

LEVEL 4 ASSESSMENT SPECIFICATION

Student name:		Student ID number:	
Programme:	PT Engineering Portfolio - BEngs Mechanical Engineering, Mechanical & Manufacturing Engineering, Manufacturing Systems Engineering, Materials Science, Advanced Manufacturing Operations, BSc Engineering Management. DA6ME, DA6MME, DA6MSE, DA6MTS, DA6AMO, DA6EMMA.		
Module:	Sustainable Manufacturing Technology		
Module code:	ACMA4040	Contribution to Overall Module Assessment (%):	100%
Lecturer:	Dr Mohamed Gabr	Internal Verifier:	Dr Kelvin Lake
Assignment Title:	Engineering evaluation of sustainable manufacturing options for a selected component	Word count (or equivalent):	2000 words
Submission deadline:	14/12/2026 (9am)	Return date of provisional marks & written feedback:	Within 20 working term time days of submission date
Submission method:	All written assessments, where practical and possible, must be submitted via Moodle unless otherwise instructed by the Lecturer. (Please DO NOT put this assessment specification into Turnitin or it will match many similarities with other students' submissions.) Alternative submission method (if applicable): N/A Late submission of the assessment will result in a late penalty mark: Work which is submitted up to 1 week late will be capped at 40% for the first attempt and will be awarded a mark of 0% for re-assessment. Late submission penalties may be lifted only if there is an approved extenuating circumstances claim. Work submitted more than 1 week late will be considered as a non-submission and will not be marked. The work may be considered as a submission for reassessment if offered by an Examining Board or if there is an approved extenuating circumstances claim.		
Academic honesty / referencing:	Academic honesty is required. In the main body of your submission you must give credit to authors on whose research and ideas your work is based. Append to your submission a reference list that indicates the books, articles, etc. that you have used, cited or quoted in order to complete this assessment.		
Work over the word limit:	To support fairness and good academic writing, each assessment has a set word limit. It's important that you stay within this limit. The word limit helps ensure:		

- You write clearly and concisely.
- All students complete the assessment on an equal basis.

If You Go Over the Word Limit

If your work exceeds the word limit, the following penalties will normally apply. These deductions cannot take your mark below the pass mark for the module.

Amount Over Limit	Penalty Applied
Up to 10% over	No penalty
10%–25% over	5 mark deduction <i>or</i> reduction to the capped mark (whichever is the smaller penalty)
26%–50% over	10 mark deduction <i>or</i> reduction to the capped mark (whichever is the smaller penalty)
Over 50%	Mark capped at the pass mark

Examples (Undergraduate):

- A mark of **44%** would be reduced to the pass mark of **40%** if the work is 10–25% over.
- A mark of **49%** would be reduced by 5 marks to **44%**.
- A mark of **47%** at 25–50% over would be reduced to **40%**.
- A mark of **55%** at 25–50% over would be reduced by 10 marks to **45%**.

If You Are Under the Word Limit

If your work is significantly under the word limit, you may lose marks because your submission may not contain enough detail to meet the learning outcomes.

Feedback

If a word-limit penalty is applied, this will be stated clearly in your feedback, along with the reason

Module Learning Outcomes (from module syllabus)

Upon the successful completion of this module, the student should be able to:

- explain the applications, advantages and limitations of different manufacturing processes and understanding of engineering materials and manufacturing process selection;
- classify principles of sustainable design and manufacturing to optimise resource utilisation and minimise waste;
- analyse the economic and social factors influencing the adoption of sustainable manufacturing practices.

Engineering Council AHEP4 Learning Outcomes Assessed in this Module

C5	Design solutions for complex problems that meet a combination of societal, user, business and customer needs as appropriate, considering health and safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards.
C6	Apply an integrated or systems approach to the solution of complex problems.
C14	Discuss the role of quality management systems and continuous improvement in the context of complex problems.
C17	Communicate effectively on complex engineering matters with technical and non-technical audiences.

You MUST demonstrate that the work submitted in completion of this assessment meets each of the AHEP4 learning outcomes listed above.

TASK DESCRIPTION

Use of Generative AI in Assessment

(Lecturer to indicate Yes or Not against each element)

RESEARCH	For this assessment, you can use Generative AI to support you in research, including searching for bibliography, using tools to summarise, compare and interrogate materials.	Yes ☒ No ☐
STRUCTURE	For this assessment, you can use Generative AI to support you in structuring your submission, including creating a draft argument structure, identifying parts and headings, etc.	Yes ☒ No ☐
PROOFREADING	For this assessment, you can use Generative AI to check your own text/creation for grammatical and syntactical mistakes, including rephrasing of your own work within specific standards.	Yes ☒ No ☐
WRITING	For this assessment, you can use Generative AI to create text for submission.	Yes ☐ No ☒
CREATIVE	For this assessment, you can use Generative AI to create creative materials, such as images.	Yes ☐ No ☒
PROGRAMING	For this assessment, you can use Generative AI to create and check code.	Yes ☐ No ☒
NONE	For this assessment, you are not allowed to use any type of Generative AI support. This includes research support, structure support, writing/proofreading support and creative support.	Yes ☐ No ☒

Assessment overview

Manufacturing companies are increasingly required to reduce waste, energy use, production cost, defects and environmental impact while maintaining product quality, production efficiency and customer expectations. Sustainable manufacturing is therefore not only about using environmentally friendly materials; it is about improving the way components are designed, produced, inspected, used and recovered at end of life.

In this assessment, you will work as a junior manufacturing engineer for a company that produces an everyday engineering component. The company is reviewing one of its existing products because the current manufacturing route may be causing unnecessary material waste, energy consumption, scrap, rework or cost. Your role is to investigate the current manufacturing route and recommend one realistic improvement that could make production more sustainable.

Task

As a junior manufacturing engineer, you have been asked to prepare a technical report evaluating the current manufacturing route of one selected component and recommending one practical sustainable manufacturing improvement.

You must select one manufactured engineering component. The component should be realistic, familiar and suitable for engineering analysis. It may be a component used in everyday products, consumer products, household items, transport, sports equipment, small electronics, tools, furniture, packaging or general engineering applications.

Your report should focus on how the component is manufactured. You should explain the current manufacturing process, key process parameters, production volume, defects, waste, energy use, cost implications and environmental impact. You will then propose one realistic sustainable manufacturing improvement, such as reducing scrap, improving process efficiency, reducing energy consumption, reducing cycle time, improving quality control, recycling production waste, improving end-of-life recovery or changing to a more suitable manufacturing route.

Your recommendation must be supported by engineering calculations, evidence, assumptions, tables, diagrams, simplified sustainability thinking and engineering judgement. The aim is to produce a technical engineering report that reflects real manufacturing decision-making, not a general descriptive essay.

You must complete the following tasks.

Task 1: Component selection and manufacturing context

Select one manufactured engineering component and introduce it clearly. You should explain what the component does, identify the current manufacturing process used to produce it, and

briefly identify the main material only where this helps explain the manufacturing process. The purpose of this task is to show that your chosen component is suitable for a sustainable manufacturing analysis.

You must include:

- the name of the selected component;
- a photograph, labelled sketch or simple diagram;
- the engineering function of the component;
- the current manufacturing process used to make it;
- the main material used, only to support the manufacturing-process discussion;
- the likely production volume, such as one-off, batch production or mass production;
- a brief reason why this component is suitable for analysing manufacturing waste, energy use, cost, defects or sustainability improvement.

Task 2: Current manufacturing process

Explain how the selected component is currently manufactured. Your explanation should focus on the manufacturing route, process stages, process parameters, quality issues and limitations of the current process.

You must include:

- the main manufacturing steps;
- key process parameters, such as cycle time, machine power, temperature, pressure, cutting speed, feed rate or production rate, where relevant;
- common defects, quality issues, scrap or rework;
- waste generated during the process;
- limitations of the current manufacturing route;
- a process flowchart or diagram where helpful.

Task 3: Current process calculations

Carry out engineering calculations linked to the current manufacturing process. The purpose of this task is to show that you can use quantitative engineering analysis to evaluate manufacturing performance, rather than relying only on description.

You must include:

- at least two calculations related to the current manufacturing process;
- clear equations, units and working steps;

- clear assumptions where exact industrial data is not available;
- a short explanation of what each calculation shows about the manufacturing process;
- calculations linked to manufacturing performance, waste, cost, energy or environmental impact.

Suitable calculations may include material efficiency, waste percentage, scrap or rejection rate, production rate, cycle time, material removed, energy per component, CO₂e from manufacturing energy, cost per component, or material/energy saving.

Your calculations must be your own work and must be clearly linked to your selected component. You must show the equation used, substituted values, units, assumptions and a short interpretation of the result. Marks will not be awarded for unsupported final answers or generic calculations that are not connected to the selected manufacturing process.

Task 4: Simplified manufacturing sustainability assessment

Assess the sustainability of the current manufacturing route using simplified life-cycle thinking. This does not need to be a full professional Life Cycle Assessment. The aim is to identify the main manufacturing inputs, outputs and environmental concerns linked to the selected component.

You must include:

- material input required for the current manufacturing route;
- manufacturing energy use;
- waste, scrap, defects or rework;
- environmental impact, such as CO₂e, where data is available;
- transport, use stage or end-of-life route, where relevant;
- reasonable assumptions where exact data is not available;
- identification and classification of the relevant sustainable design and manufacturing principles, such as resource efficiency, waste prevention, energy efficiency, reuse or recycling.
- a short interpretation of the main sustainability concerns and how they affect resource utilisation and waste minimisation.

You may present this section using a table, flow diagram or simplified system-boundary diagram.

Task 5: Sustainable manufacturing improvement and comparison

Propose one realistic improvement to make the manufacturing route more sustainable. The improvement should be linked to manufacturing practice and should aim to reduce waste, energy use, defects, cost or environmental impact while maintaining suitable quality and production performance.

Your improvement may involve:

- reducing material waste;
- reducing scrap or rejection rate;
- reducing energy use;
- reducing cycle time;
- improving process control;
- improving tooling or mould design;
- improving inspection or quality control;
- recycling production waste;
- changing to a more efficient manufacturing route;
- improving end-of-life recovery.

You must include:

- a clear description of the proposed improvement;
- identification of at least one alternative manufacturing process or manufacturing-route option and a brief explanation of its suitability or limitations for the selected component;
- consideration of relevant process-selection factors, such as material compatibility, production volume, quality, cost, energy use and waste;
- a comparison between the current route and the improved route;
- at least one calculation, table or decision matrix to support the comparison;
- discussion of the expected effect on waste, energy use, cost, quality, production rate or CO₂e;
- explanation of why the selected improvement is realistic and more suitable than the alternative option considered;
- explanation of how the proposed improvement could be implemented, controlled and monitored through an appropriate quality-management or continuous-improvement approach, such as process monitoring, inspection records, defect data, corrective action or PDCA.

Your proposed improvement must be supported by evidence from your own analysis. This may include a before-and-after calculation, a comparison table, a weighted decision matrix, a process

flowchart, or a clear explanation of how the improvement would reduce waste, energy use, cost, defects or environmental impact. Unsupported general claims such as “this is more sustainable” will not receive high marks.

Task 6: Economic/social factors and final recommendation

Make a final engineering recommendation on whether the proposed improvement should be adopted. Your recommendation should be based on the evidence and calculations presented in the report.

You must include:

- a clear final recommendation;
- economic considerations, such as cost, saving, feasibility or payback period;
- practical barriers to implementation, such as tooling cost, machine availability, training, production disruption or data limitations;
- relevant social or workplace considerations, such as health and safety, operator workload, skills, employment or customer expectations;
- limitations of your assumptions or calculations;
- a final judgement explaining whether the improvement is worthwhile.
- identify any relevant health-and-safety requirements associated with implementing the proposed improvement.

Section	Suggested words	Expected content
Abstract	150	Brief, accessible summary for a non-technical manager covering the selected component, current manufacturing process, key calculations, proposed improvement and final recommendation.
1. Introduction and component selection	200	Function of the component, current manufacturing process, main material used, and reason for selecting the component for sustainable manufacturing analysis.
2. Current manufacturing process	350	Manufacturing steps, process parameters, defects, quality issues, waste/scrap and process limitations.
3. Current process calculations	350	At least two calculations with equations, units, assumptions, working steps and interpretation.
4. Simplified manufacturing sustainability assessment	350	Manufacturing inputs and outputs, material use, energy use, waste/scrap, defects/rework, environmental impact and end-of-life route where relevant.
5. Sustainable manufacturing improvement and comparison	300	One improvement option, comparison with the current route, calculation/table/decision matrix and expected effect on waste, energy, cost, quality or CO ₂ e.

6. Economic/social factors and final recommendation	200	Adoption barriers, cost/feasibility, practical implementation, social/workplace considerations and final engineering judgement.
7. Conclusion	100	

NOTES:

- You should include a properly formatted Table of Contents, list of Tables/Figures in the beginning of your assignment.
- You should properly cite others' work within the body of your assignment (use Harvard referencing system) and provide a list of cited references at the end of your assignment. Copying and pasting a text from others' work is not acceptable. You should rephrase the text in a way that suits your needs.
- Work must follow the required formatting guidelines (Arial, size 12, 1.5 spacing). Marks may be deducted for failure to comply with presentation requirements.
- Students must save and submit their work using the following file naming:
- First name Surname_IDnumber_ACMA4040 (e.g. Alex Smith_2103456_ACMA4040).
- You may include appendices at the end of your assignment and refer to them in the body of your assignment when required. convention
- You should also provide an abstract at the beginning of your assignment.
- You should use heading and sub-headings in your assignment.
- You should be very specific to include examples, if your examples are not relevant you will not be awarded any marks for it.
- The 2,000-word limit includes the abstract and main report text. The table of contents, reference list, equations, tables, figure captions and appendices are excluded.
- See the generic assessment criteria included at the end of this brief. This will be strictly followed to mark your assignments.

You must pay special attention to the “generic assessment criteria” at the end of this document. This will be strictly followed to mark your assignments.

GUIDANCE FOR STUDENTS IN THE COMPLETION OF TASKS

NOTE: The guidance offered below is linked to the five generic assessment criteria overleaf.

This assessment must be completed as your own work. Your report must show clear evidence of your own engineering analysis, not only general descriptive text. You are expected to include your own calculations, assumptions, tables, process flowcharts, comparison matrices, labelled diagrams, sketches, annotated images, or other evidence that demonstrates how you analysed the selected component and manufacturing route. Generic text that is not clearly linked to your selected component, calculations, assumptions and evidence will receive limited credit.

Any use of Generative AI must follow the permitted use stated in this assessment brief. AI may be used to support research, structure and proofreading only, where permitted, but it must not replace your own analysis, calculations, judgement or written explanation. You are responsible for checking the accuracy of all information, calculations and references included in your submission.

1. Engagement with Literature Skills

Your work must be informed and supported by scholarly material that is *relevant* to and *focused* on the task(s) set. You should provide evidence that you have accessed an appropriate *range* of sources, which may be academic, governmental and industrial; these sources may include academic journal articles, textbooks, current news articles, organisational documents, and websites. You should consider the *credibility* of your sources; academic journals are normally highly credible sources while websites require careful consideration/selection and should be used sparingly. Any sources you use should be current and up-to-date, mostly published within the last five years or so, though seminal/important works in the field may be older. You must provide *evidence* of your research/own reading throughout your work, using a suitable referencing system, including in-text citations in the main body of your work and a reference list at the end of your work.

Guidance specific to this assessment Marks in this part of the assessment will be awarded if you demonstrate the use of relevant, credible and appropriately selected sources to support your sustainable manufacturing evaluation. Suitable sources may include textbooks, journal articles, conference papers, industry reports, manufacturer data, government or standards-based environmental data, and reliable technical websites. These sources should be applied directly to the tasks of the assessment, for example in supporting the description of the selected component and manufacturing process in Task 1 and Task 2, providing process data or assumptions for engineering calculations in Task 3, supporting the simplified sustainability assessment in Task 4, and justifying the proposed sustainable manufacturing improvement in Task 5 and Task 6. Harvard referencing must be used consistently in the main body of the report and in the reference list. Copying and pasting from online sources, including unacknowledged or uncritical AI-generated text, is not acceptable.

2. Knowledge and Understanding Skills

At level 4, you should be able to demonstrate knowledge of the underlying concepts and principles associated with your area(s) of study. *Knowledge* relates to the facts, information and skills you have acquired through your learning. You demonstrate your *understanding* by interpreting the meaning of the facts and information (knowledge). This means that you need to select and include in your work the concepts, techniques, models, theories, etc. appropriate to the task(s) set. You should be able to explain the theories, concepts, etc. to show your understanding. Your mark/grade will also depend upon the *extent* to which you demonstrate your knowledge and understanding.

Guidance specific to this assessment: Marks in this part of the assessment will be awarded if you demonstrate clear knowledge and understanding of sustainable manufacturing principles and the selected manufacturing route. You are expected to explain how the component is currently produced, including the main process steps, relevant process parameters, production volume, defects, quality issues, waste and process limitations. You should show understanding of how manufacturing decisions affect material use, energy use, cost, quality and environmental impact. Your explanation must be specific to your selected component and should not rely on generic descriptions of manufacturing processes. Diagrams, tables, process flowcharts and labelled figures should be used where appropriate to support technical explanation.

3. Cognitive and Intellectual Skills

You should be able to present, evaluate and interpret qualitative and quantitative data, in order to develop lines of argument and make sound judgements in accordance with basic theories and concepts of your subject(s) of study. You should be able to evaluate the appropriateness of different approaches to solving problems related to your area(s) of study and/or work. Your work must contain evidence of logical, analytical thinking. For example, to examine and break information down into parts, make inferences, compile, compare and contrast information. This means not just describing what! But also justifying: Why? How? When? Who? Where? At what cost? You should provide justification for your arguments and judgements using evidence that you have reflected upon the ideas of others within the subject area and that you are able to make sound judgements and arguments using data and concepts. Where relevant, alternative solutions and recommendations may be proposed.

Guidance specific to this assessment: Marks in this part of the assessment will be awarded if you can evaluate the current manufacturing route and proposed improvement using evidence, data and engineering judgement rather than description alone. You are expected to interpret qualitative and quantitative information, such as process data, material waste, cycle time, scrap rate, energy use, CO₂e, cost and feasibility. Your report should compare the current route with the proposed improvement and explain the trade-offs involved, such as waste reduction versus cost, energy saving versus implementation difficulty, or improved quality versus production disruption. Stronger work will use the student's own calculations, comparison tables, process evidence, assumptions or decision matrix to support a logical final recommendation. Generic or unsupported claims will receive limited credit.

4. Practical Skills

At level 4, you should be able to apply the basic underlying concepts and principles to evaluate and interpret these within the context of your area of study. You should be able to demonstrate how the subject-related concepts and ideas relate to real world situations and/or a particular context. How do they work in practice? You will deploy models, methods, techniques, and/or theories, in that context, to assess current situations, perhaps to formulate plans or solutions to solve problems, or to create artefacts. This is likely to involve, for instance, the use of real world artefacts, examples and cases, the application of a model within an organisation and/or benchmarking one theory or organisation against others based on stated criteria.

Guidance specific to this assessment: Marks in this part of the assessment will be awarded if you apply taught manufacturing and sustainability concepts to a realistic engineering component. You are expected to select a suitable component and use it consistently throughout the report to demonstrate practical application of manufacturing analysis. This includes explaining the current manufacturing process, identifying process parameters, calculating manufacturing performance, assessing waste and energy use, and proposing one realistic sustainable manufacturing improvement. Your report must include evidence of your own practical analysis, such as worked calculations, assumptions, process flowcharts, annotated images, labelled diagrams, comparison tables or a decision matrix. The proposed improvement should be practical and clearly linked to the selected component. Irrelevant, unrealistic, generic or poorly justified examples will receive limited credit.

5. Transferable Skills for Life and Professional Practice

Your work must provide evidence of the qualities and transferable skills necessary for employment requiring the exercise of some personal responsibility. This includes demonstrating: that you can communicate the results of your study/work accurately and reliably, and with structured and coherent arguments; that you can initiate and complete tasks and procedures, whether individually and/or collaboratively; fluency of expression; clarity and effectiveness in presentation and organisation. Work should be coherent and well-structured in presentation and organisation.

Guidance specific to this assessment: Marks in this part of the assessment will be awarded if you present your report in a clear, professional and well-structured manner. The report should follow the required format, including an abstract, table of contents, introduction, task-based sections, conclusion, references and appendices where appropriate. Engineering calculations should be clearly set out with equations, units, assumptions, working steps and short interpretation. Tables, diagrams, flowcharts and figures should be labelled and used effectively to support the report. The writing should be coherent, technically accurate and professionally expressed. Reports that contain polished but generic text without evidence of individual analysis, calculations, assumptions or component-specific discussion will receive limited credit.

STUDENT FEEDBACK FORM

This section details the *extent* to which the assessment criteria are demonstrated by you, which in turn determines your mark. The marks available for each category of skill are shown. Lecturers will use the space provided to comment on the achievement of the task(s), including those areas in which you have performed well and areas that would benefit from development/improvement.

Generic Assessment Criteria	Marks available	Marks awarded
1. Engagement with Literature Skills		
	20	
2. Knowledge and Understanding Skills		
	25	
3. Cognitive and Intellectual Skills		
	20	
4. Practical Application Skills		
	25	
5. Transferable Skills for Life and Professional Practice		
	10	

Assessment Mark (Assessment marks are subject to ratification at the Exam Board. These comments and marks are to give feedback on module work and are for guidance only until they are confirmed.)	Late Submission Penalties (tick if appropriate)		%
	Up to 1 week late (40% Max)		
	Over 1 week late (0%)		

GENERIC ASSESSMENT CRITERIA

Level 4

In accordance with the Framework for Higher Education Qualifications, at the end of Level 4 students will be expected to have demonstrated knowledge of the basic underlying concepts and principles of a subject, and an ability to evaluate and interpret these within the context of that area of study. They should be able to present, evaluate and interpret qualitative and quantitative data in order to develop lines of argument and make sound judgements in accordance with basic theories and concepts of their subject(s) of study. They will have learned how to evaluate different approaches to solving problems, and will be able to communicate the results of their study/work accurately and reliably, and with structured and coherent arguments. They will be able to undertake further training and develop new skills within a structured and managed environment and will have the qualities and transferable skills necessary for employment requiring the exercise of some personal responsibility.

Level 4	FAIL	MARGINAL FAIL	SATISFACTORY (3 rd / Pass)	GOOD (2.2 / Pass)	VERY GOOD (2.1 / Merit)	EXCELLENT (1 st / Distinction)	EXCEPTIONAL (1 st / Distinction)
Category	0-29%	30-39%	40-49%	50-59%	60-69%	70-84%	85-100%
Engagement with literature (including reading, referencing, academic conventions and academic honesty)	Little or no evidence of reading and/or reliance on inappropriate sources. Views and findings mostly unsupported and non-authoritative. Referencing conventions used incoherently or largely absent.	Poor engagement with essential reading. No evidence of wider reading. Reliance on inappropriate sources, and/or indiscriminate use of sources. Heavily reliant on information gained through class contact. Inconsistent and weak use of referencing.	Engagement with a limited range of mostly relevant and credible sources but with some reliance on information gained through class contact. Some omissions and minor errors. Referencing conventions evident though not always applied accurately or consistently.	Engagement with an appropriate range of literature, including sources retrieved independently. Some over-reliance on texts rather than other sources. Referencing may show minor inaccuracies or inconsistencies.	Engagement with a wide range of literature, including sources retrieved independently. Selection of relevant and credible sources. Generally sound referencing, with no/very few inaccuracies or inconsistencies.	Engagement with an extensive range of relevant and credible literature. Consistently accurate application of referencing.	Exceptional engagement with an extensive range of relevant and credible literature. High-level referencing skills consistently applied.
Knowledge and understanding (Knowledge of the basic underlying concepts and principles of a subject.)	Major gaps in knowledge and understanding of the basic underlying concepts and principles of the subject matter.	Gaps in knowledge of the basic underlying concepts and principles, with flawed or superficial understanding.	Limited knowledge and understanding of the basic underlying concepts and principles within the subject area.	Knowledge of the basic underlying concepts and principles is accurate with a good understanding of	Competent knowledge of the basic underlying concepts and principles. Exhibits very good understanding.	Excellent knowledge and understanding of the basic underlying concepts and principles of the subject.	Exceptional, detailed knowledge and understanding of the basic underlying concepts and principles

Level 4	FAIL	MARGINAL FAIL	SATISFACTORY (3 rd / Pass)	GOOD (2.2 / Pass)	VERY GOOD (2.1 / Merit)	EXCELLENT (1 st / Distinction)	EXCEPTIONAL (1 st / Distinction)
Category	0-29%	30-39%	40-49%	50-59%	60-69%	70-84%	85-100%
	Inclusion of irrelevant material. Substantial inaccuracies.	Some significant inaccuracies and/or irrelevant material.	Some elements may be missing.	the field of study but lacks depth and/or breadth.			
Cognitive and intellectual skills (Evaluate underlying concepts and principles of a subject and interpret qualitative and quantitative data in order to develop lines of argument and make sound judgements.)	Wholly or almost wholly descriptive work. Little or no evaluation of the underlying concepts and principles. Failure to develop arguments, leading to illogical or invalid judgements. Minimal or no use of evidence to back up views.	Largely descriptive work, with superficial evaluation of the underlying concepts and principles. Weak interpretation of data, flawed development of arguments and judgements. Information accepted uncritically, uses generalised statements made with scant evidence and unsubstantiated opinions. Ideas sometimes illogical and contradictory.	Limited attempt at evaluation of the underlying concepts and principles, tending towards description. Can interpret qualitative and quantitative data but with some errors. Some evidence to support emerging arguments and judgements but these may be underdeveloped or with a little inconsistency / mis-interpretation.	Good evaluation of the underlying concepts and principles. Can interpret qualitative and quantitative data, with minor errors. An emerging ability to use evidence to support the argument. Mostly valid arguments and logical judgements.	Sound evaluation of the underlying concepts and principles. Can interpret qualitative and quantitative data accurately. Ability to devise arguments using evidence to make mostly appropriate and valid judgements.	Excellent evaluation of the underlying concepts and principles. Can interpret qualitative and quantitative data accurately and with some insight. Excellent ability to devise arguments using evidence and make appropriate and valid judgements.	Exceptional evaluation of the underlying concepts and principles based evidence. Outstanding interpretation of qualitative and quantitative data. Exceptional ability to devise arguments using evidence and make wholly appropriate and valid judgements.
Practical skills (Different approaches to solving problems in particular contexts.)	Limited or no use of taught, basic methods, materials, tools and/or techniques. Little or no appreciation of the context of the application. Very weak evidence of	Rudimentary application of taught, basic methods, materials, tools and/or techniques but without consideration and competence. Flawed	An adequate awareness and mostly appropriate application of basic methods, materials, tools and/or techniques. Basic appreciation of	A good and appropriate application of basic methods, materials, tools and/or techniques. Clear appreciation of the context of the application.	A very good application of a range of basic methods, materials, tools and/or techniques. Very good consideration of the context of the application. Very good	An advanced application of a range of taught, basic methods, materials, tools and/or techniques. The context of the application is well considered, and insightful.	Exceptional levels of application and deployment skills in particular practical contexts. Outstanding identification of problems in particular

Level 4	FAIL	MARGINAL FAIL	SATISFACTORY (3 rd / Pass)	GOOD (2.2 / Pass)	VERY GOOD (2.1 / Merit)	EXCELLENT (1 st / Distinction)	EXCEPTIONAL (1 st / Distinction)
Category	0-29%	30-39%	40-49%	50-59%	60-69%	70-84%	85-100%
	different approaches to problem-solving in particular contexts.	appreciation of the context of the application. Weak evidence of different approaches to problem-solving in particular contexts.	the context of the application. Can identify problems in particular contexts and propose basic alternative approaches or solutions though there may be errors.	Good evidence of different approaches to problem-solving in particular contexts and proposes mostly appropriate solutions.	evidence of different approaches to problem-solving in particular contexts and proposes appropriate solutions.	Excellent evidence of different approaches to problem-solving in particular contexts and proposes appropriate solutions.	contexts and formulation of wholly appropriate, thoughtful solutions / different approaches.
Transferable skills for life and professional practice (Communicate the results of their study/work accurately and reliably, and with structured and coherent arguments; the qualities needed for employment requiring the exercise of some personal responsibility within a structured and managed environment.)	Work is poorly structured, disorganised, inaccurate and/or confusingly expressed. Very weak use of language and/or very inappropriate style. Failure to work effectively individual or as part of a group. Little or no evidence of the skills for employment requiring the exercise of some personal responsibility.	Work is poorly presented in a disjointed manner. It is loosely, and at times incoherently, structured, with information and ideas often poorly expressed. Weak use of language and/or inappropriate style. Flawed approach to individual or group work, meeting only partial obligations to others. Limited evidence of the skills for employment requiring the exercise of some	Mostly ordered presentation and structure in which relevant ideas / concepts are reasonably expressed. Work may lack coherence and/or accuracy in places. Can work as part of a group, meeting most obligations to others but perhaps with limited involvement in group activities. Demonstrates the basic skills for employment requiring the exercise of some personal responsibility, with some areas of minor weakness.	Mostly coherent, organised and accurate work, in a suitable structure and is for the most part clearly expressed. Can work effectively independently and/or as part of a team, with clear contribution to group activities. Demonstrates the skills for employment requiring the exercise of some personal responsibility, with some areas of strength and some of minor weakness.	Work is accurate, coherent, fluent, well-structured and organised. Can work effectively independently and/or as part of a team, with very good contribution to group activities. Demonstrates very good skills for employment requiring the exercise of some personal responsibility, with just occasional minor weakness.	Work is coherent, very fluent and is presented professionally. Can work effectively independently and/or as part of a team, with an excellent contribution to group activities. Demonstrates excellent skills for employment requiring the exercise of some personal responsibility with an appetite for further development.	Work is accurate, exceptionally coherent, very fluent and presented well. Can work effectively independently and/or as part of a team, with an exceptional contribution to group activities. Demonstrates exceptional skills for employment requiring the exercise of some personal responsibility with an appetite for further development.

Level 4	FAIL	MARGINAL FAIL	SATISFACTORY (3 rd / Pass)	GOOD (2.2 / Pass)	VERY GOOD (2.1 / Merit)	EXCELLENT (1 st / Distinction)	EXCEPTIONAL (1 st / Distinction)
Category	0-29%	30-39%	40-49%	50-59%	60-69%	70-84%	85-100%
		personal responsibility.					