

EESJ Rubric for Assessing Student Models and Proposed Design Solutions

Criteria	Not yet	Approaches expectations	Meets expectations	Advanced
	1	2	3	4
1) Using models to understand a complex system as a whole	The variables in the model are not related to the investigation or design solution or together do not represent a complex system as a whole.	The model includes variables related to the investigation or design challenge but is missing key social or ecological variables necessary for designing just solutions.	The model includes a range of variables (including social and ecological) and can be used to identify possible justice-centered solutions to a design problem.	The model includes a wide range of social and ecological variables and can also be used to make predictions about how a design solution might work in a real-world context.
2) Understanding the relationship within a system	The complex systems model includes variables, but few or no connections between the variables.	Model variables include connections, but some may be missing or incorrect.	Students' models show how components interact (positive or negative connections).	Students' models show positive and negative connections between variables and students can describe how these connections relate to the system's behavior as a whole.
3) Creating just and equitable engineering solutions during the design charette presentations/ gallery walk	The proposed solution does not relate to the design challenge.	The proposed solution leverages students' models but does not account for the social and ecological impacts of the design.	The proposed solution leverages students' models and addresses the social and ecological impacts of a design on humans and other species.	The proposed solution draws on students' models and deeply accounts for the social and ecological implications of the design but in the present and future health of humans and other species even in the face of climate change.
4) Communicating information about a system through models and presentations	The student is not able to communicate the details of their model or design solution during class activities.	The student is able to communicate their design solution but does not connect it to the range of social and ecological variables from their models.	The student is able to describe how their design solution relates to the range of social and ecological variables from their models and how it will improve human and other species health.	The student is able to describe how their design solution relates to the social and ecological variables from their models and how it will support human and other species health now and in the future as some variables, such as climate change, may alter the existing system.