**We Solve It! Rubric**

**Columbus State University We Solve It! Rubric**

**adapted from**

**LEAP VALUE Problem Solving Rubric and LEAP VALUE Critical Thinking Rubric**

 The VALUE rubrics were developed by teams of faculty experts representing colleges and universities across the United States through a process that examined many existing campus rubrics and related documents for each learning outcome and incorporated additional feedback from faculty. The rubrics articulate fundamental criteria for each learning outcome, with performance descriptors demonstrating progressively more sophisticated levels of attainment. The rubrics are intended for institutional-level use in evaluating and discussing student learning, not for grading. The core expectations articulated in all 15 of the VALUE rubrics can and should be translated into the language of individual campuses, disciplines, and even courses.  The utility of the VALUE rubrics is to position learning at all undergraduate levels within a basic framework of expectations such that evidence of learning can by shared nationally through a common dialog and understanding of student success.

**Definition**

 Problem solving is the process of designing, evaluating and implementing a strategy to answer an open-ended question or achieve a desired goal.

**Framing Language**

 Problem-solving covers a wide range of activities that may vary significantly across disciplines. Activities that encompass problem-solving by students may involve problems that range from well-defined to ambiguous in a simulated or laboratory context, or in real-world settings. This rubric distills the common elements of most problem-solving contexts and is designed to function across all disciplines. It is broad-based enough to allow for individual differences among learners, yet is concise and descriptive in its scope to determine how well students have maximized their respective abilities to practice thinking through problems in order to reach solutions.

**Glossary**

*The definitions that follow were developed to clarify terms and concepts used in this rubric only.*

* Contextual Factors: Constraints (such as limits on cost), resources, attitudes (such as biases) and desired additional knowledge which affect how the problem can be best solved in the real world or simulated setting.
* Critique: Involves analysis and synthesis of a full range of perspectives.
* Feasible: Workable, in consideration of time-frame, functionality, available resources, necessary buy-in, and limits of the assignment or task.
* “Off the shelf”solution: A simplistic option that is familiar from everyday experience but not tailored to the problem at hand (e.g. holding a bake sale to "save" an underfunded public library).
* Solution: An appropriate response to a challenge or a problem.
* Strategy: A plan of action or an approach designed to arrive at a solution. ( If the problem is a river that needs to be crossed, there could be a construction-oriented, cooperative (build a bridge with your community) approach and a personally oriented, physical (swim across alone) approach. An approach that partially applies would be a personal, physical approach for someone who doesn't know how to swim.
* Support: Specific rationale, evidence, etc. for solution or selection of solution.

**Columbus State University Adaptation**

Columbus State University (CSU) adapted the Problem Solving VALUE Rubric by adding two elements which specifically focus on an assessment of the student’s ability to construct an end product and revising two dimension to reflect the learning outcomes for DELIVERY and REFLECTION. One item was constructed by the institution to address the effectiveness of the end product. The second element specifically addresses creative, real-world problem-solving through the use of innovative thinking from the LEAP VALUE Creative Thinking Rubric. The revised instrument which we call the We Solve It! Rubric, combines process and end-product to provide the evaluator the ability to measure the student’s skill in the **processes** as well as the **end-product** – the student’s overall problem-solving ability.

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ID numbers of the student(s) assessed using this rubric: Instructor:

Type of Assignment: Title of Assignment (if applicable):

Date:

Problem solving includes both the process and end product. The process includes the student's ability to identify/discover problems; design solutions; evaluate outcomes and deliver solutions; and to demonstrate high levels of insight and awareness of what was learned and what could be improved. The product developed through the problem-solving process closes the loop and evaluates an end product – the student's ability to solve creative, real-world problems.

*Evaluators are encouraged to assign a zero to any work sample that does not meet the minimal level performance.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **Accomplished** | **Competent** | **Developing** | **Minimal** |
| **4** | 3 | **2** | 1 |
| **SLO 1. DISCOVER**: Demonstrate high levels of analytical skill in identifying and diagnosing challenging, ill-defined problems in everyday settings and in critically exploring and evaluating many possible solutions. | **Define Problem** | Demonstrates the ability to construct a clear and insightful problem statement with evidence of all relevant contextual factors. | Demonstrates the ability to construct a problem statement with evidence of most relevant contextual factors, and problem statement is adequately detailed. | Begins to demonstrate the ability to construct a problem statement with evidence of most relevant contextual factors, but problem statement is superficial. | Demonstrates a limited ability in identifying a problem statement or related contextual factors. |
|  | **Identify Strategies** | Identifies multiple approaches for solving the problem that apply within a specific context. | Identifies multiple approaches for solving the problem, only some of which apply within a specific context. | Identifies only a single approach for solving the problem that does apply within a specific context. | Identifies one or more approaches for solving the problem that do not apply within a specific context. |
| **SLO 2. DESIGN**: Demonstrate high levels of logic and creativity in designing reasonable solutions to diagnosed real-world problems. | **Propose Solutions/Hypotheses** | Proposes one or more solutions/hypotheses that indicates a deep comprehension of the problem. Solution/hypotheses are sensitive to contextual factors as well as all of the following: ethical, logical, and cultural dimensions of the problem. | Proposes one or more solutions/hypotheses that indicates comprehension of the problem. Solutions/hypotheses are sensitive to contextual factors as well as the one of the following: ethical, logical, or cultural dimensions of the problem. | Proposes one solution/hypothesis that is “off the shelf” rather than individually designed to address the specific contextual factors of the problem. | Proposes a solution/hypothesis that is difficult to evaluate because it is vague or only indirectly addresses the problem statement. |
|  | **Evaluate Potential Solutions** | Evaluation of solutions is deep and elegant (for example, contains thorough and insightful explanation) and includes, deeply and thoroughly, all of the following: considers history of problem, reviews logic/reasoning, examines feasibility of solution, and weighs impacts of solution. | Evaluation of solutions is adequate (for example, contains thorough explanation) and includes the following: considers history of problem, reviews logic/reasoning, examines feasibility of solution, and weighs impacts of solution. | Evaluation of solutions is brief (for example, explanation lacks depth) and includes the following: considers history of problem, reviews logic/reasoning, examines feasibility of solution, and weighs impacts of solution. | Evaluation of solutions is superficial (for example, contains cursory, surface level explanation) and includes the following: considers history of problem, reviews logic/reasoning, examines feasibility of solution, and weighs impacts of solution. |
| **SLO 3**. **DELIVER**: Articulate highly sophisticated and persuasive presentations of proposed solutions to stakeholders of diagnosed real-world problems. | **Deliver Solution** | The description of the delivery was consistently strong in its oganization and detail and appeared to involve a thoughtful and engaging presentation.Presents the solution in a manner that addresses thoroughly and deeply multiple contextual factors of the problem. | The description of the delivery was largely acceptable in its organization and detial and appeared to be adequate in delivering an engaging presentation.Presents the solution in a manner that addresses multiple contextual factors of the problem in a surface manner. | The description of the delivery method was uneven or spotty in its organization and detail and appeared to be in a developing state as an engaging presentation.Presents the solution in a manner that addresses the problem statement but ignores relevant contextual factors. | The description of the delivery was lacking in organization and detail and appeared largely superficial, unsophisticated or unengaging.Presents the solution in a manner that does not directly address the problem statement. |
| **SLO 4.** **REFLECT**: Exhibit high levels of insight and awareness of what was learned from the completion of real-world problem-solving experiences and what should be done differently in the future to improve their DISCOVER, DESIGN, and DELIVER skill levels and performances. | **Evaluate Outcomes** | Reviews results relative to the problem defined with thorough, specific considerations of need for further work.Thorought, thoughtful, and/or specific learning gains or insights were reported about the skill levels of creative real-world problem solving. | Reviews results relative to the problem defined with some consideration of need for further work.Adequate (substantial) learning gains or insights were reported about the skill levels of creative real-world problem solving. | Reviews results in terms of the problem defined with little, if any, consideration of need for further work.Modest or developing learning gains or insights were reported about the skill levels of creative real-world problem solving. | Reviews results superficially in terms of the problem defined with no consideration of need for further work.Minimum or no learning gains or insights were reported about the skill levels of creative real-world problem solving. |
| PROBLEM SOLVING PRODUCT |
| **SLO 5.** **OVERALL PROBLEM-SOLVING ABILITY**:Demonstrate an enhanced ability to creatively solve real-world problems. | **Effectively Solves Real-World Problem** | Constructs a final product which demonstrates complete understanding and identification of the problem, solves all aspects of the problem and presents a compelling case that this solution is superior to alternative options. | Constructs a final product that demonstrates accurate understanding and identification of the problem, solves most aspects of the problem and presents an adequate case that the solution is superior to alternative options. | Constructs a final product that demonstrates some understanding and identification of the problem, addresses some aspects of the problem and presents a weak explanation of why the solution is superior to alternative options. | Final product is poorly constructed or incomplete; does not demonstrate understanding or accurate identification of the problem, presents an inadequate case that the solution is a reasonable response to the problem. |
| **Creatively Solves Real-World Problem using Innovative Thinking** | Extends a novel or unique idea, question, format, or product, to create new knowledge or knowledge that crosses boundaries. | Extends a novel or unique idea, question, format, or product. | Experiments with creating a novel or unique idea, question, format, or product.  | Reformulates a collection of available ideas.  |
| Potential overall scores range from 0-32 | **Total:**  |  |  |  |  |

*Rubric Revised from LEAP VALUE RUBRIC’s Problem Solving and Critical Thinking, https://www.aacu.org/value-rubrics*

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