

**Table 3.2 Primary and Secondary Student Outcome Measures**

<b>Primary Outcome Measure</b>	<b>Secondary Outcome Measures</b>
<ul style="list-style-type: none"> <li>•Senior Design Project Evaluation (Faculty Assessment)</li> <li>•Senior Design-1 Course Assessment</li> <li>•BME Lab Course Assessment</li> <li>•Student Exit Survey – indirect measure</li> </ul>	<ul style="list-style-type: none"> <li>•Course outcomes for BME 1xxx-4xxx level core courses</li> <li>•Transcripts</li> <li>•Course Outcome Surveys</li> <li>•Student Resumes</li> <li>•Senior Design Project External Evaluation</li> <li>•Senior Design Project Sponsor Surveys (since Fall 2018) – indirect measure</li> <li>•Self-Assessment Student Surveys (since Fall 2021) – indirect measure</li> </ul>

**A.2 The Primary Student Outcome Measures are as follows:**

The four primary outcome measures are derived from student performance on the Senior Design Project (from Senior-2 or BME 4908 and Senior-1 or BME 4800C), BME lab courses (BME 4050L and BME 4051L), and student exit surveys; and are used to measure student achievement of outcomes. The FIU BME curriculum is designed such that all knowledge gained through the formative years of the curriculum is put into practice via this set of senior-level courses (BME 4050L, 4051L, 4800C, 4908) apart from the indirect measure via exit surveys. Therefore, all these measures combined encompass the entire set of SLOs.

**(i) Senior Design Project Faculty Assessment**

Each Senior Design Project team is assigned a faculty advisor/mentor. The faculty advisor employs a rubric to assess the quality of the project and assign a grade. Each item on the rubric assessment tool is assigned a grade of A-F (Outstanding, Very Good, Good, Acceptable, and Unacceptable) that is then converted to a quantitative score from 4-0. Each of these items in turn contributes to a score for each program outcome, also on a 4.0 scale. Faculty members complete their assessments using the same taxonomy as do external evaluators. This results in a direct measure of each program outcome based on specific performance on the senior design project. Student Learning Outcome E (ability to function on multidisciplinary teams) is partially assessed through a separate Self and Peer Evaluation tool (within the senior design project teams). This assessment tool is given to each student team member to fill out upon completion of the project.

**(ii) BME Senior Design-1 Course Assessment**

Each BME student is required to complete Senior-1 (BME 4800+ BME 4880, or BME 4800C since Fall 2019) prior to Senior-2. The SLO that are high in priority for Senior-1 are assessed and used as primary measures.

The Senior Design-1 Instructor uses the Senior Design-1's course assessment tool to assess the quality of the initial phase of their senior-design project's design and assign a grade. Each item on the assessment tool is assigned a grade of Outstanding, Very Good, Good, Acceptable and Unacceptable, which is then converted to a quantitative score from 4-0. The students/teams are assessed based on the evaluations done by the course instructor (e.g., quizzes, mid-term exam,

in-class activities/presentations, final exam, project proposal presentation to the department faculty, peer review, and/or a written proposal). Each ABET outcome that is supported with high degree of relevance by this course is measured using examples selected from the evaluations.

**(iii) BME Lab Courses Assessment**

Each BME student is required to complete BME lab courses (BME 4050L and BME 4051L) during the senior year. The SLOs that are high in priority for these lab courses are assessed and used as primary measures.

The laboratory instructor uses the lab course assessment tool to assess the quality of the laboratory work and assign a grade. Each item on the assessment tool is assigned a grade of Outstanding, Very Good, Good, Acceptable and Unacceptable, which is then converted to a quantitative score from 4-0. Each of these items in turn contributes to a score for each program outcome, also on a 4.0 scale. This results in a direct measure of each program outcome based on specific performance in the two BME lab courses.

**(iv) Student Exit Survey (Indirect Measure)**

Each graduating senior is required to complete the Exit Survey. This survey asks each graduate to assess his or her own capabilities and rate the level of achievement of the outcomes, in his or her opinion, after completing the entire curriculum. Survey items use a scale 1-4, where 1 indicates "strongly disagree," 2 indicates "disagree," 3 indicates "agree," and 4 indicates "strongly agree."