



SAMPLE COURSE OUTLINE

ENGINEERING STUDIES ATAR YEAR 11

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Sample course outline

Engineering Studies – ATAR Year 11

Unit 1 and Unit 2

Semester 1

Week	Key teaching points
Term 1 1–2	Overview of unit and assessment requirements Introduction to design process Task 1: Design project one <ul style="list-style-type: none"> development of a design folio design brief , and investigation Engineering design process – Investigating <ul style="list-style-type: none"> develop a design brief use research skills to identify existing solutions/products describe and analyse existing solutions/products
3–5	Learning of specialist theory and specific understandings from either specialty field; Mechanical or Mechatronics Task 2: Investigate materials and components <ul style="list-style-type: none"> research materials and components suitable for the development of a solution research forms of energy determine form of energy suitable for the project Investigating Core Materials – classify types of materials Engineering in Society – definitions, and forms of energy Specialty fields: Mechanical materials, Mechatronics components
6–7	Task 3: Developing a solution for Project one <ul style="list-style-type: none"> through annotated pictorial drawings of ideas to an final drawn proposal annotated orthographic concept drawings either CAD or hand drawn calculations to estimate design function Devising <ul style="list-style-type: none"> produce annotated pictorial drawings of design ideas analyse the chosen option to be used as the solution Fundamental Engineering calculations Quantity estimates
8–10	Task 4: Pre-production <ul style="list-style-type: none"> working drawings – detailed orthogonal drawings lists of materials, parts and components develop production plan on a timeline Task 5: Pre-production skills Develop production skills; apply safety and practice task/s to develop practical hand and machine skills. Modelling or prototype Producing <ul style="list-style-type: none"> present specifications for the selected solution <ul style="list-style-type: none"> dimensioned pictorial and orthographic drawings materials selected, parts lists, costing of prototype or working model develop and use a timeline to construct and test the solution construct solution by selecting and using appropriate tools and machines, following safe work practices

Week	Key teaching points
Term 2 1–5	Task 6: Manufacture of proposed Project one Using prepared production plan, materials and available equipment; record progress in design folio.
6	Task 7: Evaluation of completed Project one Prepare written report on and photographs of completed product. Evaluating – evaluate the final solution <ul style="list-style-type: none"> test the solution for correct function and document using checklists and test data
Examination weeks 7–8	Task 8: Semester 1 examination – of approximately 2 hours, using a modified examination design brief from the Year 12 syllabus

Semester 2

Week	Key teaching points
Term 3 1–3	Overview of unit and assessment requirements Re-introduction to design process, and development of a design folio Task 9: Design Project two design process <ul style="list-style-type: none"> determine design brief investigate and develop ideas Engineering design process Investigating <ul style="list-style-type: none"> develop a design brief describe and analyse existing solutions/products research and describe materials and components relevant to the design brief consider appropriate forms of energy supplies
4–6	Learning of specialist theory and specific understandings from either specialty field; Mechanical or Mechatronics Task 10: Investigate materials and components <ul style="list-style-type: none"> research materials and components suitable for the development of a solution research efficiency of selected forms of energy research obsolescence Core Materials – physical properties of materials <ul style="list-style-type: none"> fitness for purpose <ul style="list-style-type: none"> identify and describe the required properties of a material for a specified application Energy – efficiency Engineering in Society – obsolescence Specialty fields: Mechanical materials, Mechatronics components
7–8	Task 11: Developing a solution for Project two <ul style="list-style-type: none"> through annotated pictorial drawings of ideas to an final drawn proposal annotated orthographic concept drawings either CAD or hand drawn calculations to estimate design function Devising <ul style="list-style-type: none"> produce annotated pictorial drawings of design ideas analyse the chosen option to be used as the solution Fundamental Engineering calculations Quantity estimates

Week	Key teaching points
Term 3 9–10	Task 12: Pre-production <ul style="list-style-type: none"> • working drawings – detailed orthogonal drawings • lists of materials, parts and components • develop production plan on a timeline Producing <ul style="list-style-type: none"> • present specifications for the selected solution
Term 4 1	Task 13: Pre-production skills Develop production skills; apply safety and practice task/s to develop practical hand and machine skills. Modelling or prototype
2–4	Task 14: Manufacture of proposed Project two Using prepared production plan, materials and available equipment; record progress in design folio.
6	Task 15: Evaluation of completed Project two Prepare written report on and photographs of completed product. Evaluating <ul style="list-style-type: none"> • evaluate the final solution in terms of: <ul style="list-style-type: none"> ▪ meeting the requirements of the design brief ▪ function and finish of the product ▪ variations and changes to the design
Examination weeks 5–6	Task 16: Semester 2 examination – of approximately 2 hours, using a modified examination design brief from the Year 12 syllabus