



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **UEE60410 Advanced Diploma of Computer Systems Engineering**

**Release: 1**

## **UEE60410 Advanced Diploma of Computer Systems Engineering**

### **Modification History**

Not Applicable

### **Description**

#### **Scope**

This qualification provides competencies to design, install/validate/evaluate and administer computer equipment and systems, manage risk, estimate and manage projects and provide technical advice/sales.

### **Pathways Information**

Not Applicable

### **Licensing/Regulatory Information**

Not Applicable

### **Entry Requirements**

Not Applicable

### **Employability Skills Summary**

Not Applicable

## Packaging Rules

### Completion requirements

The requirements for granting this qualification will be met when competency is demonstrated and achieved for:

- All the Core competency standard units, **and**
- A combination of Elective competency standard units selected from Group A, B, C, D and/or Group E to achieve a total weighting of 1880 points, **and**
- All the required pre-requisite competency standard units have been met as required.

| <b>Core Competency Standard Units</b>             |                                                                                                  | <b>Weighting Points</b> |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------|
| All Core competency standard units to be achieved |                                                                                                  |                         |
| UEENEED044B                                       | Commission computer systems                                                                      | 20                      |
| UEENEED045B                                       | Modify-redesign of computer system                                                               | 20                      |
| UEENEEE001B                                       | Apply OHS practices in the workplace                                                             | 20                      |
| UEENEEE015B                                       | Develop design brief for electrotechnology projects                                              | 40                      |
| UEENEEE017B                                       | Implement and monitor OHS policies and procedures                                                | 20                      |
| UEENEEE032B                                       | Document occupational hazards and risks in computer systems                                      | 20                      |
| UEENEEE038B                                       | Participate in development and follow a personal competency development plan                     | 20                      |
| UEENEEE078B                                       | Contribute to risk management in electrotechnology systems                                       | 20                      |
| UEENEEH041B                                       | Manage electronics/computer systems projects                                                     | 40                      |
| UEENEEH088B                                       | Design and develop electronics/computer systems projects                                         | 40                      |
| UEENEEK045A                                       | Implement&monitor, policies&procedures for environmentally sustainable electrotech work practice | 20                      |
| <b>Total points in core</b>                       |                                                                                                  | <b>280</b>              |

**Elective Competency Standard Units**

**Complete Elective units to achieve a total of weighting of 1880 points from the following groups:**

| <b>Group</b> |                                                                                                                                                                                                                                                                                                                                                                                | <b>Minimum points</b> | <b>Maximum points</b> |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|
| <b>A</b>     | <b>Imported and Common Elective Units</b><br>Imported units from other training packages and/or state accredited courses can be added to this group, but they must be selected from qualifications where the unit is first packaged at AQF level 6. If units have not being assigned a weighting in the Electrotechnology Training Package, their weighting will be 10 points. | 0                     | 360                   |
| <b>B</b>     | <b>Qualification Electives - Schedule 2-3 Units</b>                                                                                                                                                                                                                                                                                                                            | 0                     | 900                   |
| <b>C</b>     | <b>Qualification Electives - Schedule 4 Units</b>                                                                                                                                                                                                                                                                                                                              | 0                     | 280                   |
| <b>D</b>     | <b>Qualification Electives - Schedule 5 Units</b>                                                                                                                                                                                                                                                                                                                              | 0                     | 280                   |
| <b>E</b>     | <b>Qualification Electives - Schedule 6 Units</b><br>You may select the majority of your elective units from this Group                                                                                                                                                                                                                                                        | 420                   | 1600                  |

| <b>Group A - Imported and Common Elective Units</b> |                                                                                                                                                                                                                                                                                                                | <b>Weighting Points</b> |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| BSBMGT502B                                          | Manage people performance                                                                                                                                                                                                                                                                                      | 70                      |
| BSBINM501A                                          | Manage an information or knowledge management system                                                                                                                                                                                                                                                           | 50                      |
| BSBMGT516C                                          | Facilitate continuous improvement                                                                                                                                                                                                                                                                              | 60                      |
| BSBINN502A                                          | Build and sustain an innovative work environment                                                                                                                                                                                                                                                               | 50                      |
| BSBWOR502B                                          | Ensure team effectiveness                                                                                                                                                                                                                                                                                      | 60                      |
|                                                     | Imported units from other training packages and/or state accredited courses can be added to this group, but they must be selected from qualifications where the unit is first packaged at AQF level 6. If units have not being assigned a weighting in the Electrotechnology Training Package, their weighting | Up to 360 points        |

| Group A - Imported and Common Elective Units |                                                                                                                                                                                                                              | Weighting Points |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
|                                              | <p>will be 10 points.</p> <p>Note: For further information see <i>Transition to NQC Packaging Rules for Flexibility</i>, Page 48, UEE07 Electrotechnology Training Package, Version 4, Volume 1 Preliminary Information.</p> |                  |

| <b>Group B - Qualification Electives - Schedule 2-3 Units</b> |                                                                             | <b>Weighting Points</b> |
|---------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------|
| UEENEEA001B                                                   | Assemble electronic apparatus                                               | 40                      |
| UEENEEA002B                                                   | Select electronic components                                                | 20                      |
| UEENEEA004B                                                   | Rework electronic sub assemblies                                            | 40                      |
| UEENEEA006B                                                   | Apply lead-free soldering techniques                                        | 40                      |
| UEENEEA002B                                                   | Assemble, set up and test personal computers                                | 80                      |
| UEENEEA004B                                                   | Use engineering applications software                                       | 40                      |
| UEENEEA005B                                                   | Enter and verify operating instructions in microprocessor equipped devices  | 20                      |
| UEENEEA012B                                                   | Support computer hardware and software                                      | 120                     |
| UEENEEA029B                                                   | Develop basic web pages for engineering applications                        | 40                      |
| UEENEEA030B                                                   | Select, install, configure and test multimedia devices                      | 40                      |
| UEENEEA031B                                                   | Develop and validate basic integrated systems                               | 60                      |
| UEENEEA043B                                                   | Install and configure a computer operating system and software              | 40                      |
| UEENEEA046B                                                   | Set up and configure basic local area network                               | 40                      |
| UEENEEA053B                                                   | Set up and test biometric devices                                           | 40                      |
| UEENEEA002B                                                   | Dismantle, assemble and fabricate electrotechnology components              | 40                      |
| UEENEEA003B                                                   | Solve problems in extra-low voltage single path circuits                    | 40                      |
| UEENEEA004B                                                   | Solve problems in multiple path d.c. circuit)                               | 40                      |
| UEENEEA005B                                                   | Fix and secure equipment                                                    | 20                      |
| UEENEEA007B                                                   | Use drawings, diagrams, schedules and manuals                               | 40                      |
| UEENEEA008B                                                   | Lay wiring/cabling and terminate accessories for extra-low voltage circuits | 40                      |

| <b>Group B - Qualification Electives - Schedule 2-3 Units</b> |                                                                                                 | <b>Weighting Points</b> |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------|
| UEENEEE019C                                                   | Solve problems in multiple path a.c. circuits                                                   | 40                      |
| UEENEEE023B                                                   | Solve basic problems in electronic and digital equipment                                        | 80                      |
| UEENEEE046B                                                   | Identify affects of energy on machinery and materials in an electrotechnology environment       | 120                     |
| UEENEEE048C                                                   | Carry out routine work activities in an electrotechnology environment                           | 40                      |
| UEENEEE050B                                                   | Undertake computations in an electrotechnology environment                                      | 120                     |
| UEENEEE079A                                                   | Identify and select components, accessories and materials for electrotechnology work activities | 20                      |
| UEENEEF002B                                                   | Lay and connect cables for multiple access to telecommunication services                        | 120                     |
| UEENEEF004B                                                   | Install and modify performance data communication structured cabling                            | 40                      |
| UEENEEF005B                                                   | Install and modify performance data communication optical fibre cabling                         | 40                      |
| UEENEEF007B                                                   | Set up wireless capabilities of communications and data storage devices                         | 40                      |
| UEENEEF008B                                                   | Select and arrange equipment for wireless networks                                              | 60                      |
| UEENEEF009B                                                   | Install and connect voice and data communications equipment                                     | 60                      |
| UEENEEF010B                                                   | Select and arrange equipment for local area networks                                            | 120                     |
| UEENEEH001B                                                   | Carry out basic repairs to computer equipment by replacement of modules/sub-assemblies          | 40                      |
| UEENEEH002B                                                   | Carry out basic repairs to electronic apparatus by replacement of components                    | 40                      |
| UEENEEH003B                                                   | Carry out routine repairs to business equipment                                                 | 120                     |
| UEENEEH011B                                                   | Troubleshoot d.c. power supplies with single phase                                              | 40                      |

| <b>Group B - Qualification Electives - Schedule 2-3 Units</b> |                                                                       | <b>Weighting Points</b> |
|---------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------|
|                                                               | input                                                                 |                         |
| UEENEEH012B                                                   | Troubleshoot digital subsystems                                       | 80                      |
| UEENEEH013B                                                   | Troubleshoot amplifiers                                               | 80                      |
| UEENEEH014B                                                   | Troubleshoot frequency dependent circuits                             | 80                      |
| UEENEEH015B                                                   | Develop software solutions in microcontroller based systems           | 60                      |
| UEENEEH039B                                                   | Troubleshoot basic amplifiers                                         | 40                      |
| UEENEEH050B                                                   | Assemble and set up basic wired and wireless security systems         | 80                      |
| UEENEEH051B                                                   | Install large wired and wireless security systems                     | 100                     |
| UEENEEH052B                                                   | Enter instructions and test basic wired and wireless security systems | 40                      |
| UEENEEH066B                                                   | Fault find Microcontroller based hardware                             | 40                      |
| UEENEEH069B                                                   | Solve problems in electronic circuits                                 | 100                     |
| UEENEEI001B                                                   | Install and set up transducers and sensing devices                    | 40                      |

| <b>Group C - Qualification Electives - Schedule 4 Units</b> |                                                                                                 | <b>Weighting Points</b> |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------|
| UEENEEC004B                                                 | Prepare specifications for the supply of materials and equipment for electrotechnology projects | 40                      |
| UEENEEC005B                                                 | Estimate electrotechnology projects                                                             | 40                      |
| UEENEE003B                                                  | Evaluate and modify programs written in object oriented code                                    | 40                      |
| UEENEE010B                                                  | Set up and create content for a web server                                                      | 120                     |
| UEENEE013B                                                  | Install and administer Unix based computers                                                     | 80                      |
| UEENEE015B                                                  | Administer user networks                                                                        | 80                      |

| <b>Group C - Qualification Electives - Schedule 4 Units</b> |                                                                                               | <b>Weighting Points</b> |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------|
| UEENEED017B                                                 | Install and configure internetworking systems                                                 | 120                     |
| UEENEED027B                                                 | Develop structured programs to control external devices                                       | 40                      |
| UEENEED032B                                                 | Design integrated systems                                                                     | 60                      |
| UEENEED033B                                                 | Design complex integrated systems                                                             | 60                      |
| UEENEED034B                                                 | Configure and maintain industrial control system networks                                     | 60                      |
| UEENEED054B                                                 | Analyse and implement biometric techniques and applications                                   | 120                     |
| UEENEEE010B                                                 | Develop and implement maintenance programs                                                    | 60                      |
| UEENEEE014B                                                 | Supervise and coordinate work activities                                                      | 40                      |
| UEENEEE024C                                                 | Compile and produce an electrotechnology report                                               | 60                      |
| UEENEEH044B                                                 | Diagnose and rectify faults in analogue circuits and components in electronic control systems | 60                      |

| <b>Group D - Qualification Electives - Schedule 5 Units</b> |                                                                          | <b>Weighting Points</b> |
|-------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------|
| UEENEEC006B                                                 | Prepare tender submissions for electrotechnology projects                | 60                      |
| UEENEED011B                                                 | Develop object oriented code                                             | 140                     |
| UEENEED018B                                                 | Design and implement internetworking systems                             | 120                     |
| UEENEED024B                                                 | Integrate multiple computer operating systems on a client server network | 80                      |
| UEENEED025B                                                 | Design and configure Human-Machine Interface networks                    | 60                      |
| UEENEED028B                                                 | Develop and test code for microcontroller devices                        | 60                      |
| UEENEED050B                                                 | Develop control programs for microcomputer equipped devices              | 60                      |

| <b>Group D - Qualification Electives - Schedule 5 Units</b> |                                                                | <b>Weighting Points</b> |
|-------------------------------------------------------------|----------------------------------------------------------------|-------------------------|
| UEENEE051B                                                  | Provide programming solution for engineering problems          | 60                      |
| UEENEE025B                                                  | Solve problems in complex multiple path circuits               | 60                      |
| UEENEE026B                                                  | Provide computational solutions to basic engineering problems  | 40                      |
| UEENEE070B                                                  | Write specifications for computer systems engineering projects | 40                      |
| UEENEEH045B                                                 | Develop solutions to analogue electronic problems              | 80                      |
| UEENEEH048B                                                 | Design and develop advanced digital systems                    | 40                      |
| UEENEEH057B                                                 | Develop basic integrated security systems plan                 | 40                      |
| UEENEEH081B                                                 | Design printed circuit boards                                  | 40                      |
| UEENEEH083B                                                 | Analyse the performance of wireless-based electronic systems   | 40                      |

| <b>Group E - Qualification Electives - Schedule 6 Units</b>        |                                                                    | <b>Weighting Points</b> |
|--------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------|
| You may select the majority of your elective units from this Group |                                                                    |                         |
| UEENEEC007B                                                        | Manage contract variations                                         | 40                      |
| UEENEE014B                                                         | Design and manage enterprise networks                              | 80                      |
| UEENEE016B                                                         | Develop network services                                           | 120                     |
| UEENEE019B                                                         | Design and implement Internetworking systems advanced routing      | 100                     |
| UEENEE020B                                                         | Design and implement Internetworking systems remote access         | 100                     |
| UEENEE021B                                                         | Design and implement Internetworking systems multi-layer switching | 100                     |
| UEENEE022B                                                         | Design and implement Internetworking systems security              | 100                     |
| UEENEE023B                                                         | Design and implement internetworking systems                       | 100                     |

| <b>Group E - Qualification Electives - Schedule 6 Units</b><br>You may select the majority of your elective units from this Group |                                                                                   | <b>Weighting Points</b> |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------|
|                                                                                                                                   | wireless LANs/WANs                                                                |                         |
| UEENEED026B                                                                                                                       | Design a computer based control system                                            | 120                     |
| UEENEED048B                                                                                                                       | Plan computer systems projects                                                    | 60                      |
| UEENEED052B                                                                                                                       | Design embedded controller systems                                                | 80                      |
| UEENEED055B                                                                                                                       | Develop and validate biometric systems installation instructions                  | 120                     |
| UEENEEE011C                                                                                                                       | Manage risk in electrotechnology activities                                       | 100                     |
| UEENEEE027B                                                                                                                       | Use advanced computational processes to provide solutions to engineering problems | 80                      |
| UEENEEE028B                                                                                                                       | Develop engineering solutions to photonic problems                                | 80                      |
| UEENEEE029B                                                                                                                       | Solve electrotechnical problems                                                   | 60                      |
| UEENEEH084B                                                                                                                       | Modify DSP based sub-systems                                                      | 80                      |
| UEENEEH085B                                                                                                                       | Design a signal-conditioning subsystem                                            | 80                      |

- Note:**
1. Pre-requisite pathways shall be identified and met for all elective units selected.
  2. In selecting elective units considerations to career planning advice should be given to units that form part of a pre-requisite pathway for the progression to achieve particular competencies or qualification at a higher level.
  3. Registered training organisations shall also provide information related to the relevant pathway(s) that may be taken to achieve paraprofessional status ("associate membership") with a professional engineering membership organisation.

END OF QUALIFICATION