

MARKING CRITERIA AND STUDENT FEEDBACK

MODULE: Advanced Computational Methods CFD

ASSIGNMENT: CFD : MIRA Car

STUDENT: Amy Cosford

DATE: 1/2/19

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	Percent Awarded
1. Research-informed Literature Extent of research and/or own reading, selection of credible sources, application of appropriate referencing conventions. (e.g. Background research into CFD techniques and models)			%
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>You have conducted a thorough review of supporting literature to support your understanding of the CFD process and application to automotive external aerodynamics. This has clearly informed your methodology</i> <i>Excellent research into the MIRA Car and existing studies to support your analysis and validate your results. You have drawn comparisons with external sources</i> <i>Good range of relevant references with a mix of academic sources. This reading has clearly informed your understanding and your initial approach to modelling decisions. Good to see your results and findings contrasted with existing studies and discrepancies recognised.</i>	10	7.5	75
2. Knowledge and Understanding of Subject Extent of knowledge and understanding of concepts and underlying principles associated with the discipline. (e.g. Justification of initial mesh strategy, mesh refinements and geometry based on comparisons with windtunnel data)			
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>You demonstrate a good understanding of the CFD process and have used this understanding to develop a valid initial mesh and mesh refinements.</i> <i>You have clearly justified your choices with reasoning and applied logical mesh refinements based on the empirical results and other sources.</i> <i>Generally a good understanding of aerodynamic fundamentals demonstrated. Critical Reynolds number quoted is for pipe flow (it's a lot higher for external flow). You demonstrate a clear understanding of the CFD process and the process of developing a model in a logical fashion. Initial results could have more clearly informed your mesh development, although the developed mesh is logical.</i>	25	18.8	75
3. Analysis Analysis, evaluation and synthesis; logic, argument and judgement; analytical reflection; organisation of ideas and evidence (e.g. Analysis of results to help create a validated base case, evaluation of methods used, analysis of aerodynamic device)			
70-80%: Thoroughly logical work, supported by evaluated evidence. High quality analysis, developed independently or through effective collaboration. Ability to investigate contradictory information and identify reasons for contradictions. Strong, persuasive, conclusions, justifiable recommendations <i>Your analysis is thorough and critical of the results obtained. You have clearly recognised any discrepancies in the simulation results compared to the empirical data and explained these with reasoning.</i> <i>You have conducted clear investigations into simulation parameters such as mesh, domain, prisms, and turbulence models. These investigations have led to logical conclusions implemented in your modelling strategy</i> <i>Domain analysis is good, the inconsistent trends of the results could have been commented on informed through post processing. Good to see overlays of pressure distribution informing assessment of model. Very good prism layer study. You could have used the pressure distributions to help drive the modelling decisions such as mesh refinement areas.</i>	30	21	70
4. Practical Application and Deployment Deployment of methods, materials, tools and techniques; application of concepts; formulation of innovative and creative solutions to solve problems. (e.g. Methodology, use of post processor, selection of component design parameters)			
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. <i>You understand the CFD process and demonstrate general proficiency with the software</i> <i>You have used the post processor to visualise and present your results in a clear fashion for conclusions to be drawn.</i> <i>Good use of case comparison and postprocessor in general - some of the more advanced features could have been used to help inform mesh refinement. Excellent number of investigations carried out with a clear appreciation for the real world application.</i>	20	14	70
5. Skills for Professional Practice Attributes in professional practice: individual and collaborative working; deployment of appropriate media; presentation and organisation. (e.g. Technical report writing and presentation)			
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>A very professional document which has an excellent structure and is a coherent account of the investigation conducted.</i> <i>Technical report formatting and presentation generally is very good. A couple of minor errors only.</i> <i>Nice report structure and generally a professionally presented document. (Tables should be labeled as tables not figures. The report reads well and represents a thorough assessment of the investigations carried out - it could be a little more concise in places.</i>	15	11.3	75
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		
	72.5		%