

MARKING CRITERIA AND STUDENT FEEDBACK

MODULE: ACDB5007 - Computer Aided Engineering
STUDENT: Bethan Davies-Jones

ASSIGNMENT: Report
DATE: 20/05/2026

This section details the assessment criteria. The extent to which these are demonstrated by you determines your mark. The marks available for each criterion 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.

Common Assessment Criteria Applied	Marks available	Marks awarded	% Awarded
1. Engagement with Literature Skills Use of literature sources in support of your discussions throughout the report. 70-79%: Inclusion of a wide range of research-informed literature, including sources retrieved independently. Selection of relevant and credible sources. Very good use of referencing conventions, consistently applied. <i>A good range of literature has been used throughout the report, particularly in the introduction and background sections where key CAE concepts and modelling approaches are supported by relevant sources. The inclusion of multiple validation case studies is a positive aspect, and shows an awareness of the need to compare simulation outputs against published work. However, the use of literature is often separated from the main analysis, rather than being consistently integrated into the discussion of results. There is limited direct comparison between the simulation outputs and published studies when interpreting trends such as stress levels or deformation behaviour. Strengthening this connection would significantly improve the critical depth of the report.</i>	10	7	70
2. Knowledge and Understanding Skills Discussion and demonstration of the underlying principles relating to stress/strain calculations and CAE software. Analytical and computational validation could be an effective way of critically appraising these areas. 70-79%: Excellent knowledge and understanding of the main concepts and key theories. Clear awareness of challenges to established views and the limitations of the knowledge base. <i>A good level of understanding of CAE principles is demonstrated, particularly in relation to explicit dynamics, meshing strategies and material modelling. The explanation of solver principles and inclusion of the Johnson-Cook equations shows strong engagement with the underlying theory. The report also shows good awareness of practical modelling considerations, such as the importance of material properties, mesh quality, and boundary conditions in influencing results. There are, however, areas where the discussion becomes more descriptive than explanatory, particularly when linking theory to the behaviour observed in the results. Greater focus on explaining why specific trends occur (e.g. stress peaks, mesh influence on accuracy) would strengthen the depth of understanding.</i>	30	21.6	72
3. Cognitive and Intellectual Skills Use of iterative design techniques, based on analysis of prior results to inform future designs. Analysis, interpretation, and review of results to determine the structural limitations of components. 60-69%: Sound, logical, analytical thinking; synthesis and evaluation. Ability to devise and sustain persuasive arguments, and to review the reliability, validity & significance of evidence. Ability to communicate ideas and evidence accurately and convincingly. Sound, convincing conclusions / recommendations. <i>The report demonstrates a structured investigation, with clear exploration of mesh refinement, boundary conditions and mesh graduation. There is good evidence of iterative development of the model, particularly in identifying and resolving simulation errors. Some good observations are made, such as, the impact of mesh quality on stress peaks, the influence of mesh discontinuity on anomalous results, improvements achieved through graduating the mesh. However, much of the discussion remains largely descriptive, focusing on what was observed rather than fully exploring why these behaviours occur or evaluating their significance in depth. There is also limited exploration of anomalies (e.g. unusually similar stress peaks, large variation between simulations) beyond initial suggestions. Extending the analysis further, or conducting additional targeted investigations, would strengthen this section.</i>	30	18.6	62
4. Practical Application Skills Use of skills to generate a suitable assembly, with accurate boundary conditions applied. Suitable application of methods to perform structural analysis on components and generate representative results. 60-69%: A very good application of a range of methods, materials, tools and/or techniques. Very good consideration of the context of the application, with perceptive use of examples, where relevant. Evidence of some innovation and creativity. The practical work is carried out to a good standard, with a clear workflow covering geometry creation, material selection, mesh generation and solver setup. The report demonstrates good engagement with the software, particularly in resolving errors such as time step limitations and energy issues. The use of, local mesh refinement, sphere of influence & graduated mesh approach shows good practical awareness and an effort to improve model accuracy. There is scope to strengthen this area further through more structured comparison between cases and greater justification of modelling decisions, but overall the application is competent and appropriate for the level.	20	13.6	68
5. Transferable Skills for Life and Professional Practice Quality and presentation of written report. 70-79%: Can communicate professionally and, confidently in a suitable format. Can work professionally within a team, showing leadership skills as appropriate, managing conflict and meeting obligations. Work is coherent, very fluent and is presented professionally. <i>The report is well structured, with a clear layout and logical progression through the modelling process, results and discussion. The use of figures and data presentation supports the communication of the work effectively. In places, clarity could be improved, particularly where large amounts of technical detail are presented without focus on the key points. Some sections could be more concise to improve readability. Overall, the report communicates the work to a good standard, with only minor issues affecting clarity.</i>	10	7.2	72
Assignment 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 one-week late Over one week late		68 %