete any health and safety records legibly and accurately</p> |
| <b>Knowledge and Understanding (K)</b>   |   |
| <b>A. Organisational Context</b><br>(Knowledge of the Healthcare provider/ Organisation and its processes) | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. Basic requirements of the health and safety and other legislations and regulations that apply to the organisation</p> <p>KA2. Person(s) responsible for health, safety, and security in the organisation</p> <p>KA3. Relevant up-to-date information on health, safety, and security that applies to the organisation</p> <p>KA4. Organisation's emergency procedures and responsibilities for handling hazardous situations</p>  |

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

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Monitor and assure quality

## NOS Version Control

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|  | SB2. How to make exceptional effort to meet patient needs and resolve conflict to patient satisfaction |
|  | <b>Problem Solving</b>   |
|  | The user/individual on the job needs to know and understand how to:                                    |
|  | SB3. Identify hazards and suggest effective solutions to identified problems                           |
|  | <b>Analytical Thinking</b>   |
|  | The user/individual on the job needs to know and understand how to:                                    |
|  | SB4. Analyse the seriousness of hazards  |
|  | <b>Critical Thinking</b>   |
|  | 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   |

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|---------------------|------------------------------|------------------|----------|
| 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)                  |                  |   |  |                |                           |              |  |
|--|------------------|---|--|----------------|---------------------------|--------------|--|
| <u>Job Role</u>  | X Ray Technician | <u>Trainee Name</u>   |  | <u>UID No.</u> |                           | <u>Batch</u> |  |
| <u>Qualification Pack</u>  | HSS/ Q 0701      | <u>Taining Partner</u>  |  | <u>Date</u>    |                           |              |  |
| <u>Sector Skill Council</u>  | Healthcare       | <u>Name of Assessor</u>   |  |                |                           |              |  |
| <u>Name &amp; Signature of Representative &amp; Stamp of Assessing Body:</u> |                  |   |  |                |                           |              |  |
| 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)                  |  |  |               |                         |                                  |                                  |                         |                                 |
|--|--|--|---------------|-------------------------|----------------------------------|----------------------------------|-------------------------|---------------------------------|
| <b>Job Role</b>  | X ray Technician   | <b>Trainee Name</b>  |               | <b>UID No.</b>          |                                  | <b>Batch</b>                     |                         |                                 |
| <b>Qualification Pack</b>  | HSS/ Q 0701  | <b>Taining Partner</b>   |               | <b>Date</b>             |                                  |                                  |                         |                                 |
| <b>Sector Skill Council</b>  |  | <b>Name of Assessor</b>  |               |                         |                                  |                                  |                         |                                 |
| <b>Name &amp; Signature of Representative &amp; Stamp of Assessing Body:</b> |  |  |               |                         |                                  |                                  |                         |                                 |
| <b>Skills Practical and Viva (80% weightage)</b>                             |  |  |               |                         |                                  |                                  |                         |                                 |
|  |  | <b>Marks Alloted</b>   |               |                         | <b>Marks Awarded by Assessor</b> |                                  |                         |                                 |
| <b>Grand Total-1 (Subject Domain)</b>  |  | <b>400</b>   |               |                         |                                  |                                  |                         |                                 |
| <b>Grand Total-2 (Soft Skills and Comunication)</b>                          |  | <b>100</b>   |               |                         |                                  |                                  |                         |                                 |
| <b>Grand Total-(Skills Practical and Viva)</b>                               |  | <b>500</b>   |               |                         |                                  |                                  |                         |                                 |
| <b>Detailed Break Up of Marks</b>  |  | <b>Skills Practical &amp; Viva</b>   |               |                         |                                  |                                  |                         |                                 |
| <b>Subject Domain</b>  |  | <b>Pick any 2 NOS (2 elements from each NOS each of 100 marks) each of 200 marks totalling 400</b> |               |                         |                                  |                                  |                         |                                 |
| <b>National Occupational Standards (NOS)</b>                                 | <b>Performance Criteria (PC)</b>   | <b>Total Marks (400)</b>   | <b>Out Of</b> | <b>Marks Allocation</b> |                                  | <b>Marks Awarded by Assessor</b> |                         | <b>Grand Total of Practical</b> |
|  |  |  |               | <b>Viva</b>             | <b>Skills Practical</b>          | <b>Viva</b>                      | <b>Skills Practical</b> |                                 |
| 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       | <b>200</b>   | 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                               |                                  |                         |                                 |
|  | <b>TOTAL</b>   |  | 200           | 145                     | 95                               | 0                                | 0                       |                                 |
| 2. HSS/ N 0712: Prepare the patient and the room                             | PC1. Prepare the room, apparatus and instruments for conventional radiological procedures like X-ray, BMD or Mammography   |  | 20            | 10                      | 10                               |                                  |                         |                                 |

for Conventional  
Radiological procedure

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| PC2. Set up the machine for the desired procedure  |
| PC3. Position the patient correctly for an x-ray in the following positions:<br>a. Erect<br>b. Sitting<br>c. Supine<br>d. Prone<br>e. Lateral<br>f. Oblique<br>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   |
| PC10. Explain the biological effects of radiation  |
| PC11. Explain the principles of radiation protection:<br>Maximum permissible exposure concept<br>b. Annual dose equivalent limits (ADEL) ALARA concept<br>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:<br>a. Lead<br>b. Lead – impregnated substances<br>c. Building materials<br>d. Concept of barriers<br>e. Lead equivalents and variations<br>f. Design of x-ray tubes related to protection.<br>g. Structural shielding design (work-load, use factor, occupancy factor, distance |

200

|    |   |    |  |  |
|----|---|----|--|--|
| 10 | 4 | 6  |  |  |
| 30 | 5 | 25 |  |  |
| 10 | 5 | 5  |  |  |
| 10 | 6 | 4  |  |  |
| 10 | 5 | 5  |  |  |
| 10 | 5 | 5  |  |  |
| 15 | 5 | 10 |  |  |
| 15 | 7 | 8  |  |  |
| 10 | 3 | 7  |  |  |
| 10 | 7 | 3  |  |  |
| 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  |   |   |
|  | <b>TOTAL</b>   |            | 200 | 88 | 112 | 0 | 0 |
| 3. HSS/ N 0713: Operate and oversee operation of conventional radiological equipment | PC1. Describe the construction and operation of general radiographic equipment   | <b>200</b> | 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  |            | 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   |   |   |
|  | <b>TOTAL</b>   |            | 200 | 99 | 101 | 0 | 0 |
| 4. HSS/ N 0714: Process X-ray films/ Images  | PC1. Explain the principles of conventional radiographic imaging   | <b>200</b> | 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  |            | 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  |   |   |
|   | <b>TOTAL</b>   |            | 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   | <b>200</b> | 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  |   |   |
|   | <b>TOTAL</b>   |            | 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  | <b>200</b> | 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  |   |   |
|   | <b>TOTAL</b>   |            | 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   | <b>200</b> | 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                         |
| 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 |

|              |            |            |           |          |
|--------------|------------|------------|-----------|----------|
| 20           | 0          | 10         |           |          |
| 10           | 5          | 5          |           |          |
| 10           | 5          | 5          |           |          |
| 20           | 5          | 15         |           |          |
| 20           | 10         | 10         |           |          |
| <b>TOTAL</b> | <b>200</b> | <b>105</b> | <b>85</b> | <b>0</b> |

8. HSS/ N 9610 (Follow infection control policies and procedures)

|   |
|---|
| PC1. Perform the standard precautions to prevent the spread of infection in accordance with organisation requirements                   |
| PC2. Perform 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      |

|    |    |    |  |  |
|----|----|----|--|--|
| 5  | 0  | 5  |  |  |
| 5  | 0  | 5  |  |  |
| 5  | 5  | 0  |  |  |
| 20 | 10 | 10 |  |  |
| 5  | 0  | 5  |  |  |
| 5  | 0  | 5  |  |  |
| 10 | 0  | 10 |  |  |
| 10 | 0  | 10 |  |  |
| 20 | 10 | 10 |  |  |
| 5  | 0  | 5  |  |  |
| 5  | 0  | 5  |  |  |
| 5  | 0  | 5  |  |  |
| 5  | 5  | 0  |  |  |
| 5  | 0  | 5  |  |  |

|  |                           |   |        |                  |                         |                           |                  |                          |
|--|---------------------------|---|--------|------------------|-------------------------|---------------------------|------------------|--------------------------|
| <div>PC16. Change protective clothing and gowns/aprons daily, more frequently if soiled and where appropriate, after each patient contact</div> <div>PC17. Demarcate and maintain clean and contaminated zones in all aspects of health care work</div> <div>PC18. Confine records, materials and medicaments to a well-designated clean zone</div> <div>PC19. Confine contaminated instruments and equipment to a well-designated contaminated zone</div> <div>PC20. Wear appropriate personal protective clothing and equipment in accordance with occupational health and safety policies and procedures when handling waste</div> <div>PC21. Separate waste at the point where it has been generated and dispose of into waste containers that are colour coded and identified</div> <div>PC22. Store clinical or related waste in an area that is accessible only to authorised persons</div> <div>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</div> <div>PC24. Dispose of waste safely in accordance with policies and procedures of the organisation and legislative requirements</div> <div>PC25. Wear personal protective clothing and equipment during cleaning procedures</div> <div>PC26. Remove all dust, dirt and physical debris from work surfaces</div> <div>PC27. Clean all work surfaces with a neutral detergent and warm water solution before and after each session or when visibly soiled</div> <div>PC28. Decontaminate equipment requiring special processing in accordance with quality management systems to ensure full compliance with cleaning, disinfection and sterilisation protocols</div> <div>PC29. Dry all work surfaces before and after use</div> <div>PC30. Replace surface covers where applicable</div> <div>PC31. Maintain and store cleaning equipment</div> |                           | 200   | 5      | 0                | 5                       |                           |                  |                          |
|  |                           |   | 20     | 10               | 10                      |                           |                  |                          |
|  |                           |   | 5      | 0                | 5                       |                           |                  |                          |
|  |                           |   | 5      | 0                | 5                       |                           |                  |                          |
|  |                           |   | 5      | 5                | 0                       |                           |                  |                          |
|  |                           |   | 5      | 0                | 5                       |                           |                  |                          |
|  |                           |   | 5      | 5                | 0                       |                           |                  |                          |
|  |                           |   | 5      | 0                | 5                       |                           |                  |                          |
|  |                           |   | 5      | 0                | 5                       |                           |                  |                          |
|  |                           |   | 5      | 0                | 5                       |                           |                  |                          |
|  |                           |   | 5      | 0                | 5                       |                           |                  |                          |
|  |                           |   | 5      | 0                | 5                       |                           |                  |                          |
|  |                           |   | 5      | 0                | 5                       |                           |                  |                          |
|  |                           |   | 5      | 5                | 0                       |                           |                  |                          |
|  |                           |   | 5      | 5                | 0                       |                           |                  |                          |
|  |                           |   | TOTAL  |                  | 200                     | 55                        | 145              |                          |
| Grand Total-1 (Subject Domain)   |                           | 400   |        |                  |                         |                           |                  |                          |
|  |                           |   |        |                  |                         |                           |                  |                          |
| 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  | 25 | 5  | 5  | 0  |    |  |  |
|  | PC2. Arrive at actual demand as accurately as possible  |    | 5  | 3  | 2  |    |  |  |
|  | 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                 |    | 5  | 5  | 0  |    |  |  |
|  |   |    |    | 25 | 18 | 7  |  |  |
| 3. Attiquete   |   |    |    |    |    |    |  |  |
| HSS/ N 9601 (Collate and Communicate Health Information)                     | PC1. Respond to queries and information needs of all individuals  | 25 | 2  | 2  | 0  |    |  |  |
|  | PC2. Communicate effectively with all individuals regardless of age, caste, gender, community or other characteristics                      |    | 5  | 0  | 5  |    |  |  |
|  | PC3. Communicate with individuals at a pace and level fitting their understanding, without using terminology unfamiliar to them             |    | 5  | 0  | 5  |    |  |  |
|  | PC4. Utilise all training and information at one's disposal to provide relevant information to the individual                               |    | 5  | 5  | 0  |    |  |  |
|  | PC5. Confirm that the needs of the individual have been met   |    | 2  | 2  | 0  |    |  |  |
|  | PC6. Adhere to guidelines provided by one's organisation or regulatory body relating to confidentiality                                     |    | 2  | 2  | 0  |    |  |  |
|  | PC7. Respect the individual's need for privacy  |    | 2  | 2  | 0  |    |  |  |
|  | PC8. Maintain any records required at the end of the interaction  |    | 2  | 2  | 0  |    |  |  |
|  |   |    |    | 25 | 15 | 10 |  |  |
| Work Management Total  |   | 50 |    |    |    |    |  |  |
| 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 working environment) | PC1. Identify individual responsibilities in relation to maintaining workplace health safety and security requirements   | 50 | 6  | 2  | 4  |  |  |  |  |
|  | PC2. Comply with health, safety and security procedures for the workplace  |    | 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 |  |  |  |  |
|  | <b>3. Waste Management (Evaluate with NOS: HSS/N/5105, 5108, 5114, 5115)</b>   |    |    |    |    |  |  |  |  |
| HSS/ N 9609 (Follow biomedical waste disposal protocols)               | PC1. Follow the appropriate procedures, policies and protocols for the method of collection and containment level according to the waste type  | 50 | 6  | 2  | 4  |  |  |  |  |
|  | 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 |    | 8  | 4  | 4  |  |  |  |  |
|  | PC3. Segregate the waste material from work areas in line with current legislation and organisational requirements   |    | 4  | 0  | 4  |  |  |  |  |
|  | PC4. Segregation should happen at source with proper containment, by using different colour coded bins for different categories of waste   |    | 8  | 4  | 4  |  |  |  |  |
|  | PC5. Check the accuracy of the labelling that identifies the type and content of waste   |    | 4  | 2  | 2  |  |  |  |  |
|  | PC6. Confirm suitability of containers for any required course of action appropriate to the type of waste disposal   |    | 4  | 4  | 0  |  |  |  |  |
|  | PC7. Check the waste has undergone the required processes to make it safe for transport and disposal   |    | 4  | 4  | 0  |  |  |  |  |
|  | PC8. Transport the waste to the disposal site, taking into consideration its associated risks  |    | 4  | 4  | 0  |  |  |  |  |
|  | PC9. Report and deal with spillages and contamination in accordance with current legislation and procedures  |    | 4  | 4  | 0  |  |  |  |  |
|  | PC10. Maintain full, accurate and legible records of information and store in correct location in line with current legislation, guidelines, local policies and protocols                    |    | 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

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

50

|    |    |    |  |  |
|----|----|----|--|--|
| 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 |  |  |

**Grand Total-2 (Soft Skills and Communication)**

**100**

| Assessment Form (To be filled by Assessor for Each Trainee)                  |  |  |                                  |                                  |                              |
|--|--|--|----------------------------------|----------------------------------|------------------------------|
| <b>Job Role</b>  | X ray Technician   | <b>Trainee Name</b>                            |                                  | <b>Batch</b>                     |                              |
| <b>Qualification Pack</b>  | HSS/ Q 0701  | <b>Taining Partner</b>                         |                                  |                                  |                              |
| <b>Sector Skill Council</b>  |  | <b>Name of Assessor</b>                        |                                  |                                  |                              |
| <b>Name &amp; Signature of Representative &amp; Stamp of Assessing Body:</b> |  |  |                                  |                                  |                              |
| <b>Theory (20% weightage)</b>  |  |  |                                  |                                  |                              |
|  |  | <b>Marks Alloted</b>                           | <b>Marks Awarded by Assessor</b> |                                  |                              |
| <b>Grand Total-1 (Subject Domain)</b>  |  | <b>80</b>                                      |                                  |                                  |                              |
| <b>Grand Total-2 (Soft Skills and Comunication)</b>                          |  | <b>20</b>                                      |                                  |                                  |                              |
| <b>Grand Total-(Theory)</b>  |  | <b>100</b>                                     |                                  |                                  |                              |
| <b>Detailed Break Up of Marks</b>  |  | <b>Theory</b>                                  |                                  |                                  |                              |
| <b>Subject Domain</b>  |  | <b>Pick each NOS Compulsorily totalling 80</b> |                                  |                                  |                              |
| <b>National Occupational Standards (NOS)</b>                                 | <b>Performance Criteria (PC)</b>   | <b>Total Marks (80)</b>                        | <b>Marks Allocation</b>          | <b>Marks Awarded by Assessor</b> | <b>Grand Total of Theory</b> |
| 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 | 5  |                                  |                                  |                              |
|  | 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                              |  |                                  |                                  |                              |
|  | <b>Total</b>   |  | 5                                |                                  |                              |
| 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:<br>a. Erect<br>b. Sitting<br>c. Supine<br>d. Prone<br>e. Lateral<br>f. Oblique<br>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   |
| PC10. Explain the biological effects of radiation  |
| PC11. Explain the principles of radiation protection:<br>Maximum permissible exposure concept<br>b. Annual dose equivalent limits (ADEL) ALARA concept<br>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:<br>a. Lead<br>b. Lead – impregnated substances<br>c. Building materials<br>d. Concept of barriers<br>e. Lead equivalents and variations<br>f. Design of x-ray tubes related to protection.<br>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 |   |   |  |  |
|  | <b>Total</b>   |   | 5 |  |  |
| 3. HSS/ N 0713: Operate and oversee operation of conventional radiological equipment | PC1. Describe the construction and operation of general radiographic equipment   | 5 |   |  |  |
|  | 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       |   |   |  |  |
|  | <b>Total</b>   |   | 5 |  |  |
| 4. HSS/ N 0714: Process X-ray films/ Images  | PC1. Explain the principles of conventional radiographic imaging   | 5 |   |  |  |
|  | 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  |   |   |  |  |
|   | <b>Total</b>   |   | 5 |  |  |
| 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   | 5 |   |  |  |
|   | 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  |   |   |  |  |
|   | <b>Total</b>   |   | 5 |  |  |
| 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  |   |   |  |  |
|   | <b>Total</b>   |   | 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   | 5 |   |  |  |
|   | 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 |   |  |  |
|   | <b>Total</b>  | 5 |  |  |
| 8. HSS/ N 9610 (Follow infection control policies and procedures) | PC1. Perform the standard precautions to prevent the spread of infection in accordance with organisation requirements   |   |  |  |
|   | PC2. Perform 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                                      |   |  |  |



|  |   |  |                  |                           |                       |
|--|---|--|------------------|---------------------------|-----------------------|
| <div>PC17. Demarcate and maintain clean and contaminated zones in all aspects of health care work</div> <div>PC18. Confine records, materials and medicaments to a well-designated clean zone</div> <div>PC19. Confine contaminated instruments and equipment to a well-designated contaminated zone</div> <div>PC20. Wear appropriate personal protective clothing and equipment in accordance with occupational health and safety policies and procedures when handling waste</div> <div>PC21. Separate waste at the point where it has been generated and dispose of into waste containers that are colour coded and identified</div> <div>PC22. Store clinical or related waste in an area that is accessible only to authorised persons</div> <div>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</div> <div>PC24. Dispose of waste safely in accordance with policies and procedures of the organisation and legislative requirements</div> <div>PC25. Wear personal protective clothing and equipment during cleaning procedures</div> <div>PC26. Remove all dust, dirt and physical debris from work surfaces</div> <div>PC27. Clean all work surfaces with a neutral detergent and warm water solution before and after each session or when visibly soiled</div> <div>PC28. Decontaminate equipment requiring special processing in accordance with quality management systems to ensure full compliance with cleaning, disinfection and sterilisation protocols</div> <div>PC29. Dry all work surfaces before and after use</div> <div>PC30. Replace surface covers where applicable</div> <div>PC31. Maintain and store cleaning equipment</div> |   |  |                  |                           |                       |
| Total  |   |  | 45               |                           |                       |
| Grand Total-1 (Subject Domain)   |   | 80   | 80               |                           |                       |
|  |   |  |                  |                           |                       |
| 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   | PC1. Adhere to legislation, protocols and guidelines relevant to one’s role and field of practice |  |                  |                           |                       |

|   |   |   |   |  |  |
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| 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   |   |   |  |  |
|   | <b>Total</b>  |   | 3 |  |  |
| <b>Attitude Total</b>   |   |   |   |  |  |
| <b>2. Work Management</b>   |   |   |   |  |  |
| 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                 |   |   |  |  |
|   | <b>Total</b>  |   | 4 |  |  |
| <b>3. Attiquete</b>   |   |   |   |  |  |
| 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  |   |   |  |  |
|   | <b>Total</b>  |   | 3 |  |  |
| <b>Attiquete Total</b>  |   |   |   |  |  |
| <b>Part 2 (Pick one field as per NOS marked carrying 50 marks)</b>                  |   |   |   |  |  |
| <b>1. Team Work (Evaluate with NOS: HSS/N/0304, 0305, 0306, 0307)</b>               |   |   |   |  |  |
| <b>2. Safety management (Evaluate with NOS: HSS/N/0301, 0302, 0303, 0409, 9610)</b> |   |   |   |  |  |
| HSS/ N 9606 (Maintain a safe, healthy, and secure                                   | PC1. Identify individual responsibilities in relation to maintaining workplace health safety and security requirements                      |   |   |  |  |

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| working environment)   | PC2. Comply with health, safety and security procedures for the workplace  | 3 | 3 |  |  |
|  | 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   |   |   |  |  |
|  | <b>Total</b>   |   | 3 |  |  |
| <b>3. Waste Management (Evaluate with NOS: HSS/N/5105, 5108, 5114, 5115)</b> |  |   |   |  |  |
| HSS/ N 9609 (Follow biomedical waste disposal protocols)                     | PC1. Follow the appropriate procedures, policies and protocols for the method of collection and containment level according to the waste type  | 5 | 5 |  |  |
|  | 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 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                    |   |   |  |  |
|  | <b>Total</b>   |   | 5 |  |  |
| <b>4. Quality Assurance</b>  |  |   |   |  |  |
| HSS/ N 9611: Monitor and assure quality                                      | PC1. Conduct appropriate research and analysis   |   |   |  |  |
|  | PC2. Evaluate potential solutions thoroughly   |   |   |  |  |

|  |  |          |   |  |
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|  | PC3. Participate in education programs which include current techniques, technology and trends pertaining to the dental industry                         |          |   |  |
|  | 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                           | 2        | 2 |  |
|  | 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  |          |   |  |
| <b>Part 2 Total</b>                                  | <b>10</b>  | <b>2</b> |   |  |
| <b>Grand Total-2 (Soft Skills and Communication)</b> | <b>20</b>  |          |   |  |