

P2.3.3 Bridge Design Project Scoring Rubric

Score: /100 Points Total

Team Documentation [60 points]

Topics	5 points	4 points	2 points	1 point
Professional Appearance / Neatness / Organization	Includes all required sections; includes page numbers and appropriate section headings. Font (11/12pt for standard text) and spacing choices are appropriate and consistent throughout document. Page breaks used appropriately to keep headings/titles in the correct place.	Includes most required sections; includes page numbers and appropriate section headings. Font and spacing choices are appropriate.	Does not include all required sections; section headings could have been better organized. Font and spacing choices not appropriate.	Missing many sections; does not have page numbers or section headings. Lack of care put into layout and organization.
Title Page & Table of Contents	Title page Includes all components required for a complete title page. <i>(Project #, title, & subtitle. team photo with final prototype. Designers, class name & period, date range of project with year.)</i> TOC includes all major sections with corresponding page numbers.	Includes 80% or more of the necessary components for a complete title page and TOC.	Includes 60% or more of the necessary components for a complete title page and TOC.	Includes 50% or more of the necessary components for a complete title page and TOC.
Design Brief	Includes all parts of a design brief organized into one page. Clearly details the design problem, target consumer , constraints, and deliverables.	Includes all parts of a design brief organized into one page.	Includes most parts of a design brief organized into one page.	Includes some parts of a design brief organized into one page.
Research Summary (x2)	Is grammatically correct, clearly summarizes data gathered from investigation and online research in an organized and concise manner. Resources used are properly cited in-text using APA citation format.	Is grammatically correct, clearly summarizes data gathered from investigation and online research in an organized manner. Resources used are cited.	Is grammatically correct, summarizes data gathered from investigation in an organized manner.	Has many grammatical errors, summarizes data gathered.
Brainstormed Ideas	Produces at least two viable and accurate pictorial sketches or electronic models of the required design concepts per group member. Each is properly detailed for effective communication, including material descriptions and cost estimates. All images titled, signed, and dated.	Produces at least 2 marginally sufficient and accurate pictorial sketches or electronic models of the required design concepts per group member. Each is marginally detailed for effective communication, including material descriptions and cost estimates.	Produces sketches or electronic models that are difficult to visualize. Lacks details in sketches such as material types and cost estimates.	Produces incomplete sketches or electronic models. Does not represent concept well. Missing most descriptions.
Decision Matrix & Assignment of Values	Effectively demonstrates important considerations and clearly communicates the process that contributes to selecting a final solution. A logical, well-explained method of evaluating each specification or constraint for each of the listed possibilities is presented to the reader of the matrix.	Somewhat effectively demonstrates important considerations and the process that contributes to selecting a final solution. A method of evaluating each specification or constraint for each of the listed possibilities is used. An attempt to explain it is made but is unclear to the reader of the matrix.	Is missing elements that should have been considered for selecting a final solution. Each specification or constraint for each of the listed possibilities is assigned an evaluation, but no attempt is made to present it to the reader of the matrix.	Is missing elements that should have been considered for selecting a final solution, and poorly communicates the final solution selection process. Each specification or constraint for each of the listed possibilities is either assigned an apparently random value or is not evaluated at all.
Decision Matrix - Paragraph	A well-written paragraph description of procedure included based on the results of the matrix evaluation, a clear choice is made and defended on a technical basis.	A paragraph description is included based on the results of the matrix evaluation, a choice is made but does not stand up to technical challenge.	A description of the choice from the list of possible solutions is made but is not supported by the decision making matrix.	No choice is made, even though the matrix shows one possibility to be superior, or a choice was not obvious due to misuse or misinterpretation of the matrix.
Design Modifications	All changes made to the original design solution are clearly communicated through images and explanations. Images include labels, signatures, and dates.	All changes made to the original design solution are communicated through sketches and explanations. Images include labels, signatures, and dates.	All changes made to the original design solution are poorly communicated through sketches and explanations. Sketches include labels, signatures, and dates.	Some changes made to the original design solution are communicated through sketches and explanations. Sketches do not include labels, signatures, and dates.

Final Solution Concept Pictorial	Solution is accurately portrayed as high-quality electronic model. Meets the required design concepts. Is properly detailed for effective communication, including labels, descriptions, and cost.	Produces marginally sufficient sketches that meet the required design concepts. Is properly detailed for effective communication, including labels, descriptions, and cost	Produces sketches that are difficult to visualize. Lacks details in sketches. Missing some details for effective communication, including labels, descriptions, and cost.	Produces incomplete sketches. Does not present the concept well. Missing several details for effective communication, including labels, descriptions, and cost.
Final Solution Concept Written Communication	Load tests, member properties, and cost calculations included and well-organized. Final concept is explained and justified thoroughly, using concepts learned to demonstrate effectiveness of design.	Load tests, member properties, and cost calculations included. Final concept is explained and justified, using concepts learned to demonstrate effectiveness of design.	Load tests, member properties, or cost calculations may be missing. Final concept is explained and justified, but lacking demonstration of the effectiveness of design.	Load tests, member properties, or cost calculations may be missing. Final concept is explained but lacking demonstration of the effectiveness of design.
Reference Page	Multiple reputable sources used in research. All sources cited properly using APA citation format. Sources listed alphabetically. In-text citations used for all images and content follow correct APA citation format.	Reputable sources used in research. Most sources cited properly using APA citation format. Sources listed alphabetically. In-text citations used for all images and content.	Reputable sources used in research. Some sources cited properly using APA citation format. In-text citations used for all images but missing on content.	Some sources cited properly using APA citation format. In-text citations missing.

Solution Performance [15 points]

Topics	5 points	4 points	2 points	1 point
Design Requirements	Fully meets design requirements.	Meets most design requirements and supports the design function.	Meets some requirements but not enough to support the design function.	Does not meet any requirements.
Cost	Total cost is under \$400,000.	Total cost is under \$500,000.	Total cost is under \$600,000.	Total cost is over \$600,000.
Functionality	Design functions well and represents a realistic, viable solution. Very little to no movement of bridge during simulation.	Design functions and represents a viable solution. Very little movement of bridge during simulation.	Design functions under the given constraints. Some movement of bridge during simulation.	Design does not function or does not represent a realistic solution.

Project Management [15 points]

Topics	5 points	4 points	2 points	1 point
Gantt Chart	All members are on task at all times and contribute in a positive manner. Gantt chart is created at the beginning of the project and updated often to reflect actual work done each work day. Tasks are divided equally amongst members and each person completes what is required of them.	Most members are on task at all times and contribute in a positive manner. Gantt chart is created at the beginning of the project. Tasks are divided equally amongst members and each person completes what is required of them.	Most members are on task some times and contribute in a positive manner. Tasks are divided equally amongst members and each person completes what is required of them.	Some members are off task at times and do not contribute in a positive manner. Evident that some members are not contributing and relying on others to complete what is required of them.
Teamwork (x2)	All team members contribute equally to the overall completion of the project. Evidence that in-class time and asynchronous time used productively. Team members demonstrate good team working skills and communication throughout the entire project.	All team members contribute to the overall completion of the project. Evidence that in-class time and asynchronous time used productively. Team members demonstrate good team working skills and communication most of the time.	All team members contribute to the project. In-class time and asynchronous time used somewhat productively.	1-2 team members completed the majority of the project while other team members were unproductive most of the time.

Individual Deliverables [10 points]

Topics	5 points	4 points	2 points	1 point
Project Log	Provides an accurate description of tasks completed each day with specific details about personal contributions to the project. Complete sentences used.	Provides an accurate description of tasks completed each day with some details about personal contributions to the project.	Provides a description of tasks completed each day.	Provides a description of tasks completed in the project.
Investigation Tables	Explore tables completed neatly and correctly with proper units. Shared in folder with the correct title.	Explore tables mostly completed and correct.	Explore tables 50% complete and correct.	Explore tables mostly incomplete.