TRY ENGINEERING PORTAL PROGRAM EVALUATION TOOL

The purpose of this evaluation tool is to enable PECC members to: a) determine the quality of programs submitted to the portal and b) describe program opportunities and intended outcomes to facilitate program searches as well as systematic reporting. This information will support IEEE in its efforts to ensure volunteers provide high quality programs and do so in ways that are impactful.

The tool has five sections. Sections A and B are the evaluative portions of the tool and focus on the IEEE pre-college program Design Principles, important elements of high quality programs, and alignment with IEEE pre-university goals. Sections C and D describe intended student and teacher outcomes. In these sections, the form asks for an emphasis rating (Likert Scale 1-4) to identify which outcomes programs focus on most. Section E is asks whether programs will be good examples for volunteers who wish to create their own programs.

Use the rubrics on pages 3 and 4 to guide your responses to Sections A and B.

A. Design Principles: To what extent does the program address the IEEE Design Principles?				
			Rating (1-4)	Not Enough Information (NEI) (check)
1. Demonstrates how engineering can make a difference				
2. Targets populations underrepresented in STEM				
3. Has high quality design and content (overall rating 1-4)				
	Rating	NEI		
a. Engineering Design Process				
b. Engineering Habits of Mind				
c. Learning Habits of Mind				
d. Pedagogical Approach				

B. Program Opportunity Type: To what extent does the program emphasize the following opportunities?		
	Emphasis Rating (1-4)	Not Enough Information (check)
Participants hear from and engage with practicing engineers		
Participants see engineering role models		
Participants engage in hands-on design challenges using an engineering mindset		
Participants learn an engineering related skill (e.g. coding, CAD) and how it is related to a career in engineering		
Participants see and experience real life examples of engineering success		
Participants see the relationships between engineering and the content and skills they are learning		

C. Which youth outcomes does the program target (check all that apply)? Student-facing programs must address at least one.		
There is no expectation that a single program would address all (or even more than one) of these. We ask about emphasis for reporting purposes and for planning data collection on outcomes. 1=no emphasis; 2= little emphasis; 3 = some emphasis; 4= a strong emphasis	Emphasis Rating (1-4)	Not Enough Information (check)
Understand the steps to becoming an engineer		
Know how to use engineering in their future career		
Understand what engineering is		
Believe that they can be an engineer if they want to		
Know foundational skills for engineering		
Value the importance of engineering		
Have a positive perception of doing engineering		

D. Which teacher outcomes does the program target? Teacher-facing programs must address at least one.		
There is no expectation that a single program would address all (or even more than one) of these. We ask about emphasis for reporting purposes and for planning data collection on outcomes. 1=no emphasis; 2= little emphasis; 3 = some emphasis; 4= a strong emphasis	Emphasis Rating (1-4)	Not Enough Information (check)
Understand how to bring engineering into their classrooms		
Know more engineering content		
Know where to look for resources		
Understand the field of engineering		
Other		

E. Is there enough information to adapt the program to a new setting?		
	Yes/No	Not Enough Information (check)
The primary purpose of the portal is to share information about pre-university programs so that current and new volunteers can learn from and/or adapt them to create new programs. This question is a check that the program will serve this purpose.		

DESIGN PRINCIPLES RUBRIC				
1. How much emphasis does the program place on demonstrating how engineering can make a difference?	There are no opportunities for youth to see how engineering makes a difference.	There is only a brief reference to ways engineering makes a difference.	Some program content focuses on ways that engineering makes a difference.	The primary focus of the program is how engineering makes a difference.
	1	2	3	4
2. To what extent is the program intentionally reaching out to populations underrepresented in Engineering ?	The program does not intentionally reach out to populations underrepresented in Engineering.	The program takes place in a location accessible to youth who are in groups that are underrepresented in Engineering.	The program actively recruits youth who are in groups that are underrepresented in Engineering.	The program actively recruits youth who are in groups that are underrepresented in engineering and has content specifically designed to engage those particular groups.
	1	2	3	4
3. Does the program have high quality design and content?				
3a. The Engineering Design Process	The program does not address the Engineering Design Process.	The program makes a cursory attempt to engage participants in the Engineering Design Process.	The program requires the use of some elements of the Engineering Design Process.	The program explicitly requires and names the Engineering Design Process
	1	2	3	4
3b. Engineering Habits of Mind (i.e. Improving, systems thinking, adapting, visualizing, creative problem solving, problem finding)	Program makes no clear attempt to engage participants in Engineering Habits of Mind.	Program makes a cursory attempt to engage participants in Engineering Habits of Mind.	The program requires the use of some Engineering Habits of Mind.	The program fully engages youth in Engineering Habits of Mind and identifies them explicitly as such.
	1	2	3	4
3c. Learning Habits of Mind (i.e. curiosity, open-mindedness, resilience, resourcefulness, collaboration, reflection, ethical consideration)	Program makes no clear attempt to engage participants in Learning Habits of Mind.	Program makes a cursory attempt to engage participants in Learning Habits of Mind.	The program requires the use of some Learning Habits of Mind.	The program fully engages youth in Learning Habits of Mind and identifies them explicitly as such.
	1	2	3	4
3d. Pedagogical Approach	Content is taught in a silo and focuses primarily on knowledge awareness and comprehension of information; it is predominantly leader-centered.	Instruction is partially student centered but mostly driven by the leader; it does not provide opportunities for applied learning.	Instruction is predominantly student centered and uses (among other approaches) problem-based or project-based learning. It provides youth with opportunities to apply learning through meaningful experiences.	Instruction is predominantly student centered and uses (among other approaches) problem-based or project-based learning. Students extend and refine their knowledge in new applications.
	1	2	3	4

PROGRAM OPPORTUNITY TYPE EMPHASIS GUIDELINES				
Opportunities to hear from and engage with practicing engineers	The program does not emphasize opportunities for youth to hear from practicing engineers.	Youth hear from practicing engineers with no guidance for interpreting or applying what they hear.	Youth hear from practicing engineers in the context of their own engagement in engineering activities.	The focus of the program is on hearing from practicing engineers and applying what they learn to their own engineering activities.
	1	2	3	4
Opportunities to see engineering role models	The program does not emphasize opportunities for youth to explore engineering careers	Youth explore engineering careers but they are not connected to the role model experience.	Youth explore engineering careers that relate to the role model experience.	The program explicitly focuses on youth exploring engineering careers that are related to the role model experience. Youth engage in additional activities to help them further understand engineering careers.
	1	2	3	4
Opportunities to engage in hands-on design challenges using an engineering mindset	The program does not emphasize opportunities for youth to engage in skills that are part of the engineering design process/engineering habits of mind.	The program provides some opportunities for youth to develop skills that are part of the engineering design process/engineering habits of mind but does not identify them as such.	The program explicitly provides opportunities for youth to engage in the engineering design process/engineering habits of mind and requires them to demonstrate skills across multiple steps of the process.	The program explicitly focuses on providing opportunities for youth to engage in the engineering design process/habits of mind and requires them to identify the skills and processes they are using.
	1	2	3	4
Opportunities to learn an engineering-related skill(s).	The program does not emphasize opportunities for youth to learn an engineering related skill.	Youth are shown an engineering-related skill but are not given opportunities to do it themselves.	Youth are given some opportunities to directly engage with an engineering-related skill.	The program explicitly focuses on providing opportunities for youth to learn an engineering-related skill(s).
Opportunities to see and experience real life examples of engineering success	The program does not emphasize opportunities for youth to see and experience real life examples of engineering success.	Youth are shown real life examples of engineering success with no *discussions* or *activities* focused on them.	Youth are presented with real life examples of engineering success and engage in *discussions* about them.	The program explicitly focuses on presenting youth with real life examples of engineering success and engage in discussions and activities focused on them.
	1	2	3	4
Opportunities to see the relationships between engineering and other content and skills they learn	The program does not emphasize opportunities for youth to make connections between engineering and other content and skills	Youth are encouraged to make connections between engineering and other areas of learning but are not doing activities that support those connections.	Youth engage in activities that connect engineering with other areas of learning	The program explicitly engages youth in activities that connect engineering to other areas of learning. Youth have opportunities to identify new connections between engineering and their learning in other areas.
	1	2	3	4