THE RIVERS SECONDARY COLLEGE
The heart of secondary education for Lismore

Assessment Task Notification

RICHMOND RIVER HIGH CAMPUS

Task Number	3	**Task Name**	Problem Definition and Concept Brief
Course	iSTEM 200-hour	**Faculty**	TAS
Teacher	Mrs Hodgman	**Head Teacher**	Ms Godden
Issue date	Term 3 Week 1	**Due date**	Friday 15th August 2025 Term 3 Week 4
Focus (Topic)	Major Project	**Task Weighting**	15%

Context:

Transport systems are rapidly evolving as society faces urgent environmental, economic, and social challenges. In regional areas like ours, limited public transport options mean innovation must be practical, affordable, and user-centred. As engineers and designers, students are challenged to explore sustainable transport from a local context and identify opportunities for real-world improvement.

This task introduces the first stage of the design process and prepares students for a semester-long project involving prototyping, testing, and reporting.

Task Summary:

You will identify a real-world problem related to sustainable transport, conduct background research, and develop a Concept Brief. Your brief will define the problem, propose a target user, summarise key research (including sustainability considerations), and present initial concept directions using visual communication. This work will inform your prototype development and final engineering report later in the term.

You will submit a structured document including:

- A clear problem statement
- A background research summary
- A sustainability and transport hierarchy link
- An outline of constraints and success criteria
- An initial concept idea (with visuals and brief explanation)
- A draft timeline and project scope

Assessment Components:

- **Problem Statement:** Define the issue in your local or broader community related to sustainable transport.
- **Research Summary:** Provide evidence and data that explains the problem's significance and potential solution space. Your research needs to be referenced using APA 7.
- **Sustainability Connection:** Show understanding of how your proposed solution aligns with sustainable transport principles (hierarchies, emissions, impact).
- **Design Constraints & Success Criteria:** Identify materials, timeframe, safety, and target outcomes.
- **Concept Sketch:** Provide at least one annotated visual to communicate your initial idea.
- **Project Plan:** Include a rough timeline and what resources you may need.

Outcomes Assessed:

- **ST5-1:** Designs and develops creative, innovative, and enterprising solutions
- **ST5-2:** Demonstrates critical thinking, creativity, problem solving, and engineering design skills
- **ST5-3:** Applies engineering design processes to address real-world STEM-based problems
- **ST5-4:** Works independently and collaboratively to produce practical solutions
- **ST5-5:** Analyses a range of contexts and applies STEM principles and processes
- **ST5-7:** Selects and applies project management strategies
- **ST5-8:** Uses a range of techniques and technologies to communicate design solutions
- **ST5-10:** Analyses and evaluates the impact of STEM on society and describes the scope and pathways into employment

Marking Rubric

Total: /25 marks

Criteria	Excellent (5)	High (4)	Sound (3)	Basic (2)	Limited (1)
1. Problem Definition & User Context	Clearly defines a relevant, original transport problem; strong awareness of affected users	Defines a clear problem with some originality and links to user needs	Identifies a relevant problem; some user context included	Basic or vague problem identified; limited user consideration	Problem unclear, lacks relevance or user focus
2. Research & Sustainability Integration	Research is thorough and well-connected to the problem; strong use of sustainability frameworks (hierarchies, emissions, etc.) All references are included in the correct format	Research is appropriate and links well to the issue; sustainability is addressed. 3-5 references are included	Some research presented with attempt to connect to sustainability. 3 or fewer references are included	Limited research or weak sustainability link. 1 reference is included, or references are not correctly added	Minimal or no research; sustainability not addressed. No references
3. Initial Concept Design & Creativity	Creative and well-explained idea; shows innovation; concept logically addresses the problem	Thoughtful idea that addresses the problem with some creative features	Basic idea that responds to the problem; some reasoning provided	Concept is weak or lacks clarity; limited innovation	Idea is unrelated or poorly explained
4. Visual Communication	Clear, labelled sketch with strong visual communication of design thinking	Sketch included and mostly clear; most labels and design elements present	Basic sketch with some labels or visual clarity	Poorly presented or underdeveloped visual	No visual or not related to the design
5. Planning & Organisation (Constraints, Timeline, Criteria)	Comprehensive plan; clear success criteria; realistic and well-structured timeline	Well-organised; includes most planning components with clear intent	Some planning evident; timeline or criteria may lack depth	Planning incomplete or underdeveloped	Little or no planning presented