

MARKING CRITERIA AND STUDENT FEEDBACK

MODULE: Advanced Computational Methods CFD	ASSIGNMENT: CFD : Ahmed Body
STUDENT: Ainsley Martin	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)			%
80-100%: Outstanding knowledge of research-informed literature embedded in the work. Outstanding selection of relevant and credible sources. High-level referencing skills consistently and professionally 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>Some good research of Ahmed reference body results and testing used to support your analysis.</i> <i>A large number of research sources cited to inform and develop your model. You could have conducted more initial research into the experimental setup so that the simulation could replicate the actual empirical methods which resulted in the provided results. Excellent citations to support knowledge and theories discussed. You could have compared your findings with those from existing Ahmed studies.</i>	10	8.25	83
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)			
80-100%: Highly detailed knowledge and understanding of the main theories/concepts, and a critical awareness of the ambiguities and limitations of knowledge. <i>You have clearly understand the CFD process and significance of the modelling decisions made.</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>You clearly understand the development process of a CFD conducting a wide range of studies to justify your simulation setup. Presentation of key theories is excellent, you could have applied the Y+ analysis to your study.</i>	25	20.6	83
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)			
80%-100%: Exceptional work; judiciously selected and evaluated evidence. Very high quality analysis, developed independently or through effective collaboration. Ability to investigate contradictory information and identify reasons for contradictions. Highly persuasive conclusions <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>Good to see half/full car study! Excellent studies conducted for mesh development with conclusions drawn. You mention Y+ and explain, you could have calculated this for your case. Good to see application of method to 35 degree with turbulence models then reinvestigated. You could have discussed how you would change the mesh strategy for this case.</i>	30	24.8	83
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)			
80-100%: Outstanding levels of application and deployment skills. Assimilation and development of cutting edge processes and techniques. <i>You clearly demonstrate that you are proficient with the software and CFD modelling.</i> <i>You have used the post processor at an advanced level to clearly visualise and present your results. Some of the visualisations are innovative</i> <i>Post processor could have been used to support your investigation conclusions - it would have been good to have shown how prism layers effect the velocity distribution for example. The number of studies and detail of work is exemplary.</i>	20	17	85
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.)			
80-100%: Can communicate with an exceptionally high level of professionalism. Can work exceptionally well and professionally within a team, showing advanced leadership skills. Work is exceptionally 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 is excellent.</i> <i>Excellent report Ainsley. This is a very well presented document. Be careful with number of decimal points in tables - 6.d.p is excessive.</i>	15	12.8	85
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		
	83		%