Australian Government

Assessment Requirements for UEECO0020 Contribute to the development of a product/application/service

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- employing techniques, procedures, information and resources available in the workplace
- applying relevant work health and safety (WHS)/occupational health and safety (WHS/OHS) requirements, including using risk control measures
- completing development reporting in accordance with workplace procedures
- confirming quality requirements and standards
- confirming resources, personnel, equipment and materials required to develop product/application/service
- contributing to development of design brief for a product/application/service
- contributing to the development of a product/application/service
- documenting and reporting product/application/service development outcomes
- formulating development procedures in accordance with WHS/OHS and relevant industry standards
- identifying development results and characteristics outside of design and specifications
- preparing to develop a product/application/service
- recommending changes to product/application/service quality and production requirements
- recording development results.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- product/application/service development and safe working practices, including:
  - project planning encompassing:
    - purpose of project planning
    - documents needed to plan a project
    - factors influencing sequence and restraints of project activities
    - critical path analysis encompassing:
      - graphical representation methods

- methods of representing time/rates
- project management encompassing:
  - defining project parameters - project scope, project stakeholders and clients, project phases and the relationship between phases, time requirements and limitations, resource requirements and limitations, quality requirements and limitations
  - time management - time management concepts and standard practices for ensuring a project runs to time
  - financial management - financial management concepts; standard practices for managing project finances, project budgets, costs, variations and estimations; invoicing against project phases/deliverables and acquittals
  - quality management - quality management concepts and standard practices for managing quality within a project
  - human resource management - human resource management concepts and standard practices for managing personnel within a project
  - communication management - communication management concepts and standard practices for managing communication within a project
  - risk management and contingencies - risk management concepts, standard practices for managing risk within a project, internal risks, external risks, risk minimisation, risk removal and contingencies
  - procurement management - procurement management concepts and standard practices for managing procurement
  - physical resource management - types of physical resource, including equipment, technology, information and facilities; physical resource management concepts; and standard practices for managing physical resources
  - contracts - understanding project contracts; standard practices for working to contract specifications; contract format; contract content; legal obligations of contract parties; and accompanying documentation, including contract schedules
  - performance assessment and continuous improvement - standard performance assessment practices and standard continuous improvement practices
  - engineering ethics principles
- work in a team encompassing:
  - types of teams - managerial, administrative, project-based, commercial and social
  - roles, responsibilities and accountabilities of team members - the role, responsibility and accountability of individuals, teams, organisational management and clients
  - working in a team - identification and utilisation of team member skills and knowledge; maximising benefits of team diversity; team planning; team commitment and cooperation; improving/maximising team performance to achieve goals; team monitoring and adjustment; plain English literacy and communication; and leading, facilitating, participating, coaching and mentoring
  - working with clients - client relations, client liaison and the practice of working with clients
  - conflict resolution – personality analysis tools and strategies for dealing with difficult people
- scientific writing and communication encompassing:

- types of scientific writing and communication - the distinguishing characteristics of the different types of scientific writing
- purpose of the different types of scientific writing - product development justification and specifications, management advice, scientific papers/publications, conference/meeting presentations, policy documents, planning documents and reports
- types of audience - the features and characteristics of an audience, including an audience's professional, social, cultural, ethnic background and physical and academic capabilities; the importance of 'plain English' written and oral communication
- scientific writing techniques - the component parts of scientific documents, including aim, materials, method, results, discussion, conclusion, references; the required content of each component part; scientific referencing techniques, including bibliographies, reference lists, citations, footnotes, quotes and acknowledgements; scientific labelling techniques, including graphs, tables, diagrams and figures; techniques for documenting results, including text, graphs, tables, diagrams, and figures; organisational standards for document and presentation production, including standard organisational document templates, letterheads, headers, footers and logos
- oral communication techniques - techniques for communicating to large groups, including conference presentations and speeches; techniques for communicating to small groups, including meeting presentations, team discussions and planning forums
- electronic communication formats - world-wide-web – protocols and practices; email – protocols and practices; transfer of information via CD Rom/floppy disk; use of PDF and other secure files
- confidentiality considerations - confidentiality practices to protect the organisation, confidentiality practices to protect the client and confidentiality practices to protect providers of information/research cohorts
- data collection techniques encompassing:
  - data types - quantitative data, including empirical, non-parametric, parametric; qualitative data; raw; graphic; diagrams; original; textual; multimedia and electronic
  - data collection - data sources; consultation protocols and practices; survey methodologies, including interviews, surveys, chat rooms and focus groups; literature reviews, including traditional and web-based; group facilitation and presentation; questioning, active listening and clarification; obstacles to data collection, including unavailable data, inconsistent data, confidentiality, security and data limitations
  - evaluating data quality - reliability, accuracy, clarity and validity; contribution to research; and relevance to research objectives
- data analysis and presentation encompassing:
  - data analysis techniques - univariate analysis, multivariate analysis, decision trees, genetic algorithms, neural networks, gap analysis, urgency and impact
  - data analysis technique selection - determining the correct analysis technique(s); determining the correct sequence of analysis techniques; accommodating influencing factors, including research objectives, budget, timeline and quality requirements, data limitations, confidentiality and security
  - data interpretation - determining results; determining conclusions; benchmarking; quality assurance, including consideration of accuracy, validity and clarity
  - data presentation:

- determining the correct form of presentation for the audience, including colleagues, scientific community, marketing and commercialisation specialists, general community, industry and mixed (i.e. conference audience)
- forms of documentary presentation, including reports, journal articles, scientific papers, graphs, tables, diagrams and electronic formats; forms of verbal presentation, including meetings, client briefings and conferences; support of a new concept; need for further research; commercialisation opportunity; and quality assurance, including accuracy, validity and clarity of information presented

- product development and trials encompassing:
  - identifying client and managerial requirements for production and trials - required outcome(s), key performance indicators (KPIs), timelines, financing, resources and quality assurance
  - influencing factors - internal business goals and strategies; technical specifications (chemical, mechanical, environmental); industrial considerations; regulatory considerations; legislative considerations; intellectual property; Australian and international standards and codes of practice; market requirements; resource requirements, including personnel tools and equipment (principles and practices), materials and finances
  - product development arrangements - licensing agreements, joint ventures and sole ventures
  - relevant documentation - codes of practice, standard operating procedures (SOPs), product formulation documentation, safety data sheets (SDS)/material safety data sheets (MSDS), equipment and quality manuals, calibration and maintenance schedules, enterprise recording and reporting procedures, material, equipment and product specifications
  - development and trial processes - proof of concept; trailing concepts; definitions/specifications; types of development and trial processes, including phase A product and trial, phase B product and trial, user trials, ergonomics and usability testing; pre-defined acceptance criteria, confidence limits; data collection and analysis; production; evaluation and recommendation formulation

- intellectual property concepts encompassing:
  - intellectual property and Australian law - the place of intellectual property in Australian law, past cases and outcomes, and necessary considerations
  - the nature of intellectual property - what is intellectual property? what isn't intellectual property? why is intellectual property relevant? what can intellectual property rights do? what can't intellectual property rights do?
  - intellectual property rights - patents, copyright, designs, confidential information and other specialty rights
  - managing intellectual property - identifying intellectual property; deciding what to protect; strategies for managing intellectual property; how intellectual property rights work together; intellectual property versus time, effort, finances; sources of assistance, including publications, intellectual property professionals, lawyers, business advisors and marketing consultants
  - enforcement of intellectual property - the enforcement process, the role of lawyers and resolution

- the changing face of intellectual property - development of intellectual property right laws; changes to intellectual property right laws; extensions of intellectual property rights into non-traditional areas, including cultural, property arenas and the global marketplace
- work health and safety (WHS)/occupational health and safety (OHS) principles and fundamentals encompassing:
  - underlying principles of WHS/OHS
  - general aims and objectives of the relevant state or territory legislation relating to WHS/OHS
  - employer and employee responsibilities, rights and obligations
  - major functions of safety committees and representatives
  - powers given to occupational health and safety inspectors
  - housekeeping and potential hazards in relation to improper housekeeping
  - selecting appropriate personal protective equipment (PPE) given hazardous situations
- the work environment encompassing:
  - typical hazards associated with a range of work environments
  - procedures used to control the risks associated with these hazards
  - principles of risk assessment / management and state the purpose of each
  - hierarchy of WHS/OHS hazard control measures
  - required documentation for risk assessment
  - commonly used workplace safety signs
  - workplace emergencies that pose a threat to health and safety and suitable procedure for an emergency workplace evacuation
  - appropriate fire extinguisher for a given type of fire
  - requirements for the location, mounting and maintenance of portable fire extinguishers
  - basic process of fighting a fire
  - safe premises, buildings and security are important in an industrial setting and the consequences of non- compliance with these
  - standard work procedure is and why they are required in some circumstances
- manual handling encompassing:
  - typical manual handling injuries and the effect they can have on lifestyle
  - situations that may cause manual handling injuries
  - correct procedures for lifting and carrying to prevent manual handling injuries
  - chemicals in the workplace encompassing:
  - hazardous substances and dangerous goods
  - classification of chemicals as hazardous substances and/or dangerous goods
  - requirements for labelling of chemicals in the workplace
  - safe storage procedures for chemicals
  - purpose of and interpretation of SDS/MSDS
- working at heights encompassing:

- dangers associated with working on ladders and scaffolds
- identification of work area as a height risk and use appropriate safety equipment to prevent a fall
- selecting an appropriate ladder for a given situation and perform a safety check before use
- precautions that should be taken when ascending and working off a ladder
- precautions that should be taken when working on and around a scaffold and elevated platforms
- confined spaces encompassing:
  - hazards associated with working in a confined space
  - identifying workplace situations that could be classified as a confined space
  - control measures for working in a designated confined space
- physical and psychological hazards encompassing:
  - short and long-term effects of excessive noise and techniques to avoid damage to hearing due to excessive noise
  - effects of vibration on the human body and work practices to protect against vibration
  - effects of thermal stress on the human body and work practices to protect against thermal stress
  - effects of ultraviolet (UV) radiation on the human body and work practices to protect against UV radiation
  - dangers associated with laser operated equipment and tools and suitable protective measures to overcome the danger
  - occupational overuse syndrome, state examples of how it occurs and describe means to overcome it
  - factors that cause stress in the workplace, symptoms of a person suffering from stress and personal stress management techniques
  - detrimental effects and dangers of drug and alcohol use in the workplace
- working safely with electricity encompassing:
  - effects of electric shock on the human body
  - common causes of electrical accidents
  - precautions that can minimise the chance of electric shock (earthing, extra-low voltage (ELV), fuses, circuit breakers and residual current devices (RCDs))
  - protection offered by RCDs
  - need for ensuring the (safe) isolation of an electrical supply
  - appropriate method of removing an electric shock victim from a live electrical situation
- life support - cardiopulmonary resuscitation (CPR) in the workplace encompassing:
  - first aid
  - responsibilities of the first aider
  - priorities of first aid management for any accident or injury
  - procedures required at an accident scene

- legal and ethical issues, which may impact on the management of care
- duty of care
- examination of a casualty for injuries
- effect of cardiopulmonary arrest on the body
- managing simulated conditions of airway obstruction; respiratory arrest and cardiopulmonary arrest
- single and two-person CPR
- signs and symptoms of an altered level of consciousness
- management of simulation of a casualty with an altered level of consciousness
- signs and symptoms of shock
- management of simulation of a casualty in shock
- design brief
- relevant industry standards
- relevant manufacturer specifications and operating instructions
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace, quality, policies and procedures
- team environments.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment

Assessment must occur in suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated suitable workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, tools, facilities and equipment currently used in industry
- resources that reflect current industry practices in relation to contributing to the development of a product/application/service
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6