

Outcome 2: Ability to design a system, component, or process Performance Indicator Scoring Rubrics

Course: _____

Semester taught: _____

Type of Student Work Used for Assessment
(e.g., Homework #4, Exam #2 problem 3, final project): _____

Number of students in course: _____

Number of students sampled: _____

Rating Scale Element	0	Needs Improvement	1	2	Meets Expectations	3	4	Exceeds Expectations	5	N/A
Understanding of design objectives, constraints and how areas interrelate and integrate prior knowledge		Has narrow view of what is involved in the design and misses key principles and components required for a complete design process			Produces a design statement that is generally correct in the "big picture;" may be missing some prior knowledge, consideration of all components, etc.			Produces a clear needs/design statement including identification of all major elements required for the design process (analyses, tools, process components)		
Design strategy including a plan of attack, subtasks, timetables, and milestones		Conducts design as needs arise; has no formal strategy or management of the project			Selects and performs appropriate stage at the appropriate point in the design project; may not re-evaluate progress or need to change strategy			Produces a design strategy and uses it to guide the design project; re-evaluates progress and potential need to change strategy		
Uses models or simulation software to provide informed design decisions		May not use models or only uses limited tools which do not provide appropriate information; does calculation by rote and not to evaluate design decisions			Selects and performs models or simulations at appropriate points in the project; may not analyze output as part of design strategy			Selects and performs models or simulations at appropriate points in the project; evaluates not only model output but also quality and appropriateness of model for the given task		

Develops alternative concepts/proposed solutions; /evaluates feasibility of alternatives		Sticks to one or two solution methods or concepts and does not consider alternatives			Selects a feasible concept (may not be the best); selects and applies appropriate evaluation method at appropriate points in the project; feasibility analysis may be incomplete or may lead in the wrong direction			Selects most feasible and suitable concept; selects and applies appropriate evaluation method at appropriate points in the project; considers feasibility analysis and uses insight to determine direction of design project		
Recognizes practical significance of design outcome/answer; is solution realistic		Works through a solution that may be unrealistic without additional considerations or iterations			Considers some, but maybe not all, aspects of feasibility; carrier through to the solution, but it may not be the most economic/desirable			Determines whether the solution is realistic; carries solution through to the most economic/desirable solution and justifies the approach		