Carnegie Mellon University  
Sample Program-level Outcomes Assessment Chart

<table>
<thead>
<tr>
<th>Program Outcomes</th>
<th>Direct Performance Measures</th>
<th>Indirect Performance Measures</th>
<th>Major Finding(s)</th>
<th>What Actions Resulted from Finding(s)?</th>
</tr>
</thead>
</table>
| Identify client needs and develop and communicate solutions to address the needs | Final reports  
Class presentations  
Course artifacts | Employer satisfaction survey  
Alumni satisfaction survey | Students were able to formulate good solutions but were not able to effectively communicate them to the intended audience. | Students will be required to:  
Submit draft documents to faculty for preliminary feedback.  
Practice oral presentations. |
| Function effectively as a team | Observation of team over time by faculty member | Peer survey evaluating team member performance | Students do not know how to resolve interpersonal/intrateam conflict. | Students will participate in a conflict management workshop within the context of the class. |
| Identify when a problem contains an ethical component and create an ethically defensible solution according to professional standards | Oral and written case analysis  
Defining Issues Test  
Fundamentals of Engineering Exam | | Students were able to identify ethical issues and create solutions but had difficulty defending the solutions. | Exploration of ethical issues will be more broadly addressed and integrated across the program curriculum. |
| Use knowledge, skills and abilities to solve a problem in any context | Evaluation of unstructured problem solving in capstone courses | | Students did not validate the effectiveness of their solutions. | Students will be required to write an analysis of the problem-solving process and its outcome(s). |
| Utilize tools, techniques and skills to create an original work | Externally juried reviews of student performances | | External reviewers consistently rated student performances at the highest proficiency level. | Curriculum currently achieves expected outcomes—no action at this time. |
| Design and conduct experiments and analyze and interpret results | Final reports  
Alumni survey of students enrolled in graduate or professional programs | | Students need additional opportunities to design their own experiments. | Experimental design will be more widely integrated into the program curriculum. |

1Program outcomes identify the knowledge, skills, abilities, etc., that students should be able to demonstrate upon completion of the program. The outcomes need to be specific and measurable.

2Direct measures require students to demonstrate their knowledge, etc., for faculty to then assess whether/how well students are achieving/have achieved a program outcome. Examples of direct measures include artistic work products, case studies, exams, juried performances, oral presentations, papers, and portfolios.

3Indirect measures gather perceptions of whether/how well students are achieving/have achieved a program outcome. Examples of indirect measures include alumni, employer, and student surveys, exit and focus group interviews, enrollment and retention data, and job placement data. Indirect measures complement the data collected from direct measures and cannot stand alone as sole measures of student performance.

4Programs should identify the major findings after analyzing the data collected.

5Programs should provide evidence that the findings have been used to further develop and improve student achievement of program outcomes (i.e., actions that were taken as a result of data collection and analysis). It is also important to state when findings provide evidence that students are successfully achieving a program outcome.