## Contents

What are Occupational Standards(OS)?

➢ OS describe what individuals need to do, know and understand in order to carry out a particular job role or function

➢ OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

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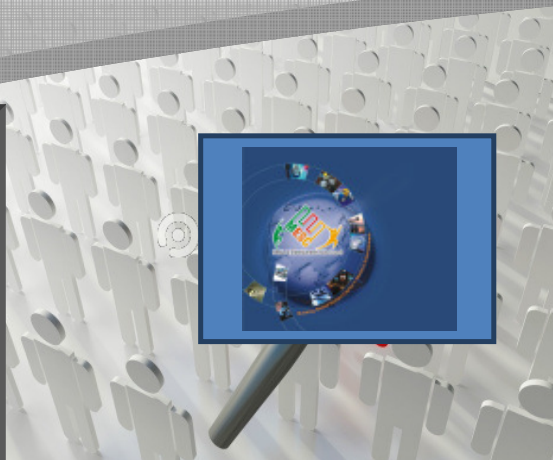
Introduction

Qualifications Pack- MCR Engineer

SECTOR: MEDIA AND ENTERTAINMENT

SUB-SECTOR: Television, Radio

OCCUPATION: Broadcast Operations/ Technology

REFERENCE ID: MES/ Q 0805

ALIGNED TO: NCO-2004/NIL

MCR Engineer in the Media & Entertainment Industry is also known as a MCR Technician

Brief Job Description: Individuals at this job are responsible for scheduling and monitoring the on-air output for a broadcaster

Personal Attributes: This job requires the individual to line up and play-out recorded/live programing, commercial and promotional advertisements in accordance to the playlists/schedules prepared by the programming/ advertisement functions. The individual is responsible to monitor and maintain the quality of on-air output and troubleshoot/ resolve issues that arise. The individual is also responsible to sync time differences that arise during the day due to irregular timing and insert make-good advertisements in coordination with the traffic department.

Qualifications Pack Code	MES/ Q 0805		
Job Role	**Master Control Engineer** This job role is applicable in both national and international scenarios		
Credits(NSQF)	TBD	Version number	1.0
Sector	Media and Entertainment	Drafted on	18/09/13
Sub-sector	Television, Radio	Last reviewed on	25/03/15
Occupation	Broadcast Operations / Technology	Next review date	24/03/17

Job Details

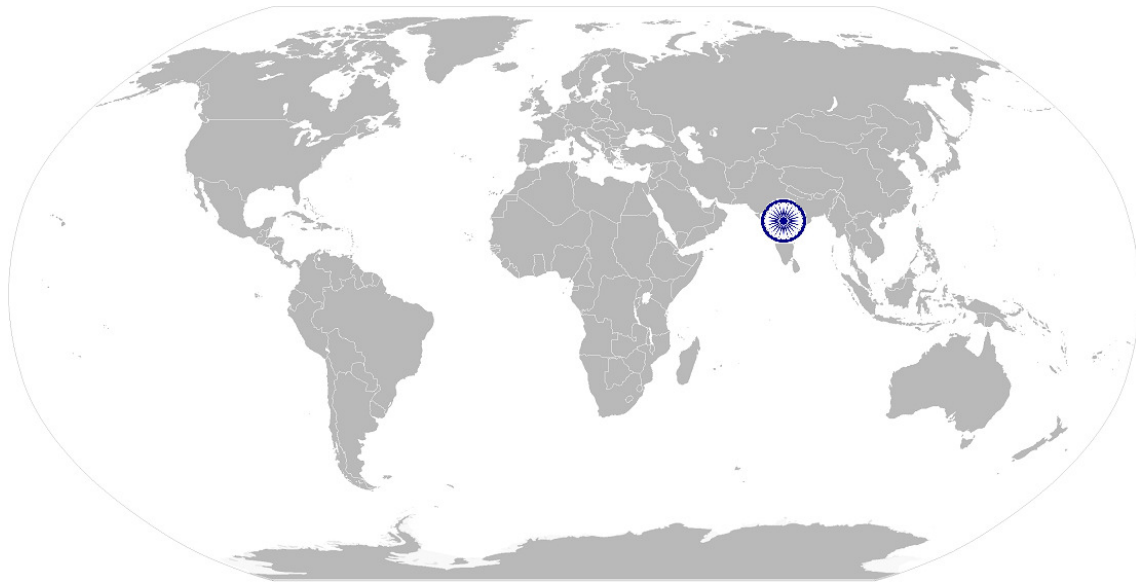| Job Role	Master Control Engineer
Role Description	Schedule and monitor the on-air output
NSQF level	5
Minimum Educational Qualifications	Bachelor of Engineering (B.E.)/Bachelor of Technology (B.Tech)
Maximum Educational Qualifications	-
Training (Suggested but not mandatory)	Broadcast engineering technology, Electrical and Telecommunications
Experience	0+ years
Applicable National Occupational Standards (NOS)	**Compulsory:** 1. MES / N 0806 (Manage master control room (MCR) operations) 2. MES / N 0808 (Maintain workplace health and safety) **Optional:** N.A.
Performance Criteria	As described in the relevant OS units

Keywords /Terms	Description
Archive	A repository where content produced is stored for further use
Ingest	Process of importing data into a digital storage system for future use
Leased Lines	A fiber connection used to connect, transfer and transmit data
Master Control Room	Central room from where broadcasting takes place
Meta tagging	Keywords describing content that can be used to search/find information from a website/server
Play-out systems	Equipment that transmits channels from the broadcaster's head end to subscribers
Satellite	Communications equipment used to receive/transmit audio and video signals
Server	A centralised computer that provides access to resources over a network
Signal	Radio waves carrying audio/video content to be dispersed to an audience
Switcher	A device used to combine or select audio/video signals for playout
Uplinking	A transmission path through which audio/video signals are sent for broadcasting
Waveform monitoring	An equipment used to measure the level and voltage of video signals
Target Audience	Set of individuals with similar characteristics that are prospective customers of the advertisers' product/service
Target Market	The geographic area over which the advertising campaign is focused
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-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry
Function	Function is an activity necessary for achieving the 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.
Sub-functions	Sub-functions are sub-activities essential to fulfill the achieving the objectives of the function.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
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.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task
National Occupational Standards (NOS)	NOS are Occupational Standards which apply uniquely in the Indian context.
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.
Unit Code	Unit Code is a unique identifier for an Occupational Standard, which is denoted by an 'N'.
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
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.
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.
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.
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.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/Generic Skills	Core Skills or Generic Skills are a group of skills that are key 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.

Keywords /Terms	Description
NOS	National Occupational Standard(s)
QP	Qualifications Pack
NSQF	National Skill Qualifications Framework
NVEQF	National Vocational Education Qualifications Framework
NVQF	National Vocational Qualifications Framework
TCP	Transmission Control
IP	Internet protocol
DSNG	Digital satellite news gathering
DG	Diesel generator
OB	Outside Broadcast

Acronyms

National Occupational Standard

Overview

This unit is about managing on-air output from the master control room

National Occupational Standard

Unit Code	MES/ N 0806
Unit Title (Task)	**Manage master control room (MCR) operations**
Description	This OS unit is about managing on-air output from the master control room
Scope	Master control room (MCR) in a broadcasting company is the final point from where content is broadcasted. It can also be called the transmission control room (TCR) in smaller set-ups. Typically, content is transferred from the Production Control Room (PCR) where content from different sources are managed/switched in the manner it needs to be broadcasted on air. The final output is then monitored and combined with advertisements, promos and channel branding and uplinked from the MCR. Multiple channels/ stations can be run by a single MCR. This unit/task covers the following: • Monitoring output going out on air from the master control room which could include live/ recorded programming, international feeds, advertisements, promos, channel logos/branding • Maintaining equipment including monitors, satellite receivers, servers, playout systems and other broadcast automation equipment

| Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Monitoring output going out on air from the master control room	To be competent, the user/individual on the job must be able to: PC1. Manage live telecasts/ programming by accurately downlinking, managing advertisement time and uplinking as per the directors instructions PC2. Build play out lists by accurately lining-up recorded programming, feeds, commercial and promo tapes/files in accordance to programming and advertisement playlists/ schedules PC3. Switch between live/recorded programming, commercials and promos in accordance to schedules maintaining on-air continuity PC4. Monitor on-air output and resolve any issues that may arise (in signals, audio/video quality etc.)
Maintaining equipment	PC5. Sync/ make adjustments for any time differences (by inserting make-good advertisements, promotions etc.) in coordination with the relevant departments (programming, traffic, promos) PC6. Troubleshoot issues that may arise in master control room equipment such as playout automation systems, servers, switchers, monitors, routers, satellite receivers, meters etc., audio/video quality and signal availability
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the	The user/individual on the job needs to know and understand: KA1. The number of channels being uplinked from a single location KA2. The types of content being uplinked and their duration

company / organization and its processes)	KA3. Daily programming and advertisement schedules for play out KA4. The equipment and technology being used by the organization KA5. The roles and responsibilities of key departments that the team has maximum interaction with, including ingest, archival, engineering, programming and advertisement traffic
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. Master control operations and workflow KB2. Different content sources including uncompressed audio/video data in standard definition (SD), high definition multimedia interface (HDMI) or analog formats, compressed audio/video using compression codecs - MPEG (Moving Picture Experts Group Phase), AVC(Advanced Video Coding) etc. and other formats such as DivX, XviD, MOV, AVI etc. KB3. How to operate play-out systems (such as Harris, Morpheus, iTX, OASYS etc.) KB4. How to operate advertisement traffic software such as CHAMP, SPOT etc. KB5. How to operate systems and equipment including audio switchers, video switchers, monitors, feeds, servers, editing systems etc. KB6. How to operate rf Transmission, uplinking and downlinking equipment including satellites, antennas, decoders, lease lines, towers, flyways, digital modulators etc. KB7. How to test the quality of on-air output using monitoring equipment, meters etc. KB8. Fundamentals of programming and production KB9. Applicable health and safety guidelines KB10. Legal and regulatory policies and guidelines
Skills (S) (Optional)	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/individual on the job needs to know and understand how to: SA1. Generate as-run and discrepancy logs/reports
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA2. Read output displayed on meters to gauge the quality of audio/video signals SA3. Read programming and advertisement playlists SA4. Read the file names for recorded programming, commercial and promo tapes/files to ensure a correct line-up for play out
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA5. Liaise with the programming and advertisement teams to confirm schedules, make-goods, duration of programming etc. SA6. Coordinate with broadcast engineers to conduct repairs and troubleshoot issues, if required
B. Professional Skills	**Plan and Organize**
	The user/individual on the job needs to know and understand how to: SB1. Schedule and play-out actual program tapes/files in accordance to the schedules set by programming/ advertising SB2. Ensure the accuracy of play-out start times, duration etc.

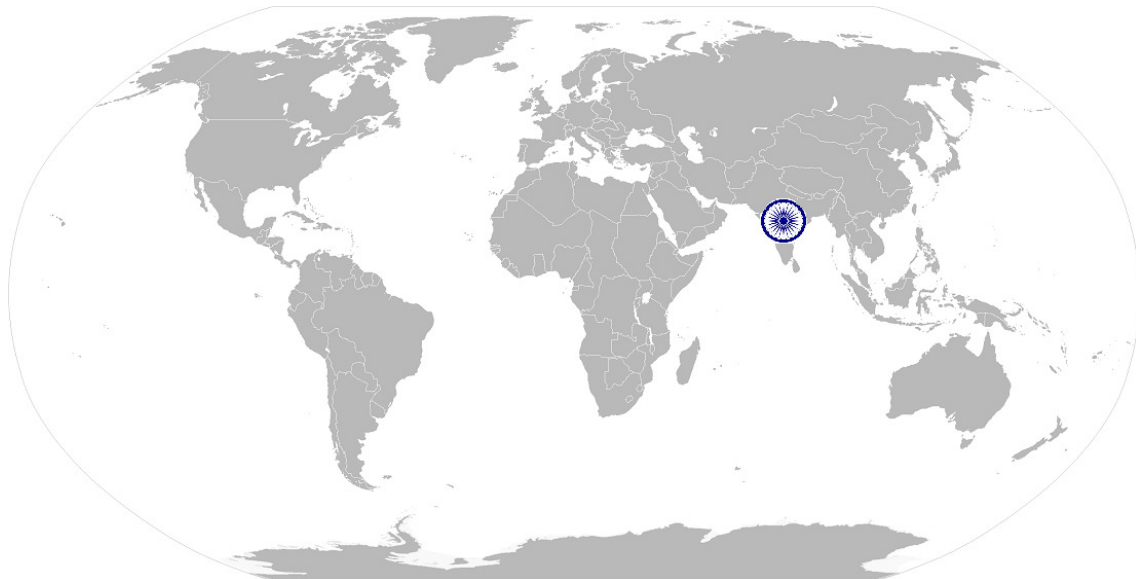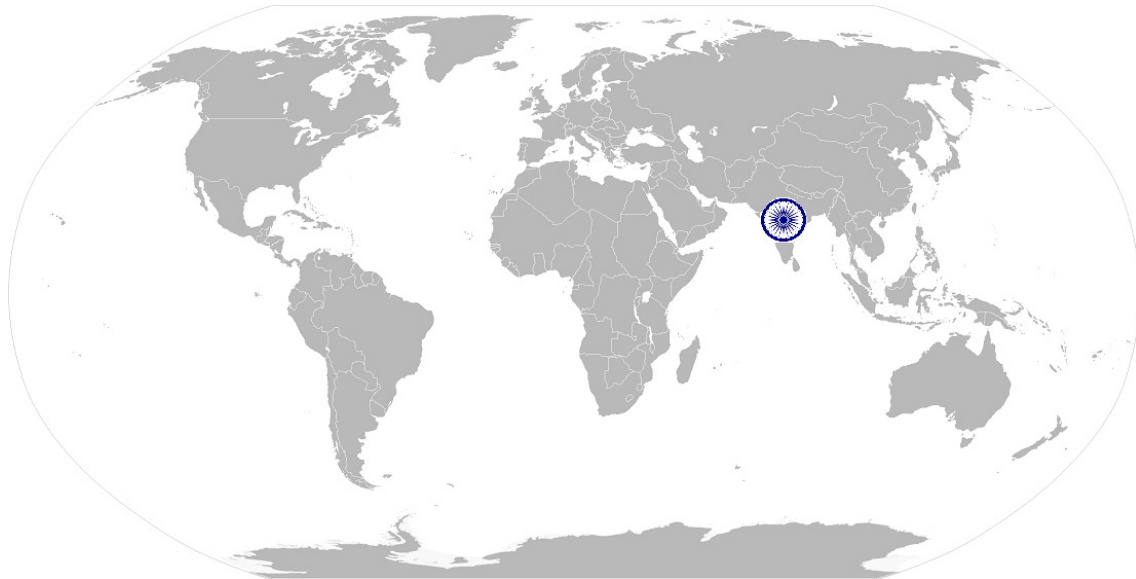|	**Problem Solving**
	The user/individual on the job needs to know and understand how to: SB3. Resolve any issues that arise in on-air output, including the broadcast signals, audio/video quality, output levels etc. SB4. Resolve issues that may arise in the play out/ master control equipment
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB5. Make adjustments for time-differences that may occur due to shorts/delays in programming
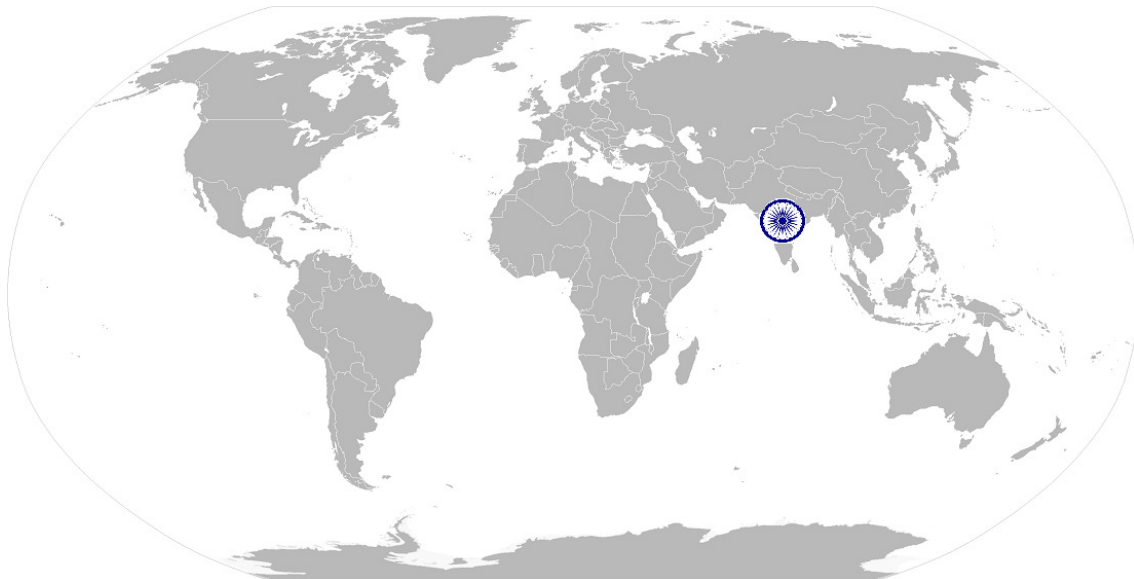
NOS Version Control

NOS Code	**MES / N 0806**		
Credits(NSQF)	**TBD**	**Version number**	**1.0**
Sector	**Media and Entertainment**	**Drafted on**	**18/09/13**
Sub-sector	**Television, Radio**	**Last reviewed on**	**25/03/15**
Occupation	**Broadcast Operations / Technology**	**Next review date**	**24/03/17**

National Occupational Standard

Overview

This unit is about contributing towards maintaining a healthy, safe and secure working environment

Unit Code	MES/ N 0808
Unit Title (Task)	Maintain workplace health and safety
Description	This OS unit is about contributing towards maintaining a healthy, safe and secure working environment
Scope	This unit/task covers the following: • Understanding the health, safety and security risks prevalent in the workplace • Knowing the people responsible for health and safety and the resources available • Identifying and reporting risks • Complying with procedures in the event of an emergency

Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Understanding the risks prevalent in the workplace	To be competent, the user/individual on the job must be able to: PC1. Understand and comply with the organisation's current health, safety and security policies and procedures PC2. Understand the safe working practices pertaining to own occupation PC3. Understand the government norms and policies relating to health and safety including emergency procedures for illness, accidents, fires or others which may involve evacuation of the premises PC4. Participate in organization health and safety knowledge sessions and drills
Knowing the people responsible for health and safety and the resources available	PC5. Identify the people responsible for health and safety in the workplace, including those to contact in case of an emergency PC6. Identify security signals e.g. fire alarms and places such as staircases, fire warden stations, first aid and medical rooms
Identifying and reporting risks	PC7. Identify aspects of your workplace that could cause potential risk to own and others health and safety PC8. Ensure own personal health and safety, and that of others in the workplace though precautionary measures PC9. Identify and recommend opportunities for improving health, safety, and security to the designated person PC10. Report any hazards outside the individual's authority to the relevant person in line with organisational procedures and warn other people who may be affected
Complying with procedures in the event of an emergency	PC11. Follow organisation's emergency procedures for accidents, fires or any other natural calamity in case of a hazard PC12. Identify and correct risks like illness, accidents, fires or any other natural calamity safely and within the limits of individual's authority

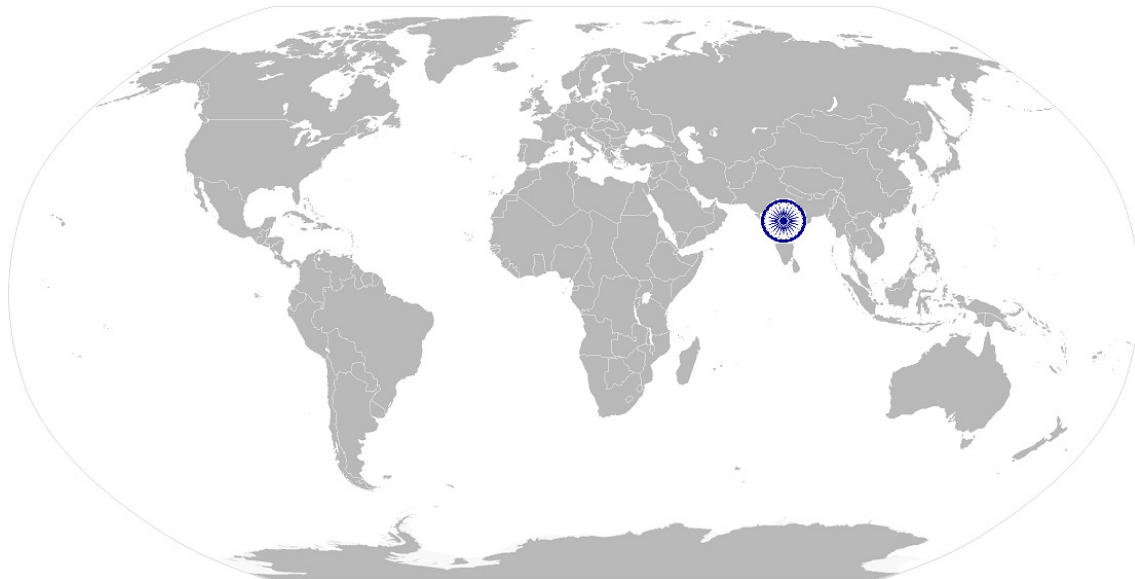| Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company /	The user/individual on the job needs to know and understand: KA1. Organisation's norms and policies relating to health and safety KA2. Government norms and policies regarding health and safety and related emergency procedures KA3. Limits of authority while dealing with risks/ hazards

organization and its processes)	KA4. The importance of maintaining high standards of health and safety at a workplace
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. The different types of health and safety hazards in a workplace KB2. Safe working practices for own job role KB3. Evacuation procedures and other arrangements for handling risks KB4. Names and contact numbers of people responsible for health and safety in a workplace KB5. How to summon medical assistance and the emergency services, where necessary KB6. Vendors' or manufacturers' instructions for maintaining health and safety while using equipments, systems and/or machines

Skills (S) (Optional)

A. Core Skills/ Generic Skills	**Writing Skills**
	The user/individual on the job needs to know and understand how to: SA1. How to write and provide feedback regarding health and safety to the concerned people SA2. How to write and highlight potential risks or report a hazard to the concerned people
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA3. Read instructions, policies, procedures and norms relating to health and safety
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA4. Highlight potential risks and report hazards to the designated people SA5. Listen and communicate information with all anyone concerned or affected
B. Professional Skills	**Decision making**
	The user/individual on the job needs to know and understand how to: SB1. Make decisions on a suitable course of action or plan
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB2. Plan and organize people and resources to deal with risks/ hazards that lie within the scope of one's individual authority
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB3. Apply problem solving approaches in different situations
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB4. Understand hazards that fall within the scope of individual authority and report all hazards that may supersede one's authority SB5. Apply balanced judgements in different situations

NOS Version Control

NOS Code	**MES / N 0808**		
Credits(NSQF)	TBD	**Version number**	1.0
Sector	Media and Entertainment	**Drafted on**	18/09/13
Sub-sector	Television	**Last reviewed on**	25/03/15
Occupation	Broadcast Operations / Technology	**Next review date**	24/03/17

Annexure

Nomenclature for QP and NOS

Qualifications Pack

9 characters
MES/ Q 0101

MES denotes the Media and Entertainment Sector

Q denoting Qualifications Pack

QP number (2 numbers)

Occupation (2 numbers)
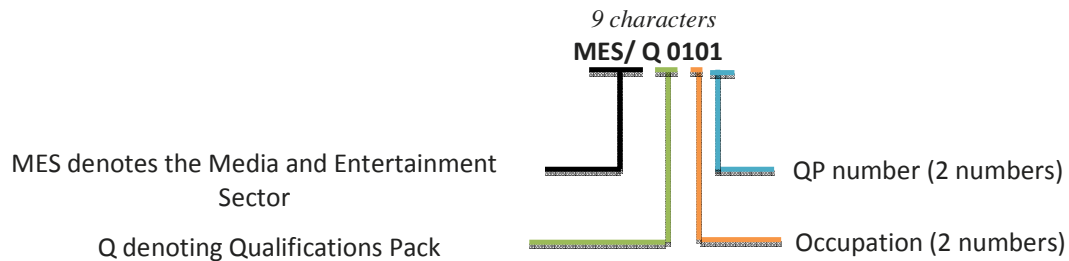
Occupational Standard

An example of NOS with 'N'

9 characters
MES / N 0101

MES denotes the Media and Entertainment Sector

N denoting National Occupational Standard

OS number (2 numbers)

Occupation (2 numbers)
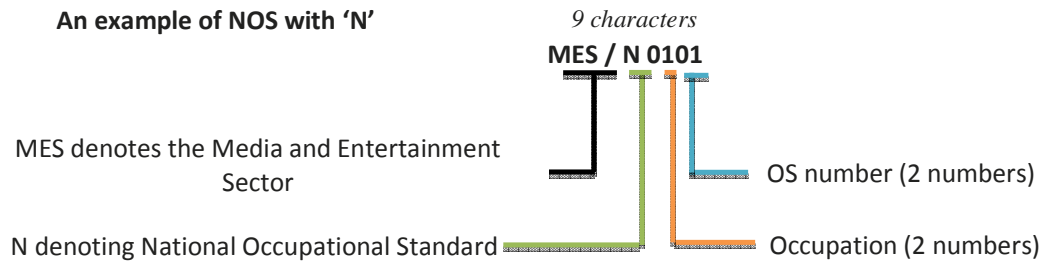
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The following acronyms/codes have been used in the nomenclature above:

Sub-sector	Range of Occupation numbers
…	…

Sequence	Description	Example
Three letters	Media and Entertainment	MES
Slash	/	/
Next letter	Whether **Q**P or **N**OS	Q
Next two numbers	Broadcast Operations/ Technology	05
Next two numbers	Master Control Engineer	05