

Federal Democratic Republic of Ethiopia
OCCUPATIONAL STANDARD



**POWER GENERATION AND
SUBSTATION MANAGEMENT**



NTQF Level V



*Ministry of Education
June 2012*

Introduction

Ethiopia has embarked on a process of reforming its TVET-System. Within the policies and strategies of the Ethiopian Government, technology transformation – by using international standards and international best practices as the basis, and, adopting, adapting and verifying them in the Ethiopian context – is a pivotal element. TVET is given an important role with regard to technology transfer. The new paradigm in the outcome-based TVET system is the orientation at the current and anticipated future demand of the economy and the labor market.

The Ethiopia Occupational Standards (EOS) is the core element of the Ethiopian National TVET-Strategy and an important factor within the context of the National TVET Qualification Framework (NTQF). They are national Ethiopian standards, which define the occupational requirements and expected outcome related to a specific occupation without taking TVET delivery into account.

This document details the mandatory format, sequencing, wording and layout for the Ethiopia Occupational Standard which comprised of Units of Competence.

A Unit of Competence describes a distinct work activity. It is documented in a standard format that comprises:

- Occupational title and NTQF level
- Unit title
- Unit code
- Unit descriptor
- Elements and Performance criteria
- Variables and Range statement
- Evidence guide

Together all the parts of a Unit of Competence guide the assessor in determining whether the candidate is competent.

The ensuing sections of this EOS document comprise a description of the occupation with all the key components of a Unit of Competence:

- chart with an overview of all Units of Competence for the respective level (Unit of Competence Chart) including the Unit Codes and the Unit Titles
- contents of each Unit of Competence (competence standard)
- occupational map providing the technical and vocational education and training (TVET) providers with information and important requirements to consider when designing training programs for this standards and for the individual, a career path

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UNIT OF COMPETENCE CHART

Occupational Standard: Power Generation and Substation Management		
Occupational Code: EIS GSM		
<i>NTQF Level V</i>		
EIS GSM5 01 0612 Manage Occupational Health and Safety Policy and Procedures	EIS GSM5 02 0612 Develop, Implement and Monitor Environmental Management Systems	EIS GSM5 03 0612 Establish and Implement Operational Strategies for Power Production
EIS GSM5 04 0612 Manage and Coordinate Permit to Work System	EIS GSM5 05 0612 Monitor Power Generation Plant Reliability	EIS GSM5 06 0612 Manage Operational Crisis to Maintain/Restore Power System Integrity
EIS GSM5 07 0612 Manage Network/ System	EIS GSM5 08 0612 Manage Quality Control Procedures	EIS GSM5 09 0612 Develop Contingency Plans
EIS GSM5 10 0612 Conduct Project Management	EIS GSM5 11 0612 Coordinate Power Generation	EIS GSM5 12 0612 Manage Commissioning/Decommissioning
EIS GSM5 13 0612 Produce Maintenance Strategies for Generation Production Plant	EIS GSM5 14 0612 Produce Maintenance Plans for Generation Production Plant	EIS GSM5 15 0612 Manage Critical Incidents
EIS GSM5 16 0612 Manage First Response Team Operations	EIS GSM5 17 0612 Manage Personal Work Priorities and Professional Development	EIS GSM5 18 0612 Provide Leadership in the Workplace
EIS GSM5 19 0612 Manage Effective Workplace Relationships	EIS GSM5 20 0612 Manage Workplace Information Systems	EIS GSM5 21 0612 Facilitate Continuous Improvement
EIS GSM5 22 0612 Manage Project Quality	EIS GSM5 23 0612 Facilitate and Capitalize on Change and Innovation	EIS GSM5 24 0612 Establish and Conduct Business Relationships
EIS GSM5 25 1012 Develop and Refine Systems for Continuous Improvement in Operations		

Occupational Standard: Power Generation and Substation Management Level V	
Unit Title	Manage Occupational Health and Safety Policy and Procedures
Unit Code	EIS GSM5 01 0612
Unit Descriptor	This unit deals with the skills and knowledge required to establish and evaluate the organization's Occupational Health and Safety system in order to ensure that the workplace is, so far as is practicable, safe and without risks to the health of employees

Elements	Performance Criteria
1. Establish and maintain the framework for the OHS system in the area of responsibility	<p>1.1 Occupational health and safety (OHS) responsibilities and duties which will allow implementation and integration of the occupational health and safety system are clearly defined, allocated and included in job descriptions and duty statements for all relevant positions</p> <p>1.2 Financial and human resources for the operation of the occupational health and safety system are identified, sought and/or provided in a timely and consistent manner</p> <p>1.3 Information on the occupational health and safety system and procedures for the area of responsibility is provided and explained in a form which is readily accessible to employees</p> <p>1.4 Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of on-the-job training</p>
2. Establish and maintain participative arrangements for the management of OHS	<p>2.1 Appropriate consultative processes are established and maintained in consultation with employees and their representatives in accordance with relevant occupational health and safety legislation and consistent with the organization's overall process for consultation</p> <p>2.2 Issues raised through participation and consultation are dealt with and resolved promptly and effectively in accordance with procedures for issue resolution</p> <p>2.3 Information about the outcomes of participation and consultation is provided in a manner accessible to employees</p>
3. Establish and maintain procedures for identifying hazards	<p>3.1 Existing and potential hazards within the area of managerial responsibility are correctly identified, and identification confirmed in accordance with occupational health and safety legislation, codes of practice and trends identified from the OHS records system.</p>

	<p>3.2 A procedure for ongoing identification of hazards is developed and integrated within systems of work and procedures</p> <p>3.3 Activities are appropriately monitored to ensure that this procedure is adopted effectively throughout the area of managerial responsibility</p> <p>3.4 Hazard identification is addressed at the planning, design and evaluation stages of any change in the workplace to ensure that new hazards are not created</p>		
<p>4. Establish and maintain procedures for assessing risks</p>	<p>4.1 Risks presented by identified hazards are correctly assessed in accordance with occupational health and safety legislation and codes of practice</p> <p>4.2 A procedure for ongoing assessment of risks is developed and integrated within systems of work and procedures</p> <p>4.3 Activities are monitored to ensure that this procedure is adopted effectively throughout the area of managerial responsibility</p> <p>4.4 Risk assessment is addressed at the planning, design and evaluation stages of any change within the area of managerial responsibility to ensure that the risk from hazards is not increased</p>		
<p>5. Establish and maintain procedures for controlling risks</p>	<p>5.1 Measures to control assessed risks are developed and implemented in accordance with the hierarchy of control, relevant OHS legislation, codes of practice and trends identified from the OHS record system</p> <p>5.2 When measures which control a risk at its source are not immediately practicable, interim solutions are implemented until a permanent control measure is developed</p> <p>5.3 A procedure for ongoing control risks, based on the hierarchy of control, is developed and integrated within general systems of work and procedures</p> <p>5.4 Activities are monitored to ensure that the risk control procedure is adopted effectively throughout the area of managerial responsibility</p> <p>5.5 Risk control is addressed at the planning, design and evaluation stages of any change within the area of managerial responsibility to ensure that adequate risk control measures are included</p> <p>5.6 Inadequacies in existing risk control measures are identified in accordance with the hierarchy of control and resources enabling implementation of new measures are sought and/or provided according to appropriate procedures</p>		
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6. Establish and maintain organizational procedures for dealing with hazardous events	<p>6.1 Potential <i>hazardous events</i> are correctly identified</p> <p>6.2 Procedures which would control the risks associated with hazardous events and meet any legislative requirements as a minimum are developed in consultation with appropriate emergency services</p> <p>6.3 Appropriate information and training is provided to all employees to enable implementation of the correct procedures in all relevant circumstances</p>
7. Establish and maintain an OHS training program	7.1 An occupational health and safety training program is developed and implemented to identify and fulfill employees' OHS training needs as part of the organization's general training program
8. Establish and maintain a system for OHS records	8.1 A system for keeping occupational health and safety records is established and monitored to allow identification of patterns of occupational injury and disease within the area of managerial responsibility
9. Evaluate the organization's OHS system and related policies, procedures and programs	<p>9.1 The effectiveness of the OHS system and related policies, procedures and programs is assessed according to the organization's aims with respect to Occupational Health and Safety</p> <p>9.2 Improvements to the OHS system are developed and implemented to ensure more effective achievement of the organization's aims with respect to Occupational Health and Safety</p> <p>9.3 Compliance with OHS legislation and codes of practice is assessed to ensure that legal OHS standards are maintained as a minimum</p>

Variable	Range
Processes for consultation	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • Occupational Health and Safety committees; consultation with health and safety representatives; issuing resolution procedures; and participative/consultative procedures conducted by supervisory staff within the area of managerial responsibility
Monitoring of activities	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • review of written reports, performance appraisal or auditing procedures
Hazardous events	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • Accidents, fires and emergencies such as chemical spills or bomb scares. • Procedures for dealing with them include evacuation, chemical containment and first aid procedures.

Evidence Guide	
Critical Aspects of Competence	<p>Demonstrates knowledge and skills in:</p> <ul style="list-style-type: none"> • Implement OHS workplace procedures and practices including the use of risk control measures • Apply sustainable energy principles and practices as specified in the Performance Criteria and Range Statement • Demonstrate an understanding of the essential knowledge and associated skills as described in elements of this unit • Demonstrate an appropriate level of skills enabling employment • Conduct work observing the relevant legislation, regulations, polices and workplace procedures
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • Relevant Occupational Health and Safety regulations • Relevant statutory legislation • Relevant enterprise/site safety procedures including identification of hazards and controlling of risks • Enterprise /site emergency procedures and techniques • Environmental legislation • Plant status • Enterprise participative arrangements for OHS • Provision of occupational health and safety training • Maintenance of occupational health and safety records
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • Specific skills needed to achieve the performance criteria • Apply relevant occupational health and safety regulations • Apply relevant statutory legislation • Apply relevant enterprise/site safety procedures • Apply enterprise /site emergency procedures and techniques • Apply enterprise recording procedures • Locate and/or identify relevant plant and equipment • Identify plant status • Communicate effectively. • Management / supervision of staff
Resources Implication	<p>Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.</p>
Methods of Assessment	<p>Competence may be assessed through:</p> <ul style="list-style-type: none"> • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	<p>Competence may be assessed in the work place or in a simulated work place setting</p>

Occupational Standard: Power Generation and Substation Management Level V	
Unit Title	Develop, Implement and Monitor Environmental Management Systems
Unit Code	<u>EIS GSM5 02 0612</u>
Unit Descriptor	This unit deals with the skills and knowledge required to identify the environmental requirements for the implementation of a management strategy and the monitoring and reviewing of its effectiveness

Elements	Performance Criteria
1. Produce environmental management strategies	<p>1.1 A clear and concise statement of objectives is prepared to ensure the needs of the strategy can be met</p> <p>1.2 Existing environmental management strategies are reviewed and assessed for compliance with relevant legislation, industry standards and community expectations</p> <p>1.3 Potential activities/operations that may impact on the environment are identified and investigated to ensure that minimization strategies can be developed</p> <p>1.4 Management strategies are developed, selected and prioritized for implementation in order to provide the most effective resolution of issues/problems</p> <p>1.5 Achievable timelines, schedules and targets are established which enable strategy objectives to be met</p> <p>1.6 Financial resources, personnel, and physical facilities and equipment are determined and procured to achieve the strategy outcomes</p>
2. Implement/promote environmental management strategies	<p>2.1 Environmental strategies/requirements are documented in a manner which facilitates implementation</p> <p>2.2 Environmental strategies/requirements are implemented in accordance with relevant legislation, industry standards and community expectations</p> <p>2.3 Others involved in, or affected by, the implementation are consulted in order to facilitate acceptance of the strategy implementation process</p> <p>2.4 Environmental strategy/requirements are promoted with the knowledge and cooperation of others involved in, or affected by, the implementation</p>
3. Monitor and review environmental	<p>3.1 Regular data is collected and analyzed to provide accurate measures of performance</p> <p>3.2 Statistically valid comparisons are made between</p>