

SUSTAINABLE CONSTRUCTION ENGINEER

THEORETICAL PART



Context:

You are in a rapidly expanding metropolitan area with a growing population and an urgent housing crisis. The city's current infrastructure is outdated and heavily reliant on non-renewable energy sources, leading to excessive energy consumption and rising emissions. One flagship initiative, the "Green Housing Project," aims to create a self-sustaining urban district with energy-efficient buildings powered by renewable energy systems. The main issue is how to effectively design and implement a construction plan that integrates renewable energy systems into the building complex while balancing structural, aesthetic, financial, and environmental considerations.

Actors involved:

- **Local Government Officials:** Mandating compliance with sustainability policies and ensuring the project's success as a model for future developments.
- **Sustainable Construction Engineer (You):** Responsible for designing and overseeing the integration of renewable energy systems into the building complex.
- **Community Stakeholders:** Residents and local businesses who seek minimal disruptions during construction and long-term benefits from the project.

GUIDANCE PART

Related Contents/Skills:

Environmental
Impact Assessment



Project
Management

Problem-Solving

Environmental
Awareness

Sustainable Building
Design

Sustainable Building
Design

Communication and
Advocacy

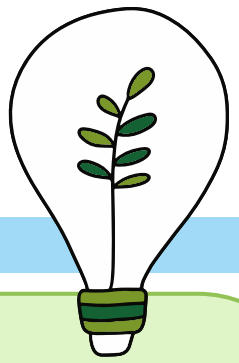
Decision-Making

Self-Reflection Questions:

- What are the primary challenges in integrating renewable energy systems into the building complex?
- How can architects, engineers, and construction managers work together to ensure the success of the project?
- What risks are associated with the long-term maintenance of renewable energy systems in the building?
- What renewable energy systems would be most effective for this specific building and environmental context?
- What potential conflicts could arise between stakeholder interests (e.g., architects, construction managers, and community members)?

PRACTICAL PART

[This section will be answered by the students]



Analysis:

What is the main problem or need to be addressed?
What knowledge and skills are necessary to tackle this situation?
What are the strengths and weaknesses of the context in which this problem arises?

Planning:

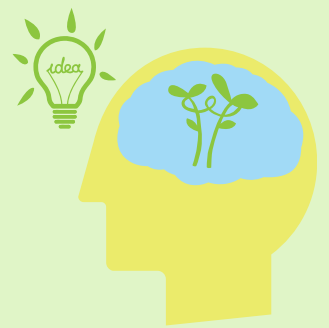
How can an initial plan be developed to address the identified needs?
What material and human resources are available to address the situation?
What specific actions should be taken to implement the solution?

Suggestions and Prevention:

What suggestions can be offered to execute the proposed solutions?
How can risks or potential future problems related to the solution be prevented?

Evaluation:

What methods can be used to assess the success and sustainability of the implemented solutions?
How will the evaluation be conducted, what instruments will be used, and what variables will be analysed?



Expected Results after Implementation

What are the expected outcomes after implementing the solutions?

How is the future context expected to look after our intervention?

What suggestions can be made for future applications, maintenance, or performance improvements?

Reflection on Developed Competencies and Project Impact:

What competencies were developed and what is the potential impact of the project?

What difficulties or strengths were identified during the implementation of this EcoJob in a real context?

How is the coherence of the EcoJob analysed, and how suitable is it in relation to the identified need?

