

# The Higher Learning Commission Action Project Directory

## Gogebic Community College

Project Details			
<b>Title</b>	Embedded Assessment for GCC Engineering Program	<b>Status</b>	COMPLETED
<b>Category</b>	1-Helping Students Learn	<b>Updated</b>	09-28-2012
<b>Timeline</b>		<b>Reviewed</b>	10-04-2012
	<b>Planned Project Kickoff</b> 03-30-2010	<b>Created</b>	03-30-2010
	<b>Actual Completion</b> 09-11-2012	<b>Version</b>	3

### 1: Project Goal

**A:** This Action Project will assess student learning for students as they progress through the first two years of GCC's engineering curriculum. The embedded assessments are intended to provide GCC with quantifiable data related to student success and retention of program learning objectives.

### 2: Reasons For Project

**A:** Feedback from GCC's Systems Appraisal indicated that more quantifiable data related to student learning effectiveness is needed.

### 3: Organizational Areas Affected

**A:** This Action Project will involve the Math/Science Division, English Department, and the Building Trades program.

### 4: Key Organizational Process(es)

**A:** Data collection and analysis will measure and enhance student learning. Through this pilot project, we expect to create a framework that other programs can adopt.

### 5: Project Time Frame Rationale

**A:** The length of time allotted for this Action Project is necessary for data collection across the engineering curriculum, which will provide data related to course effectiveness and student learning as students progress through the program.

### 6: Project Success Monitoring

**A:** At the end of each semester, data from the embedded assessments will be collected and analyzed to make improvements within the engineering curriculum. The Math/Science Division and Dean of Instruction will review the information attained and suggest any improvements that could be made to this program.

### 7: Project Outcome Measures

**A:** The Action Project will be considered a success provided that:

- \* Quantifiable data is collected.
- \* Data is used to assess student learning.
- \* Data is used to plan and improve teaching effectiveness and program outcome relevance to the General Learning Objectives.
- \* Data is reported and compared to data collected in comparable programs at other colleges.

---

## Project Update

---

### 1: Project Accomplishments and Status

A: We have used Chapter Exams with specific problems designed to test knowledge and retention of knowledge of several key topics presented in the engineering program. Data collected during the 2011-12 academic year indicates that we have experienced a 7% increase in freshmen knowledge retention but only a 3% increase in sophomore knowledge retention.

### 2: Institution Involvement

A: Although our Dean of Instruction and AQIP Coordinator had some involvement in this project, the majority of the Action Project was maintained by only one faculty member. The courses being assessed are taught only within Engineering and there is only one engineering faculty member on campus. This academic year, we intend to expand the assessments to programs in our technical division. This is by design and in keeping with the overall theme of the project -- to pilot these small projects and then expand the best practices within them in other programs.

### 3: Next Steps

A: We will continue to modify the presentation of material in our engineering courses and attempt to incorporate key concepts throughout the courses rather than only within specific chapters. We will also institute a review for sophomores to increase knowledge retention during their second year. As mentioned above, we intend to involve our technical division in the next version of this project.

### 4: Resulting Effective Practices

A: Moving away from active assessment (stand alone assessments of key concepts outside of the normal class routine) to passive assessment (incorporating additional questions regarding key engineering concepts within normal exams) seemed to improve retention of material.

### 5: Project Challenges

A: We are considering the restructuring of courses with regard to how material is presented so students are applying key concepts continuously during the program rather than in self contained units. This may require Curriculum Committee approval and continued assurance of transferability. The key challenge will be to expand this project to other related programs on campus. This work has already begun. Although not a formal Action Project, our Building Trades program has embedded similar assessments in order to ensure that the students learn and retain required skills.

---

## Update Review

### 1: Project Accomplishments and Status

A: It is understood that the focus of your Action Project was to assess student learning for students as they progress through the first two years of your engineering curriculum. Your intention was to create embedded assessments in such a manner as to provide quantifiable data for student success and retention of the learning objectives of the program. Your project came from a suggestion/comment on your system appraisal that you may benefit by having more quantifiable data related to student learning effectiveness. It looks as though you are making significant progress on this valuable project that is a component of Category 1 – Helping Students Learn. It is understood and appreciated that you recognize the value of using specific problems from exams to test knowledge and retention of important, key topics in the program. You are to be commended for already having data to present in that you've found 7% of your freshman and 3% of your sophomore students to have an increase in knowledge retention.

### 2: Institution Involvement

A: While the majority of your project was maintained by one faculty member, a dean and your AQIP Coordinator were also involved. It is understood that at this point in time, relatively few people are involved in the project due to the fact that there is only one engineering faculty member. You intend to involve more people this year by expanding your efforts to include other programs, which sounds like an

excellent next step. Your plan of piloting projects with a small number of people and then expanding them in scope as you mini-assess them seems like an excellent idea.

### 3: Next Steps

A: It is clearly understood that you intend to involve another division of your institution in the next step. It would be interesting to see what specific presentation modifications you intend to make in your engineering courses. Other institutions may also be able to benefit by your experiences and/or be able to partner with you for mutual benefit. Also interesting to note and promising would be what you consider key concepts and specifically how they'll be used throughout the courses. The review for sophomores also sounds like an excellent way to increase knowledge retention and may help alleviate some of the disparity you've seen between the two education levels.

### 4: Resulting Effective Practices

A: It is appreciated that you discovered that changing your assessment strategy improved retention of material. You seem to have a good grasp of the value of using passive assessment in your program.

### 5: Project Challenges

A: This sounds like a very promising phase of your assessment program as you think through the process of restructuring your courses. You have a significant realization and understanding of the importance of continuous application of concepts that are critical to your program. You also have an intuition regarding some of the challenges associated with expanding this project. However, you have already begun the process in your Building Trades Program and should be able to capitalize on your knowledge and experience. It will be interesting to see how the two assessment programs compare once you have additional data from this new venture. An exciting challenge for you may be to get additional people involved in the project that may not have been considered before, as you disseminate your findings to the institution. You already seem to have a grasp of the importance of involving other stakeholders and may have additional insights once more of those individuals are tapped.

The institution is making reasonable progress toward completion of the project and development of an institution-wide continuous quality improvement culture.

---

## Project Outcome

---

### 1: Reason for completion

A: After a careful review of the data collected, we believe we have learned the best way to present the engineering curriculum so as to maximize knowledge carry over from the first semester until the end of the second year. We will continue to collect and review data related to this pilot program but not as a formal Action Project.

### 2: Success Factors

A: The teaching of the engineering curriculum at GCC has been adjusted so as to maximize student knowledge retention.

### 3: Unsuccessful Factors

A: The translation of what we learned during the course of this project has not yet been assimilated into other programs on campus. We will continue to work on this.