**MSE PhD Qualifying Examination SACS Assessment Rubric**

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| **Outcome / Assessment** | **(1) Does Not Meet Expectations** | **(2) Meets Expectations** | **(3) Exceeds Expectations** |
| **(1) Clearly demonstrate a fundamental knowledge of a broad range of principles used in materials science and engineering** | **Serious problems** exist, including the following: (1) demonstrates little knowledge of fundamental materials science concepts; and (2) demonstrates **understanding deficiencies** when considering the broad range of topics that make up the discipline of materials science and engineering (e.g., knowledge of metals, ceramics and polymers, mechanical properties, electromagnetic properties, etc.). | Demonstrates **adequate** fundamental knowledge, including: (1) knowledge of basic, fundamental materials science concepts; and (2) **sufficient knowledge** relating to the broad range of topics that make up the discipline of materials science and engineering (e.g., knowledge of metals, ceramics and polymers, mechanical properties, electromagnetic properties, etc.). | Demonstrates **excellent** fundamental knowledge, including: (1) knowledge of basic, fundamental materials science concepts; and (2) **impressive knowledge** relating to the broad range of topics that make up the discipline of materials science and engineering (e.g., knowledge of metals, ceramics and polymers, mechanical properties, electromagnetic properties, etc.). |
| **Assessment Methodology** | | | |
| **Assessment Methodology** | To receive a 1 (Does Not Meet Expectations), students earn a numerical exam grade less than one standard deviation below the mean. | To receive a 2 (Meets Expectations), students earn a numerical exam grade ranging between one standard deviation below the mean and one standard deviation above the mean. | To receive a 3 (Exceeds Expectations), students earn a numerical exam grade greater than one standard deviation above the mean. |

The MSE assessment goal on this learner outcome is to achieve a minimum score of 2.0, based on the average of the scores of all students taking each of the following individual PhD Qualifying Examinations:

Part I: Crystallography, Crystal Chemistry and Diffraction

Part II: Mechanical Behavior of Materials

Part III: Thermodynamics of Materials

Part IV: Electronic, Optical and Magnetic Properties of Materials