

**Scoring Guide (Rubric) for Graduate Learning Outcome Assessment Ph.D. or MS  
 THESIS and FINAL ORAL EXAM in CHEMICAL ENGINEERING**

Candidate Name: \_\_\_\_\_ Date: \_\_\_\_\_

Title of Examination \_\_\_\_\_ Document: \_\_\_\_\_

Name and Signature of the Examining Committee Member: \_\_\_\_\_

Criteria	Does Not Pass Exam	Passes Exam	
	Unsatisfactory	Satisfactory	Exemplary
<b>1a. Research Plan and Objectives</b>	Research problem not clearly stated, or statement not carefully considered; Research plan to investigate solution to the defined problem is not fully considered; Measurable technical outcomes not described.	Research problem clearly stated and identified; Research plan to investigate solution to the defined problem adequately considered; Measurable technical outcomes described.	Research problem fully considered with broader impacts in the field identified; Research plan to investigate solution to the defined problem fully considered; Measurable technical outcomes described and significance of likely measurements discussed.
<b>1b. Literature Review</b>	The review belies a summative approach, with information presented in a disconnected, disjointed manner and not clearly tied to the research; widely known technical references clearly missing or cites references not germane to the topic at hand.	The information is organized by themes that are related; Ideas are explored as the writing attempts to take an expert approach. However, some themes may be disconnected; some references known to experts in the field may be missing.	The information is clearly synthesized into themes. The writing demonstrates an expert approach by illustrating the relationship between themes, concepts, and ideas reported in the literature, and links these themes to the focus of the research. References are complete.
<b>2. Ability to Demonstrate a Creative Solution to the Problem</b>	Proposed concept is well known, previously described in technical literature, or is impossible/illogical.	Proposed work is original and possible but derivative/incremental in nature.	Proposed work is original, practical and demonstrates a novel approach.
<b>3. Application of Science and Engineering Fundamentals</b>	Science/Engineering principles underlying Objectives not clearly identified. Lack of awareness of assumptions and limitations.	Science/Engineering principles underlying Objectives identified and discussed. Major assumptions clearly stated.	Science/Engineering principles underlying Objectives identified and discussed. Major assumptions clearly stated; as appropriate math models and associated predictions developed.
<b>4a. Quality of Written Communication</b>	Writing style is immature. Profuse grammatical errors, poor sentence construction and/or poor document structuring make it laborious to read.	Writing style is academic and flows by presenting information in a concise manner. There are only minor grammatical and spelling errors.	Writing style is scholarly and flows naturally, presenting information in a clear and precise manner. Voice is active and devoid of bias. No grammar or spelling errors.
<b>4b. Quality of Oral Communication</b>	Disorganized presentation with low original content; Excessively poor communication skills; Answers to questions show weakness in depth of knowledge in subject matter and/or poor critical thinking skills.	Adequately organized presentation where concepts flow logically; Adequate communication skills; Answers show adequate knowledge in subject area and adequate critical thinking skills.	Highly engaging conference quality presentation; Excellent communication skills; Answers show superior knowledge in subject area and well developed critical thinking skills.

During the examination process I did not perceive any lapses in ethical performance and/or reporting of research: \_\_\_\_\_

For advisor only: During time in my group, I did not perceive any lapses in ethical performance and/or reporting of research: \_\_\_\_\_

Examiner: Please use the reverse of this form for written commentary as needed.

*Rubric*