

MARKING CRITERIA AND STUDENT FEEDBACK

MODULE: Advanced Computational Methods CFD

ASSIGNMENT: CFD : Ahmed Body

STUDENT: Habtom Ghirmay

DATE: 27/1/20

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)				%						
40-49%: References to a limited range of mostly relevant sources. Some omissions and minor errors. Referencing conventions evident though not always applied consistently. <i>You have conducted some basic reading to support your understanding of the CFD process, but a wider range of sources could have been used to inform your methodology with respect to the investigations application.</i> <i>Some research of the Ahmed reference body, but limited use to validate/critique your results.</i> <i>3 relevant references listed, but you could have reviewed a much larger range and used further citations to support your methods and validate your results (There are many similar published studies on this shape for comparison with your findings). You should have embedded citations to the references to support your discussion and conclusions.</i>		10	4.5	45						
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)										
60-69%: Knowledge is extensive. Exhibits understanding of the breadth and depth of established views. <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>You could have outlined the general test conditions you are trying to replicate in the simulation - this would have informed your methodology. You could have presented your full base case setup and mesh strategy with justification. You have conducted some good parameter studies and demonstrate a solid understanding of the process, but you have not clearly used the initial results to inform your model development.</i>		25	15	60						
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)										
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>You have conducted some good analysis of your results. You have compared the results obtained to the empirical data and noted any differences - you could have investigated these discrepancies in more detail.</i> <i>Your have conducted some good mesh, domain, turbulence model studies which have informed your proposed methodology. These could have been more detailed.</i> <i>Domain study is good - You could have increased further to show domain independency. Your mesh independency study is again a good start, but more refined meshes could have been investigated until the solution became independent of this variable (you have 1.9 million cells but you could have easily increased this up to 5 million). Good to see time monitored. Density box and prism layer studies are logical. It is a shame you didn't assess the post processing for the influence on the flow structure results.</i>		30	19.5	65						
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 clearly demonstrate that you are proficient with the software and CFD modelling.</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>You have produced a good overall model which has been developed to give good results. It's a shame you didn't test this on a similar geometry such as a 35 degree slant to assess it's validity for small geometry modifications. Your post processing of final results is good but you should have used these skills to assess the impact of the method parameters and inform your model development.</i>		20	13.5	68						
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 generally is very good. A couple of minor errors only.</i> <i>General report structure is very good. Introduction should be numbered as section 1. Some small errors in your sentences which Equations should be numbered. Tables should be numbered above.</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.)		<table><tr><th colspan="2">Late Submission Penalties (tick if appropriate)</th></tr><tr><td>Up to one-week late</td><td></td></tr><tr><td>Over one week late</td><td></td></tr></table>			Late Submission Penalties (tick if appropriate)		Up to one-week late		Over one week late	
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