Student Learning Outcomes Assessment Summary

MS (Mining Engineering)

College of Engineering and Mines

2014-2015, 2015-2016

Submitted by: Rajive Ganguli
Contact Information: 7212
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1. Assessment information collected

GRE and/or TOEFLscores, Student Background, Instructor Opinions, Graduate Committee Reports, Project/Thesis Reports and Presentations

2. Conclusions drawn from the information summarized above

Assessment at admission stage indicated that some students needed remedial coursework to prepare them for graduate work in mining engineering. Remedial coursework, therefore, became part of the graduate study plan for these students. Student learning outcomes continue to be met. All students passed their defense in the first attempt. Students were in the program approximately 2.5 years. Communication skills of non-English speaking students improved markedly as a result of remedial coursework and other activities. Students also conducted research at the graduate level, with some being able to publish their work in peer reviewed journals. All of these indicate that the curriculum and advising is helping achieve necessary outcomes including timely graduation. The mining engineering research endowment is having a significant impact by providing support for new & continuing students, and boosting enrollment.

Faculty workload and space challenges continue to constrain the program. As demonstrated by the frequency of offering of MIN 697, it has become difficult to offer graduate courses as needed, which can impact time to graduation.

3. Curricular changes resulting from conclusions drawn above

Remedial coursework will be required of some incoming students who do not have proper academic background for graduate education and research, even if they meet admission standards. Remedial coursework will be specified by the student's graduate committee.

4. Identify the faculty members involved in reaching the conclusions drawn above and agreeing upon the curricular changes resulting

All members of the mining engineering faculty.

Assessment Data of MS (Mining Engineering)

Program Assessment Data

- The following courses were offered during the assessment cycle: MIN 601; MIN 631; MIN 673; MIN 682 (twice); MIN 697 (seven times). The frequency of MIN 697 suggests lack of sufficient mining engineering courses available for graduate students. However, the minimum standard of four MIN graduate level courses in a two years cycle was met.
- Remedial courses may be necessary for some students even if they meet admission standards.
- The mining engineering research endowment is having a significant impact by providing support for new & continuing students. This has boosted enrollment in the mining engineering graduate program and increased class sizes.

Student Assessment Data

Year	Student Name	ASSESSMENT		
		Outcome: Communication skills learning outcome	**Outcome: Acquisition of Advanced Knowledge, Skills and Competencies achieved by the students**	**Outcome: High Quality Graduate Program**
2014-2015	Graduate #1	He took remedial courses in English to improve his communication. He showed marked improvement in English communication skills by the time he graduated.	He took two 400 level courses: GE440 Slope Stability and MIN497 Special Topics in Mine Plant Design to build background in mining engineering and for his research. He acquired the Split-Engineering, a software package for rock fragmentation size image analysis. He skillfully mastered the use of the program and successfully applied it to his research. He also learnt the use of FLAC, a numerical simulation tool for rock mechanics and geotechnical modeling and analysis.	The student had a good background in mining engineering including industrial experience. He returned to his previous employer, though in a position that was more aligned with his MS work.

2015-2016	Graduate #2	The student had adequate English communication skills.	Student was provided training in ANSYS CFD to prepare him for the research he had undertaken.	The student decided to take some time off and do some social work in his home country prior to joining the mining industry and/or a PhD program.

Student Data

	Graduate #1	Graduate #2
GPA (MIN Courses)	3.62	4.0
GPA (non-MIN Courses)	3.18	3.75
GRE (Quant/Verbal/Writng)	-	156/142/3.0
TOEFL (Composite)	82	94
Industry Experience (Yes/No)	Yes	Summer internship only
Remedial Courses recommended	GE440, MIN497	None
Qualifying / Comps	Fall 2014	Fall 2014
Peer Review publications of MS Work (Yes/No)	In progress	Yes, Several
Placement (Yes/No)	Yes	N/A