# Pre-approved Learning and Assessment Plan

Stage 2 Material Products (Context: Metals)

Pre-approved learning and assessment plans are for *school use only*.

* Teachers may make changes to the plan, retaining alignment with the subject outline.
* The principal or delegate endorses the use of the plan, and any changes made to it, including use of an addendum.
* The plan does not need to be submitted to the SACE Board for approval.

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| School |  | Teacher(s) |  |

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| SACE school code | | |  | Year |  | Enrolment code | | | | |  | Program variant code (A–W) |
| Stage | Subject code | | | No. of credits (10 or 20) |
|  |  |  |  | **2** | **M** | **M** | **A** | **20** |  |

Addendum – changes made to the pre-approved learning and assessment plan

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| Describe any changes made to the pre-approved learning and assessment plan to support students to be successful in meeting the requirements of the subject. In your description, please explain:  what changes have been made to the plan   * the rationale for making the changes * whether these changes have been made for all students, or for individuals within the student group. |

Endorsement

The use of the learning and assessment plan is approved for use in the school. Any changes made to the plan support student achievement of the performance standards and retain alignment with the subject outline.

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| Signature of principal or delegate |  | Date |  |

# Assessment overview

Stage 2 Material Products – 20 credits

The table below provides details of the planned tasks and shows where students have the opportunity to provide evidence for each of the specific features of all of the assessment design criteria.

Assessment Type 1: Skills and Applications Tasks – weighting 20%

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Assessment details | Assessment design criteria | | | | Assessment conditions  (e.g. task type, word length, time allocated, supervision) |
| I | Pl | Pr | E |
| Specialised skills application 1: Construct a workbox  Metal Specialised welding: Produce an aluminium toolbox using a supplied working plan and specialised MIG and/or TIG welding.  The construction allows the students to demonstrate the following application of skills and techniques, resources, equipment and materials to create the product safely:   * use of machinery * use of different aluminium sections and plate * welding of aluminium at all intersections for maximum strength * use of sheet steel with the corners joined to maximise strength.   Students document planning required and skill development in practise welding activities through recorded oral discussion or written and photographic evidence. A teacher check list will provide level of competency obtained and comments related to the production. | 4 | 3 | 1,2,3 |  | Supervised: 100 minutes  Completed in one attempt using efficient use of time after practice welding |
| Specialised skills application 2: Lathe skills test  Use pieces of scrap metal to demonstrate proficiency at the following techniques using a metal lathe: Chamfering, Parting, Threading, Boring, Drilling, and Knurling.  The construction requires the students to demonstrate safe application of skills and techniques, resources, equipment and materials to create a product.  Students to summarise in a table format the planning required, evaluation of own skill development for each technique and a photo of final demonstration piece. A teacher check list will provide level of competency obtained and comments related to the production. |  | 3 | 1,2,3 | 1 | Supervised: time variable.  Students have a list of skills to practise, and they demonstrate them as they feel they reach proficiency. |
| Materials application: Properties and testing of TIG and MIG welds  Students investigate the properties of welds produced by the two different welding processes: Tungsten Inert Gas welding and Metal Inert Gas welding. They look at the chemical properties of the metal and gases involved, and the implications for the type of weld produced. They report on how their research into and testing of functional characteristics and properties of these welding processes will affect their selection for use in the realisation of their product. Testing is to include both qualitative and quantitative measures. They make a recommendation for use in their own major product. | 1,3,4 | 3 |  | 3 | Unsupervised. Students use two single lessons separated by a week of their own study time to produce their investigation.  A maximum of 800 words or 5 minutes of oral, or the equivalent in multimodal form |

Assessment Type 2: Product – weighting 50%

| Assessment details | Assessment design criteria | | | | Assessment conditions  (e.g. task type, word length, time allocated, supervision) |
| --- | --- | --- | --- | --- | --- |
| I | Pl | Pr | E |
| Minor product: G or Bar cramp  Students are given examples of various forms of cramps, the production of which requires them to use different skills. They negotiate to produce one which develops and/or complement the skills they show in their major project. Students construct a product record and demonstrate meeting the specifications of a prepared design brief. The product record is used to provide evidence of modification and planning, production, and/or evaluation aspects of the design process that occur during the creation of the product. |  | 1 | 1,2,3 | 1,3 | Unstructured in supervised metal laboratory.  Three weeks of lesson time spread over six weeks, as students begin Folio for major product. |
| Major product  Students produce the product that they designed in their Folio task. They keep a product record that includes evidence of:   * development of skills * selection and use of appropriate components, specialised processes, and production techniques * application of knowledge and understanding to create the product * safe and accurate use of appropriate equipment and processes * modification of the design brief as a result of technical problems that arise * use of materials with appropriate characteristics and properties * ongoing reflection on ideas and procedures. |  | 2,3 | 1,2,3 | 2 | Unstructured in supervised metal laboratory.  The product record is used to provide evidence of modification and planning, production, and/or evaluation aspects of the design process that occur during the creation of the product.  Seven weeks. |

Assessment Type 3: Folio – weighting 30%

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| Assessment details | Assessment design criteria | | | | Assessment conditions  (e.g. task type, word length, time allocated, supervision) |
| I | Pl | Pr | E |
| External assessment ( two assessment for the folio)  *Product design (documentation and analysis)*  *Students create a design brief and analyse their investigation and planning for their major product, based on the skills and activities outlined in the section ‘The Design Process’ section of the Learning Scope and Requirements .* The design brief should include a statement of intent, functional outcomes, aesthetic considerations, and constraints. It can be presented in dot point form.  The investigating part of the design process should include an investigation into the impact on individuals, society, and/or the environment of technological practices related to the type of product that the student is designing. The analysis involved in investigation can be included in the product design documentation or in the product evaluation.  *Product evaluation:*  *Students evaluate their producing skills, using evidence from the major product record in Assessment Type 2, and evaluate their realised major product.* The evaluation should include:   * a critical comparison of the realised product with the requirements of the design brief, and an explanation of and justification for any changes made * a review of criteria, standards, reliability, safety, quality, and cost-effectiveness * reflection on outcomes, with recommendations for possible improvement or redevelopment of designs or procedures * analysis of the impact of the product on individuals, society, and/or the environment (if not part of product design documentation) * evaluative observations about the student’s own skills development.   Evidence of development, with supporting written or oral summaries that explain, analyse, and evaluate the process and product, could take the form of:   * all or sections of the product record * photographic or electronic or digitally generated materials * audiovisual evidence * materials * products * models * sketches, diagrams, or annotations.   Oral summaries may emerge from teacher-led discussion questions*.* | 1,2,3,  4,5 | 1,2,3 |  | 1,2,3,4 | The combined evidence should be a maximum of 2000 words if written, or a maximum of 12 minutes recorded oral documentation, analysis, and evaluation, or the equivalent in multimodal form. |

*Seven or eight assessments.**Please refer to the Stage 2 Design and Technology subject outline.*