



Australian Government

ICTPRG442 Apply mathematical techniques for software development

Release: 1

ICTPRG442 Apply mathematical techniques for software development

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 6.0.

Application

This unit describes the skills and knowledge required to use basic mathematical methods and operations in standard computer notation, Boolean algebra, data types and computer storage.

It applies to those who are involved in software development roles who are required to use mathematical constructions in programming.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Programming and software development

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Establish task requirements	1.1 Identify and configure software development environment according to business need 1.2 Discuss and confirm software development task and intent according to business need 1.3 Identify and discuss different mathematical techniques in software development
2. Manipulate number and character representation systems in a software	2.1 Convert numbers between binary, decimal and hexadecimal number systems

ELEMENT	PERFORMANCE CRITERIA
development context	2.2 Add, subtract and multiply numbers in binary 2.3 Determine binary memory storage of an integer and a character
2. Manipulate algebraic terms and solve linear equations in a software development context	3.1 Position number types on number line 3.2 Evaluate various numerical expressions involving integers, fractions and indices 3.3 Simplify various algebraic expressions involving integers, fractions and indices
4. Construct, simplify and evaluate expressions and mathematical formulas in a software development context	4.1 Solve simple equations 4.2 Convert formulas between standard algebraic form and computer notation 4.3 Create formulas in standard algebraic form and in computer notation 4.4 Simplify and evaluate Boolean expressions and formulas 4.5 Complete truth tables using simple Boolean expressions and logic 4.6 Save and confirm work with required personnel

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Oral communication	<ul style="list-style-type: none"> • Uses listening and questioning techniques to articulate information and task requirements using specific language applicable to audience
Numeracy	<ul style="list-style-type: none"> • Uses a wide range of mainly formal and some informal, oral and written mathematical language and representation when solving equations, constructing mathematical formulas, simplifying and evaluating Boolean expressions and formulas and manipulating number and character systems
Reading	<ul style="list-style-type: none"> • Interprets and critically analyses information from a variety of sources and records
Planning and organising	<ul style="list-style-type: none"> • Plans and sequences complex tasks

SKILL	DESCRIPTION
Problem solving	<ul style="list-style-type: none">• Uses analytical processes and decides on a course of action when evaluating Boolean expressions and formulas

Unit Mapping Information

Supersedes and is equivalent to ICTPRG417 Apply mathematical techniques for software development.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>