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AUSTRALIA

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Electricity Supply Industry – Generation Sector
Training Package

Volume 2 – Part 2.2
Language, Literacy and Numeracy

Volume 2 of 2

Electricity Supply Industry – Generation Sector Training Package UEP06

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Volume 2 Part 2.2

2.2.1 Language, Literacy and Numeracy

The reading, writing and numeracy skills/competencies in each competency standard unit describe the recommended prerequisite entry requirements typically needed to successfully achieve the competency. A nationally-recognised language, literacy and numeracy framework has been used to provide advice as to the relevant entry level required.

The information has been derived from the National Reporting System report, *A mechanism for reporting outcomes of adult English language, literacy and numeracy programs*, The Australian National Training Authority (ANTA) and the Department of Employment Education and Training (DEET), 1994-5, jointly funded the report. Australian Training Products Ltd (ATP) distributes it for and on behalf of Language Australia Victorian Office. Stock code 3010A, ISBN: 0 7306 7493 2, April 1999.

The report:

- identifies adult English language, literacy and numeracy competencies required in the industry
- facilitates student pathways
- generates ideas for curriculum and assessment.

The report identifies a national framework of five vertical levels of competence related to complexity of language, literacy and numeracy competence. Six interrelated horizontal aspects of communication were found to apply in relation to differing orientations of social activity involving reading, writing, speaking, listening and/or numeracy. These were categorised as:

- procedural communication for performing tasks
- technical communication for using technology
- personal communication for expressing identity
- cooperative communication for interacting in groups
- systems communication for interacting in organizations
- public communication for interacting in the wider community.

The National Reporting System report should be referred to at all times for clarification, more detailed information and advice.

For the purposes of this Training Package writing, reading and numeracy competencies, have been selected from the five-level competence structure (using the Technical Communication aspect of the national framework), as a means of providing relevant entry-level advice. Registered Training Organisations should use this information to assist them in developing appropriate entry-level learning strategies and to assist learners to meet the entry-level requirements of respective competency standard units.

Table 6: Reading, Writing and Numeracy – Indicators of Competence

Reading

Scale	IoC*	Indicators of Competence	Technical Communication
5	5.1	Reads and interprets structurally intricate texts in chosen fields of knowledge and across a number of genres, which involve complex relationship between pieces of information and/or propositions.	Defines the purpose and objectives for the use of a particular technology, eg writes a report, which includes a detailed analysis of technology as, applied in a particular workplace or environment.
	5.2	Interprets subtle nuances, infers purpose of author and makes judgements about the quality of an argument.	Draws on prior knowledge of the application of technology in researching the capacity of a new system, eg writes a briefing and recommends purchase or use of a particular system.
	5.3	Reads and critically evaluates texts containing data which includes some abstraction, symbolism, and technicality presented in graphic, diagrammatic, formatted or visual form.	Uses technological principles to reduce constraints presented by environmental or physical capacity, eg writes a report, which compares the effectiveness and efficiency of manual and computerised record management systems. Prepares a written or oral report, which critically evaluates the content, structure, and purpose of technical texts including graphic, diagrammatic or numerical information. Adapts task instructions to suit changes in technology, eg writes plain English instructions for the operation of a new machine based on the manufacturer’s instructions. Draws from a number of sources and uses computer skills to prepare a report, eg CV and job application letter.
4	4.1	Reads and interprets structurally intricate texts in chosen fields of knowledge which require integration of several pieces of information for generating meaning.	Compares and contrasts views on technology in newspaper articles. Interprets the purposes and objectives for the use of technology after the reading a brochure or manual.
	4.2	Interprets texts, which include ambiguity, and inexplicitness where reader needs to distinguish fact from opinion and infer purpose. Interprets and extrapolates from texts containing data which includes some abstraction, symbolism, and technicality presented in graphic, diagrammatic, formatted or visual form.	Selects technological practices to conform with the guidelines for health and safety, environmental impact and ethical practice, and uses them within those guidelines. Uses guidelines to ensure technological equipment is used to its full capacity. Uses a computer to prepare a typed report from a hand-drafted report. Compares and contrasts different technologies and their impact, eg argues the case for new practices when using new technologies, reports on the effects of installation of new machinery. Writes a report on the impact of a particular technology for a specific audience, eg management committees, tripartite committees. Reads a complex diagram to identify components and procedures for dealing with a technical fault or breakdown.

IoC* – Indicators of Competency sub-level

Note: The five levels of competence (interrelated with six aspects of communication of the National Reporting System) is not an assessment system. It is not curriculum. It is not a model of language acquisition. It is not a means for categorising students by a simple “level”, nor is it a set of broad competency statements. It is not a recruitment instrument for employers. The NRS suggests that the “*report of a person’s competence derives from the interplay between the chosen activity, the features of the text/task, and the context and level of support under which the activity is performed*”.

Scale	IoC*	Indicators of Competence	Technical Communication
3	<p>3.1 Reads and interprets texts of some complexity, integrating (where relevant) a number of pieces of information in order to generate meaning.</p> <p>3.2 Displays awareness of purpose of text, including unstated meaning.</p> <p>3.3 Interprets and extrapolates from texts containing data which is unambiguously presented in graphic, diagrammatic, formatted or visual form.</p>	<p>Reads a technical manual where the information is supported by diagrams, sufficiently well to be able to locate and comprehend particular information required, eg programs a VCR to record two programs in advance.</p> <p>Uses the author, title, key word and other search indexes of a library computer.</p> <p>Comprehends short summary information on computer-managed learning packages to choose a relevant package to suit own needs.</p> <p>Uses the word processing program on a computer to produce texts.</p> <p>Writes simple instructions for using familiar technology, eg how to use an automatic teller machine.</p> <p>Completes a formatted workplace test, eg damage or breakdown report.</p> <p>Writes a brief report on uses of technology, eg for classroom, workplace, domestic or community purposes.</p>	
2	<p>2.1 Reads and interprets short simple texts on a personally relevant topic.</p> <p>2.2 Locates specific information relating to familiar contexts in a text which may contain data in simple graphic, diagrammatic, formatted or visual form.</p>	<p>Reads short, relevant, explicit, clearly formatted texts related to technology, eg the author and title index of a library computer.</p> <p>Chooses a computer assisted learning package, having read short descriptions of one or two programs, to acquire a defined skill or area of knowledge.</p> <p>Writes a short description, eg describes a damaged part of a machine to facilitate repair.</p> <p>Extracts information from a list with language and numeracy components, eg price lists of components for computer systems.</p> <p>Records simple and routine information using the telephone, eg takes a phone message, on a form designed for this purpose.</p> <p>Interprets instructions, which combine pictorial and written information, eg directions on how to operate a piece of machinery safely.</p>	
1	<p>1.1 Reads and identifies letter of the alphabet in the context of whole words, numbers, signs and symbols relating to personal details and immediate environment.</p> <p>1.2 Identifies specific information in a personally relevant text with familiar content, which may include personal details, location or calendar information in simple graphic, diagrammatic, formatted or visual form.</p>	<p>Recognises very short, explicit, pictorial texts, eg understands logos related to worker safety before using a piece of machinery, reads letters on a keyboard.</p> <p>Reads graphic instructions accompanying a new piece of technology to learn new information or skills about a technology or medium, eg uses an automatic teller machine by following instructions given graphically on the screen.</p> <p>Types own name or single words into a computer-assisted learning program.</p>	

Writing

Scale	IoC*	Indicators of Competence	Technical Communication
5	<p>5.4</p> <p>5.5</p>	<p>Demonstrates well-developed writing skills by selecting stylistic devices to express complex relationships between ideas and purposes.</p> <p>Generates complex written texts with control over generic structure.</p>	<p>Defines the purpose and objectives for the use of a particular technology, eg writes a report, which includes a detailed analysis of technology as, applied in a particular workplace or environment.</p> <p>Draws on prior knowledge of the application of technology in researching the capacity of a new system, eg writes a briefing and recommends purchase or use of a particular system.</p> <p>Uses technological principles to reduce constraints presented by environmental or physical capacity, eg writes a report, which compares the effectiveness and efficiency of manual and computerised record management systems.</p> <p>Prepares a written or oral report, which critically evaluates the content, structure, and purpose of technical texts including graphic, diagrammatic or numerical information.</p> <p>Adapts task instructions to suit changes in technology, eg writes plain English instructions for the operation of a new machine based on the manufacturer's instructions.</p> <p>Draws from a number of sources and uses computer skills to prepare a report, eg CV and job application letter.</p>
4	<p>4.4</p> <p>4.5</p>	<p>Communicates complex relationships between ideas by matching style of writing to purpose and audience.</p> <p>Generates written texts reflecting a range of genres and using appropriate structure and layout.</p>	<p>Compares and contrasts views on technology in newspaper articles.</p> <p>Interprets the purposes and objectives for the use of technology after the reading a brochure or manual.</p> <p>Selects technological practices to conform with the guidelines for health and safety, environmental impact and ethical practice, and uses them within those guidelines.</p> <p>Uses guidelines to ensure technological equipment is used to its full capacity.</p> <p>Uses a computer to prepare a typed report from a hand-drafted report.</p> <p>Compares and contrasts different technologies and their impact, eg argues the case for new practices when using new technologies, reports on the effects of installation of new machinery.</p> <p>Writes a report on the impact of a particular technology for a specific audience, eg management committees, tripartite committees.</p> <p>Reads a complex diagram to identify components and procedures for dealing with a technical fault or breakdown.</p>

Note: IoC* - Indicators of Competency sub-level

Writing – continued

Scale	IoC*	Indicators of Competence	Technical Communication
3	3.4	Communicates relationships between ideas through selecting and using grammatical structures and notations, which are appropriate to the purpose.	Reads a technical manual where the information is supported by diagrams, sufficiently well to be able to locate and comprehend particular information required, eg programs a VCR to record two programs in advance.
	3.5	Produces and sequences paragraphs according to purpose of text.	Uses the author, title, key-word and other search indexes of a library computer. Comprehends short summary information on computer-managed learning packages to choose a relevant package to suit own needs. Uses the word processing program on a computer to produce texts. Writes simple instructions for using familiar technology, eg how to use an automatic teller machine. Completes a formatted workplace test, eg damage or breakdown report. Writes a brief report on uses of technology, eg for classroom, workplace, domestic or community purposes.
2	2.3	Writes about a familiar topic using simple sentence structure and joining ideas through conjunctive links where appropriate.	Reads short, relevant, explicit, clearly formatted texts related to technology, eg the author and title index of a library computer.
	2.4	Completes forms or writes notes using factual or personal information relating to familiar contexts.	Chooses a computer assisted learning package, having read short descriptions of one or two programs, to acquire a defined skill or area of knowledge. Writes a short description, eg describes a damaged part of a machine to facilitate repair. Extracts information from a list with language and numeracy components, eg price lists of components for computer systems. Records simple and routine information using the telephone, eg takes a phone message, on a form designed for this purpose. Interprets instructions, which combine pictorial and written information, eg directions on how to operate a piece of machinery safely.
1	1.3	Copies letters of the alphabet, numbers, and dates in order to convey personal details such as name, address, telephone number.	Recognises very short, explicit, pictorial texts, eg understands logos related to worker safety before using a piece of machinery, reads letters on a keyboard.
	1.4	Writes basic personal details about self or others such as name, address, and signature.	Reads graphic instructions accompanying a new piece of technology to learn new information or skills about a technology or medium, eg uses an automatic teller machine by following instructions given graphically on the screen.
	1.5	Writes one or two phrases/simple sentences conveying an idea, message or opinion drawing from a modelled text.	Types own name or single words into a computer-assisted learning program.

Numeracy

Scale	IoC*	Indicators of Competence	Technical Communication
5	5.10	Interprets, selects and investigates appropriate mathematical information and relationships highly embedded in an activity, item or text.	<p>Calculates distance, length and location using the trigonometry and geometry of triangles in relevant situations, eg locates grid reference on a map for a boat travelling on an given bearing with time and speed specified; uses dimensions provided on a scaled plan of a roof to find the pitch or slope of the roof. Calculates quantities of materials to tile the roof applying a 4% allowance for wastage.</p> <p>Plans and gathers information on a negotiated topic form a variety of sources including government, industry and media about relevant community or workplace issues. Organises information by grouping. Graphically represents and analyses information for a particular purpose. Presents, individually or in a team, a report expressing a viewpoint, which is substantiated by discussion of supporting statistical evidence.</p> <p>Interprets and applies metric quantities and numbers in scientific notation, eg calculates the amount of oil in litres spilled from a tanker if it covers a surface area of water of approximately 1200 hectares (1.2 x 107m2) to a thickness of 6 x 103mm.</p> <p>Uses financial formulae, eg simple and compound interest to calculate and contrast the interest incurred in borrowing money from financial institutions.</p>
	5.11	Selects and applies a wide range of mathematical strategies flexibly to generate solutions to problems across a broad range of contexts.	
	5.12	Uses a wide range of oral and written informal and formal language and representation including symbols, diagrams and charts to communicate mathematically.	
4	4.10	Selects and investigates appropriate mathematical information and relationships embedded in an activity, item or text.	<p>Uses ratio and scale to interpret dimensions on a basic plan.</p> <p>Applies similarity and ratio to estimate and calculate lengths, eg finds height of a building, a tree.</p> <p>Compares quality and costs of using imported vs Australian tiles, discount vs brand name paints.</p> <p>Presents information in appropriate graphical format to show different interpretations and influences, eg analysis of government spending on education.</p> <p>Applies formulae and interprets results relevant to a familiar practical situation, measuring the dimensions needed and substituting them into the formula, adjusting units where necessary, eg length of edging for circular garden or pond, capacity of a water tank or bath.</p> <p>Uses area and perimeter to calculate a range of options, eg given a certain length of fencing, plan a range of options for paddock dimensions, which meet specific area requirements.</p> <p>Calculates and contrasts monthly income from average sales, given a variety of salary options involving retainers and commission rates.</p>
	4.11	Selects and applies an expanding range of mathematical strategies flexibly to solve problems in a variety of contexts.	
	4.12	Examines and questions the appropriateness, possible interpretations and implications of aspects of a mathematical activity.	
	4.13	Uses a range of oral and written informal and formal language and representation including symbols, diagrams and charts to communicate mathematically.	

Note: IoC* - Indicators of Competency sub-level

Scale	IoC*	Indicators of Competence	Technical Communication
3	3.10	Selects appropriate mathematical information embedded in a real life activity, item or text.	<p>Uses a distance scale to find the shortest route between two locations on a map and considers road terrain conditions in deciding preferred route.</p> <p>Expresses and calculates with metric quantities, eg interprets and costs quantities of cheese given different forms such as 350g, 0.35kg.</p> <p>Measures common three-dimensional shapes, eg room, and represents the information on an appropriate diagram drawn to scale.</p> <p>Calculates with common, fractions and metric measurements, eg adjusts the quantities in a recipe by halving or doubling to obtain the required amount.</p> <p>Uses a variety of methods to analyse advertising by comparing savings on a number of different items, eg at 12% off, 15% off, 1/3 off, price reduced by \$10.</p> <p>Compares casual and permanent rates of pay over a given time span for work of the same nature.</p> <p>Compares measurements taken with estimated lengths of familiar objects, eg estimates and measures storeroom dimensions.</p>
	3.11	Selects and applies a range of mathematical strategies to solve problems in a number of familiar contexts which may be interrelated.	
	3.12	Reflects on and questions reasonableness and appropriateness of the purpose, process and outcomes of a mathematical activity.	
	3.13	Uses oral and written, informal and formal language and representation, including symbols and diagrams, to communicate mathematically.	
2	2.9	Locates relevant mathematical information in a familiar real life activity text.	
	2.10	Selects and uses straightforward mathematical actions in a familiar and predictable contexts.	
	2.11	Uses estimation and prior experience to examine purpose and check reasonableness of the process and outcomes of a mathematical activity.	
	2.12	Uses oral, written, informal and formal language and representation, including symbols and diagrams, to communicate mathematically.	
1	1.10	Locates simple key mathematical information in a familiar real life activity text.	<p>Estimates lengths of familiar objects using metric units, eg a person's height, height of doorway.</p>
	1.11	Recognises and uses straightforward mathematical actions which relate to immediate contexts.	
	1.12	Uses rough estimation and prior experience to identify purpose and check reasonableness of the process and outcomes of a mathematical activity.	
	1.13	Uses everyday informal spoken language and representation including familiar symbols and diagrams to communicate mathematically.	