

ENGR489 Preliminary Report Marking Guide 2004

Released on 19 March 2024

1. Introduction [20 Marks]

Sub-Trait	Excellent [16-20]	Good [13-15]	Satisfactory [10-12]	Unsatisfactory [0-9]
Motivation	<ul style="list-style-type: none"> Provides insightful background information that illuminates the “big picture” and relevance of the project to society at large. 	<ul style="list-style-type: none"> Provides relevant background information which partially helps clarify the “big picture” and relevance of the project to society at large. 	<ul style="list-style-type: none"> Provides relevant background information but their link to the “big picture” and relevance to society at large is unclear. 	<ul style="list-style-type: none"> Non-existent, incoherent, or irrelevant motivation.
Problem Statement	<ul style="list-style-type: none"> The problem has been identified and stated clearly with concrete evidence to demonstrate its existence. 	<ul style="list-style-type: none"> The problem has been identified and stated but the evidence to demonstrate its existence is insufficient. 	<ul style="list-style-type: none"> The problem has been identified and stated but no evidence is presented to demonstrate its existence. 	<ul style="list-style-type: none"> Non-existent, incoherent, or irrelevant problem statement.
Solution and Deliverables	<ul style="list-style-type: none"> Clearly describes the key aspects of the final product or solution, including expectations of the intermediate deliverables of the project. Considers and thoroughly discusses environmental and sustainability issues*, either by clearly identifying how they are either partly or wholly addressed, or convincingly arguing why they are not relevant in this project. 	<ul style="list-style-type: none"> Clearly describes most of the key aspects of the final product or solution and expectations of the intermediate deliverables of the project. Considers and discusses environmental and sustainability issues*, either by identifying how they are either partly or wholly addressed, or arguing why they are not relevant in this project. 	<ul style="list-style-type: none"> Acceptable description of the final product or solution and intermediate deliverables but misses key aspects. Acceptable discussion of the relevant environmental and sustainability issues*, or challenges faced in incorporating these issues into this project. 	<ul style="list-style-type: none"> Non-existent, incoherent, or irrelevant description of the final product and intermediate deliverables. Non-existent, incoherent, or irrelevant discussion on how the solution considers the environmental and sustainability aspects of the problem.

*Such as those documented at <https://sdgs.un.org/goals>.

2. Background Research [20 Marks]

Sub-Trait	Excellent [16-20]	Good [13-15]	Satisfactory [10-12]	Unsatisfactory [0-9]
Literature Review	<ul style="list-style-type: none"> • State-of-the-art and existing solutions to the problem, including their advantages and disadvantages, have been stated. • Concepts and other theoretical underpinnings of the problem/solution are discussed thoroughly and clearly. • <i>For projects where the output is a model:</i> Identifies and provides justifications for the existing work to be used as benchmarks in the evaluation. Performance metrics to be used in the evaluation are identified, along with justifications on their relevance to the project goals. 	<ul style="list-style-type: none"> • State-of-the-art and existing solutions to the problem have been stated. Their advantages and disadvantages are sometimes mentioned. • Concepts and other theoretical underpinnings of the problem/solution are discussed with some clarity. • <i>For projects where the output is a model:</i> Identifies the existing work to be used as benchmarks in the evaluation with some justifications. Performance metrics to be used in the evaluation are identified, along with some justifications on their relevance to the project goals. 	<ul style="list-style-type: none"> • State-of-the-art and existing solutions to the problem have been stated. Not much discussion on their advantages and disadvantages. • Concepts and other theoretical underpinnings of the problem/solution are presented but not elaborated. • <i>For projects where the output is a model:</i> Identifies the existing work to be used as benchmarks in the evaluation without justifications. Performance metrics to be used in the evaluation are identified, but justifications on their relevance to the project goals are not provided. 	<ul style="list-style-type: none"> • Non-existent, incoherent, or irrelevant discussion of the state-of-the-art and existing work. • Non-existent, incoherent, irrelevant, or questionable discussion of the concepts or theoretical basis of the problem/solution. • <i>For projects where the output is a model:</i> Non-existent, incoherent, irrelevant, or limited discussion of existing work to be used as benchmarks and performance metrics.
Tools and Methodology	<ul style="list-style-type: none"> • Identifies relevant programming languages, hardware and/or software libraries, frameworks, development kits and tools that may be used in the development, with critical discussion on how these tools will benefit the development process. • A development process has been selected, with relevant justifications for the choice of the methodology. 	<ul style="list-style-type: none"> • Identifies mostly relevant programming languages, hardware and/or software libraries, frameworks, development kits and tools that may be used in the development with some discussion on how these tools will benefit the development process. • A development process was selected, with somewhat relevant justifications for the methodology choice. 	<ul style="list-style-type: none"> • Identifies programming languages, hardware and/or software libraries, frameworks, development kits and tools that may be used in the development without much discussion on how these tools will benefit the development process. There are obvious omissions in the presentation. • A development process has been selected, with weak justifications for the methodology choice. 	<ul style="list-style-type: none"> • Non-existent, incoherent, or limited discussion of the tools to be used in the development process. • Non-existent, incoherent, or limited discussion of the methodology. Justifications, if any, are questionable.

3. Development Progress [20 Marks]

For projects where the output is a model, the Alternative Development Progress in Appendix A may be used instead.

Sub-Trait	Excellent [16-20]	Good [13-15]	Satisfactory [10-12]	Unsatisfactory [0-9]
Requirements	<ul style="list-style-type: none"> Requirements specification is consistent and complete, covering all aspects of the system that need to be developed. 	<ul style="list-style-type: none"> Requirements specification is mostly consistent, but a few minor aspects are either missing or unclear. 	<ul style="list-style-type: none"> Requirements specification is vague in some instances, and there are key aspects missing or unclear. 	<ul style="list-style-type: none"> Non-existent, vague, irrelevant, or inconsistent requirements specification.
Design	<ul style="list-style-type: none"> Thorough explanation of the system architecture, along with its components and interfaces with external systems. Requirements and constraints, as well as environmental and sustainability considerations, are used appropriately to drive design choices. 	<ul style="list-style-type: none"> Adequate explanation of the system architecture, along with its components and interfaces with external systems. Requirements and constraints, as well as environmental and sustainability considerations, are used appropriately to drive design choices most of the time. 	<ul style="list-style-type: none"> The system architecture, along with its components and interfaces with external systems are explained but some key details are missing. Some of the design choices are driven by requirements and constraints, as well as environmental and sustainability considerations. 	<ul style="list-style-type: none"> Non-existent, vague, or irrelevant discussion of the system architecture. Non-existent or weak evidence that the design is based on the requirements specification, including unjustified design decisions that contradict requirements.
Implementation	<ul style="list-style-type: none"> <i>For software projects:</i> Implementation description is complete and consistent with the design. A functioning prototype* with some features has been demonstrated**. <i>For hardware projects:</i> Implementation description and schematic diagram(s) are complete and consistent with the design. If appropriate, a complete and working prototype has been built and verified. 	<ul style="list-style-type: none"> <i>For software projects:</i> Implementation description is consistent with design but misses minor aspects. Several components have been completed but prototype demonstration* is either trivial or not yet possible**. <i>For hardware projects:</i> Implementation description and schematic diagram(s) are consistent with design but misses minor aspects. If appropriate, a prototype has been built but verification is either missing or incomplete. 	<ul style="list-style-type: none"> <i>For software projects:</i> Implementation is minimally described, and some major aspects are missing. Implementation generally follows design specifications. Coding started but only a few components have been completed and prototype demonstration is not yet possible**. <i>For hardware projects:</i> Implementation and schematic diagram(s) are minimally described, and some major aspects are missing. Implementation generally follows design specifications. 	<ul style="list-style-type: none"> <i>For software projects:</i> Implementation description is either non-existent, mostly incomplete or incongruous with the design. Coding has not yet started, or code consists mostly of default scaffolding code**. <i>For hardware projects:</i> Implementation description and schematic diagram(s) are either non-existent, mostly incomplete or incongruous with the design.

*A short (up to 10 minutes) video needs to be submitted to demonstrate the prototype.

**Gitlab repository to be used to verify progress.

4. Critical Thinking and Planning [20 Marks]

Sub-Trait	Excellent [16-20]	Good [13-15]	Satisfactory [10-12]	Unsatisfactory [0-9]
Critical Thinking	<ul style="list-style-type: none"> An overall analysis and evaluation which shows an: excellent understanding of the technical issues from different perspectives; appreciation of limitations of the artifact developed; consideration of how the artifact could be further improved. 	<ul style="list-style-type: none"> Shows a good comprehension of the technical issues, but a limited or lightweight understanding of limitations or room for improvement. 	<ul style="list-style-type: none"> Exhibits a basic grasp of the technical issues from the most important perspective, without considering any others. Considers only benefits without identifying limitations. 	<ul style="list-style-type: none"> Either little-to-no evidence of analysis, evaluation or the formation of judgments, or there are major errors or deficiencies in the analysis of, or reasoning about, the technical requirements for completion of the project.
Planning	<ul style="list-style-type: none"> Provides a SMART* description of the components, features and timelines required for successive prototypes, with appropriate milestones. Identifies potential dependencies and points of failure, both technical and non-technical. 	<ul style="list-style-type: none"> Describes components or features but is incompletely SMART*. Shows an awareness of external factors which may affect timelines or cause disruptions, without identifying adequate coping strategies. 	<ul style="list-style-type: none"> A clear picture of the final product/output may be provided, but the details are uncertain and the path to achieving them is unclear or contains obvious deficiencies. Identification of unlikely or near-trivial dependencies or points of failure. 	<ul style="list-style-type: none"> Either a plan is not provided, or the plan provided expresses significant uncertainty, or is vague and lacks appropriate specificity, about the future.

*SMART: Specific, Measureable, Achievable, Relevant and Timebound.

5. Written Communication [20 Marks]

Sub-Trait	Excellent [16-20]	Good [13-15]	Satisfactory [10-12]	Unsatisfactory [0-9]
Technical Writing Skills	<ul style="list-style-type: none"> No spelling errors, no discernible flaws in punctuation, grammar, and sentence construction. All figures, graphs, charts, tables, and drawings are numbered and captioned, are accurate, consistent with the text, and of superior quality. They enhance understanding of the main text. 	<ul style="list-style-type: none"> Very few spelling errors, correct punctuation, grammatically correct, complete sentences. Most of the figures, graphs, charts, tables, and drawings are numbered and captioned, are accurate, consistent with the text, and of superior quality. They enhance understanding of the main text. 	<ul style="list-style-type: none"> Lapses in spelling, punctuation and grammar, but not enough to seriously distract the reader. Figures, graphs, charts, tables, and drawings are of acceptable quality, but the numbering and captioning are not consistent. They sometimes help in clarifying the main text. 	<ul style="list-style-type: none"> Numerous spelling errors, absent or incorrect punctuation, and/or severe grammatical errors. Figures, graphs, charts, tables, and drawings are of inferior quality and lead to confusion of the main text.
Vocabulary	<ul style="list-style-type: none"> Sophisticated and appropriate use of vocabulary, choice of words and discipline-specific terminology. 	<ul style="list-style-type: none"> Appropriate use of vocabulary, consistently correct word choice and discipline-specific terminology. 	<ul style="list-style-type: none"> Generally appropriate vocabulary; not overly repetitive. Generally chooses correct words and terminology. 	<ul style="list-style-type: none"> Excessively limited, inappropriate or repetitive vocabulary. Misuses words and discipline-specific terminology.
Structure and Style	<ul style="list-style-type: none"> Elegant and thoughtful sentence and paragraph construction, which enhances the reader's understanding. 	<ul style="list-style-type: none"> Variety of sentence construction; logical flow; style and structure appropriate for task, audience and genre. 	<ul style="list-style-type: none"> Not overly repetitive; some variety in sentence construction; generally flows well; some awareness of audience and genre. 	<ul style="list-style-type: none"> Repetitive and/or simplistic sentence structure; consistently disjointed, lack of flow; style/structure inappropriate for audience.
Clarity and Conciseness	<ul style="list-style-type: none"> Displays clarity of thought through a cogent argument focused on the question, enlightening the reader. 	<ul style="list-style-type: none"> Argument is effectively conveyed, addressing the question in an easily understood manner. 	<ul style="list-style-type: none"> Argument reasonably clear; occasionally misses the point but answers the question; not excessively elaborate or complicated. 	<ul style="list-style-type: none"> Main point and/or argument confused or unclear. Irrelevant information, no transition between ideas. Unclear conclusion.
Academic Integrity and Appropriate Use of Referencing	<ul style="list-style-type: none"> Sources and citations are carefully chosen to concisely support the work, and the mandated referencing system is used skillfully and effectively. 	<ul style="list-style-type: none"> Others' work acknowledged in-text and/or with citations. Uses the mandated referencing system consistently and correctly. 	<ul style="list-style-type: none"> Other sources appear to be acknowledged. Uses the mandated referencing system but with occasional errors or omissions. 	<ul style="list-style-type: none"> Work appears to be not adequately referenced or attributed. Does not attempt to use the mandated referencing system.

Appendix A. Alternative Development Progress [20 Marks]

For projects where the output is a model, this marking guide for the Development Progress may be used instead.

Sub-Trait	Excellent [16-20]	Good [13-15]	Satisfactory [10-12]	Unsatisfactory [0-9]
System Model	<ul style="list-style-type: none"> • Clear and elegant presentation of the system model, explaining how it accurately represents the system being studied and captures its key characteristics and behavior. 	<ul style="list-style-type: none"> • Clear presentation of system model, explaining how it represents the system being studied and captures its key characteristics and behavior. 	<ul style="list-style-type: none"> • Acceptable presentation of system model, explaining how it represents the system being studied and captures its key characteristics and behavior. 	<ul style="list-style-type: none"> • Non-existent, vague, irrelevant or questionable presentation and characterisation of the system model.
Design and Analysis	<ul style="list-style-type: none"> • Principles in engineering, science and/or mathematics are appropriately applied to analyse the components or the entire system in all relevant aspects of the design. • Discussion of design alternatives and justifications of design decisions is thorough as all relevant aspects are covered. 	<ul style="list-style-type: none"> • Principles in engineering, science and/or mathematics are appropriately applied to analyse the components or the entire system, with some minor omissions in the discussion. • Discussion of design alternatives and justifications of design decisions covers key aspects but misses minor ones. 	<ul style="list-style-type: none"> • Principles in engineering, science and/or mathematics are appropriately applied but obvious or key principles are missing in the discussion. • Discussion of design alternatives and justifications of design decisions is acceptable with key aspects missing. 	<ul style="list-style-type: none"> • Non-existent or incorrect application of principles in engineering, science and/or mathematics to analyse the components or the entire system. • Non-existent, vague, or irrelevant discussion of design alternatives and justifications of design decisions.
Model Construction	<ul style="list-style-type: none"> • Clear explanation of the completed aspects of the model. Key aspects have been completed*; meaningful preliminary results have been reported. 	<ul style="list-style-type: none"> • Good explanation of the completed aspects of the model. Mostly minor aspects with some key aspects have been completed*; it is not yet possible to obtain meaningful preliminary results. 	<ul style="list-style-type: none"> • Acceptable explanation of the completed aspects of the model. Model construction has just started with some minor aspects completed*; it is not yet possible to obtain any preliminary result. 	<ul style="list-style-type: none"> • Non-existent, vague or irrelevant explanation of the completed aspects of the model. Model construction has not yet started.

*Gitlab repository to be used to verify progress.