

CIVIL & ENVIRONMENTAL ENGINEERING PROGRAM

Assessment of Student Learning Outcomes (SLOs) and Evaluation Rubrics

MS in Civil, MS in Environmental, PhD in Civil

- Student work to be evaluated
 - MS in Civil or Environmental Engineering: student project, student seminar presentation, student thesis
 - PhD: Student Dissertation Proposal Defense, Student Dissertation Final Defense

- Evaluators
 - MS thesis- Minimum of 3- Thesis Committee Members
 - MS All-Course- Minimum of 2- Graduate Seminar Professor and Major Advisor or Professor designated by the Seminar Professor
 - MS-Project- Minimum of 2- Major Advisor and Faculty designated by major advisor
 - PhD Dissertation Proposal Defense- Minimum of 4, Dissertation Committee members
 - PhD Dissertation Final Defense- Minimum of 4, Dissertation Committee members

- Report and presentation requirements- See D and M forms for detail

- Student Learning Outcomes and questions to be scored:

Outcome 1- Technical Knowledge

- 1) Objectives appropriate and clearly stated
- 2) Objectives are achieved by the presented study
- 3) Technical knowledge adequate
- 4) Demonstrated validity of data
- 5) Methodology technically sound
- 6) Analytical or experimental skills utilized
- 7) Conclusions/Results valid and properly supported

Outcome 2- Written Communication

- 1) Abstract / introduction conveys meaning
- 2) Literature adequately described and referenced
- 3) Communication of ideas effective
- 4) Study effort adequately described
- 5) Document well organized, well written and easily understood
- 6) Free of serious grammatical and spelling errors
- 7) Free of sensitive statements advocating special interests
- 8) Free of plagiarism and copyright infringement (copyright issues cleared)

Outcome 3- Oral Communication

- 1) Presentation well organized
 - 2) Presentation slides well designed
 - 3) Communication of ideas effective and clear
 - 4) Able to answer questions adequately
- **Scale of Evaluation**
 - 4 = Excellent
 - 3 = Good
 - 2 = Fair
 - 1 = Poor
 - **Minimum Criteria for Success**
 - Overall rating 3 or better
 - **Rubrics for Student Learning Outcomes**
 - As per Tables below

Rubric for Outcome 1: Technical Knowledge

	4-E	3-G	2-F	1-P
1)	Objectives appropriate and clearly stated - Demonstrates excellent understanding of the problems and current challenges	Objectives appropriate and clearly stated - Demonstrates suitable understanding of the problems	Objectives are stated but not completely addressing the problem	Objectives are poorly stated and not clear
2)	Objectives are completely achieved by the study	Objectives are achieved by the study to a significant degree	Objectives are partially achieved by the study	Objectives are hardly achieved by the study
3)	Demonstrates excellent technical knowledge	Demonstrates good technical knowledge	Demonstrates fair technical knowledge	Demonstrates poor technical knowledge
4)	Data Valid - Extraordinary steps taken to validate the data.	Data Valid	Validity of data partially demonstrated	Validity of data questionable
5)	Methodology technically sound and has excellent fit to the problem	Methodology technically sound	Methodology is technically acceptable but unfit in some cases	Methodology is technically unsound and unfit in most cases
6)	Excellent analytical or experimental skills utilized	Analytical or experimental skills utilized	Analytical or experimental skills utilized in most but not all cases	Poor analytical or experimental skills utilized
7)	Conclusions valid, fully supported by the collected data and the methodology used	Conclusions valid and supported to a significant degree by the collected data and the methodology used	Additional work is needed to validate the conclusions. Some conclusions are not supported by the results	Major work is needed to validate the conclusions. Most conclusions are not supported by the results.

Rubric for Outcome 2: Written Communication

	4-E	3-G	2-F	1-P
1)	Abstract / introduction clearly and effectively conveys meaning	Abstract / introduction conveys meaning	Abstract / introduction fairly conveys meaning	Abstract / introduction fails to convey meaning
2)	Literature review provided and referenced extensively and completely	Literature review adequately provided and referenced	Literature review is incomplete and can be fairly improved	Literature poorly described and referenced
3)	Communication of ideas very effective	Communication of ideas effective	Communication of ideas not effective	Communication of ideas done poorly
4)	Study effort meticulously described	Study effort adequately described	Study effort partially described	Study effort poorly described
5)	Document organized, and written excellently, and easily understood	Document well organized, well written and easily understood	Organization and writing order have some editorial issues to an acceptable degree	Organization and writing order have serious editorial problems and is not understandable
6)	Completely free of grammatical and spelling errors	Minor grammatical and spelling errors	Some grammatical and spelling errors	Serious grammatical and spelling errors
7)	Free of sensitive statements advocating special Interests	Contains few sensitive statements advocating special Interests	Contains some statements advocating special Interests	Contains several statements advocating special Interests
8)	<ul style="list-style-type: none"> - Free of plagiarism - Copyright issues cleared with the copyright holder (and/or stated the fair use policy) - All figures and tables properly cited 	<ul style="list-style-type: none"> - Free of plagiarism - Copyright issues cleared with the copyright holder (and/or stated the fair use policy) or some figures and tables not cited 	<p><i>✘There is no fair grading on this criterion.</i></p>	<ul style="list-style-type: none"> - Plagiarism found (e.g., even a single sentence copy-and-pasted without quotation marks and citation of the source)

Rubric for Outcome 3: Oral Communication

	4-E	3-G	2-F	1-P
1)	Presentation excellently organized	Presentation well organized	Presentation organization requires some improvement	Presentation organization was poor
2)	Presentation slides has excellent design	Presentation slides well designed	Design of presentation slides requires improvement	Design of presentation slides was poor and not appropriate
3)	Communication of ideas done with excellent clarity and effectiveness	Communication of ideas effective and clear	Communication of ideas could be clearer and more effective	Communication of ideas was unclear and ineffective
4)	Answers to questions were concise, effective and with great confidence	Able to answer questions adequately	Answers to questions were not completely satisfying nor with adequate confidence	Questions were not answered satisfactorily