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| MODULE TITLE | ENGINEERING PROJECT |
| Nominal Duration | Two Modules |
| Module Code | EB 050 |
| Module Purpose | <p>To enable students to proceed from a client's brief to the preparation of design and development briefs, engineering solutions, design and detail drawings, written reports of tasks, processes and design outcomes, and the oral presentation of technical information.</p> <p>It is anticipated that this double module will address all the students major study areas.</p> |
| Relationship to Competency Standards | <p>This module will be modified in line with the requirements of the National Metals and Engineering Standards when they become available.</p> <p>The module contains the knowledge and skills identified and agreed by all states/territories. It has been developed on the assumption that these will be reflected in the Standards.</p> |
| Prerequisites | <p>Entry to this module will be largely at the discretion of the training provider who will assess the learner's capacity and readiness to handle the module. In general the student will have a substantial background of learning at the associate diploma level and will have taken some initiative in identifying an area of enquiry. This is important if the maximum benefit of undertaking a project is to be realised.</p> |
| Summary of Content | <p>Given the range of project optics likely to be identified, the following list of content should serve as a reminder to facilitator and student of key project-related tasks that might need to be attended to.</p> <ul style="list-style-type: none">Tender documents and contracting.Engineering project specifications.Client interaction (interpersonal skills).Assessment of client need.Report writing.Preliminary design sketches.Preliminary design calculations.General arrangement drawing. |

Component design - sizing, material selection and bought outside selection of standard components. Detailed drawings of parts and assemblies showing linear and geometric tolerancing (where necessary). Final report - to contain client brief of requirements and specifications (as tender documents), all drawings, design calculations and any special/novel design problems and/or solutions, a written report. Oral presentation to peers.

Delivery

This module will provide students with the opportunity to demonstrate an integration of knowledge and skills acquired through earlier study and work experience. It is an opportunity to explore design concepts, or to develop management theories into a working model for their organisation, or to develop TQM plan for a process, or a combination.

An important characteristic of this module is the opportunity it presents for self directed learning. There may be need for some formal delivery on topics such as project planning, estimation, costing, evaluation etc, but in the main, the student will work under limited direction. Use may be made of a learning contract.

Learning Outcomes

On completion of this module the learner will be able to:

Learning Outcome 1

Develop a design and development brief of options for 'approval to proceed'.

Assessment Criteria

Discuss design concept with client.

List client requirements (functional analysis).

Prepare summary report for client discussion and preliminary costing.

Conditions

Open book.

Teacher/trainer sets parameters for student/trainee to undertake tasks set.

Australian Standards, and mechanical engineering textbooks.

Assessment Method

Assignment/Project (a checklist grid used to evaluate demonstrated competency for this learning outcome)

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| <i>Learning Outcome 2</i> | Design an engineering solution involving standard and proven design techniques from a client's brief. |
| Assessment Criteria | Apply standard formulas and standard tabulated data to size engineering components. Determine tolerance (linear and geometric) for size generated to ensure functionality and design performance. |
| Conditions | Open book |
| Assessment method | Assignment/Project (a checklist grid used to evaluate demonstrated competency for this learning outcome). |
| <i>Learning Outcome 3</i> | Draw preliminary, general arrangement, design and detail drawings. |
| Assessment Criteria | Draw component detail drawings to appropriate standards Draw assembly and general arrangement drawings to appropriate standards. |
| Conditions | Open book. |
| Assessment method | Drawing assignment as part of Project for module (checklist grid to be used to ensure competency assessment). |
| <i>Learning Outcome 4</i> | Prepare a written report of tasks, processes and design outcomes. |
| Assessment Criteria | Documents prepared to appropriate standards and to ASF competency level 6. Print based documents prepared in third party, past tense technical form. |
| Conditions | Open book. |
| Assessment method | Written assignment as part of project requirements for this module (checklist grid to be used to ensure competency assessment) |

Learning Outcome 5

Assessment Criteria

Orally present technical information.

Clear presentation of the facts to ensure unencumbered interpretation by peer/industry groups.

Information provided in ordered sequence.

Communicate rationale supporting design decisions effectively.

Conditions

Audio visual, OHT, microphone (if necessary), podium facility, and audience.

Open book, positive environment provided at presentation, and full consideration is to be given to physically impaired and other disadvantaged groups.

Assessment method

Oral presentation.

Questioning technique focussing on technical detail.

Suggested Learning Resources

Physical resources

Drawing board/machine, full range of professional drafting instruments and/or access to Computer Aided Drafting station with printer/plotter.

Texts/references

Extensive print based (or computer stored) reference materials/textbooks/manuals.

Examples of previous designs covering the range of relevant engineering designs.

Access to Library containing current Australian Standards.