

MARKING CRITERIA AND STUDENT FEEDBACK

MODULE: Advanced Computational Methods CFD

ASSIGNMENT: CFD : Ahmed Body

STUDENT: Oliver Duane

DATE: 3/2/20

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)			%
50-59%: Inclusion of a range of research-informed literature, including sources retrieved independently. Referencing conventions mostly consistently applied. <i>You have demonstrated a reasonable review of sources to support your modelling approach and understanding of the CFD process. A wider range of sources could have been reviewed and contrasted to give greater confidence in your conclusions.</i> <i>Some research of the Ahmed reference body, but limited use to validate/critique your results.</i> <i>Whilst there is evidence you have conducted background reading, you could have included more citations to specific sources. Background of Ahmed is supported. Lanfrit used to inform domain size, but you could have used further references to inform your model setup and choices. Results could have been compared against existing studies.</i>	10	5	50
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 wind tunnel data)			
50-59%: Knowledge is accurate with a good understanding of the field of study. <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>The initial mesh and the mesh development strategy could be more clearly informed through the analysis of the results.</i> <i>General knowledge of CFD process and equations presented. Appreciation for simulation considerations evident. Some of the modelling choices could have been further justified. Mesh strategy is reasonable but you could have justified against expected flow structures. Decision between otree and Delaunay mesh could have been reasoned further. Prism layers indicate misunderstanding, they are to capture the boundary layer not laminar flow. Mesh quality mentioned but no evidence of assessment. You solved on a polyhedral mesh, but you have not mentioned this or justified?</i>	25	13.1	53
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)			
40-49%: Evidence of some logical, analytical thinking and some attempts to synthesise, albeit with some weaknesses. Some evidence to support findings/ views, but evidence not consistently interpreted. Some relevant conclusions and recommendations, where relevant <i>Some analysis conducted of results to assess your model, but for the most part superficial. You could have critically evaluated the results in much more detail, highlighting discrepancies between the simulation and empirical data, reasoning why these may have occurred.</i> <i>You have not assessed all the parameters mentioned in the brief. The investigations conducted have not been used to clearly develop your method</i> <i>Some assessment of the results obtained through discussion of flow structures in post processing - You do make some good comments on the flow structures and aero principles here. However, you have not demonstrated that the simulation is robust through assessments of the modelling choices as requested by the assignment brief. You should have conducted domain, mesh, prism layer and turbulence model studies to demonstrate their effects on the results obtained. Limited evidence of the initial results informing the model development.</i>	30	12.8	43
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)			
50-59%: A good and appropriate application of standard methods, materials, tools and/or techniques. Good appreciation of the context of the application, with some use of examples, where relevant. <i>You demonstrate that you can develop a working simulation using the software. Some of the simulation setup could be improved.</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>Some nice clear post processing conducted to demonstrate flow structures. You have 3 working models, which form the basis for a more robust model with further work. You should have gone on to investigate the modelling parameters. Good to see the 35 degree case investigated.</i>	20	10.5	53
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.)			
60-69%: Can communicate well, confidently and consistently in a suitable format. Can work very well as part of a team, with very good contribution to group activities. Work is coherent and fluent and is well structured and organised. <i>A very good account of the investigation conducted, could be structured a little more professionally in places.</i> <i>Technical report formatting and presentation is excellent.</i> <i>General outline structure is ok, but you should label your subsections. Report presentation follows the guidelines. Generally the report is fine, but lacks some of the technical rigour to support modelling decisions.</i>	15	10.1	68
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		
	52	%	