

# STUDENT SELF ASSESSMENT AND FACULTY FEEDBACK ON COURSE OUTCOMES FOR PROGRAM EVALUATION

*The 2005 Assessment Institute, IUPUI, October 24, 2005*



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## Current accreditation process calls for

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- Detailed, published *program educational objectives* that are consistent with the institution's mission and accreditation criteria
- Detailed, published *program outcomes* that are consistent with the program objectives and accreditation criteria



## Program Objectives and Outcomes

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- The *Program Objectives* apply to what the graduates should accomplish in the work place a few years after graduation – *typically measured via employer and alumni surveys (currently we have 8 program objectives)*
- The *Program Outcomes* apply to what the students should be able to accomplish at the time of graduation – *typically measured via several means throughout the four-year education (currently we have 18 program outcomes)*
- The Program Objectives and Outcomes are linked closely – *hence measuring outcomes also provide information on the objectives*



## Tools for Measuring Program Objectives

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- Alumni survey
- Employer survey
- All other tools used for measuring program outcomes

*Note: These surveys are now conducted online.*



# Tools Used for Assessment of Program Outcomes

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## Indirect Evidence Category:

1. Course learning outcomes surveys to determine self-assessment of students on how well the course outcomes are met – *conducted each semester*
2. Exit surveys on program outcomes conducted at the time of graduation to obtain self-assessment of the graduates on how well the program outcomes are met – *conducted each semester*
3. Student satisfaction surveys conducted annually to determine student satisfaction with the program
4. Alumni survey for measuring the impact of program outcomes in the performance of graduates – *conducted online bi-annually*
5. Undergraduate Student Advisory Board that provides input on student satisfaction and needs



# Tools Used for Assessment of Program Outcomes...

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## Direct Evidence Category:

1. Industrial Advisory Board that provides input on performance and expected qualifications of graduates
2. Employer survey for measuring effectiveness of the program outcomes in the work force
3. Fundamentals of Engineering (FE) exam results on students who take it in their senior year
4. Feedback forms for course outcomes survey results completed and submitted at the end of each semester by the faculty teaching the courses
5. Jury evaluations in key courses that involve final project reports or presentations in front of an audience of faculty, industry guests, and fellow students
6. Instructor's assessment of student performance in course outcomes via evaluation of key exams, projects and homework against the course outcomes



## Course Learning Outcomes

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- List of knowledge and skill sets the students should be able to gain at the end of a course – limited to 8-12 items in each course
- Each course outcome is in-turn linked to a program outcome
- All course outcomes are mapped into a program outcomes matrix to assure that all outcomes will be met adequately within the curriculum



## A typical course learning outcomes list (8-12 items)

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### **ME 450 Computer-Aided Engineering Analysis**

#### **Course Outcomes**

**Fall 2000**

*After completion of this course, the students will be able to:*

1. Use the finite element method as a simulation/modeling tool for design [**k2**]
2. Use the finite element method for stress analysis and design of load carrying structures [**k1**]
3. Evaluate the accuracy of results obtained from finite element codes [**a4**]
4. Use the Finite element method for heat transfer analysis of solids [**k1**]
5. Write project reports describing and evaluating the obtained results [**g**]
6. Give oral presentations of their projects [**g**]

*Note: Letters within brackets indicate the relation to program outcomes.*



## A typical course learning outcomes survey (partial)

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### **ME 450 Computer-Aided Engineering Analysis**

#### **Course Outcomes Survey**

**Fall 2000**

**After having completed this course, on a scale from (1) to (5), please rate how well this course has helped you to perform the following course outcomes (1 = Very dissatisfied, 5 = Very satisfied)**

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1. Use the finite element method as a simulation/modeling tool for design                   | 1 | 2 | 3 | 4 | 5 |
| 2. Use the finite element method for stress analysis and design of load carrying structures | 1 | 2 | 3 | 4 | 5 |
| 3. Use the Finite element method for heat transfer analysis of solids                       | 1 | 2 | 3 | 4 | 5 |
| 4. Evaluate the accuracy of results obtained from finite element codes                      | 1 | 2 | 3 | 4 | 5 |
| 5. Write project reports describing and evaluating the obtained results                     | 1 | 2 | 3 | 4 | 5 |
| 6. Give oral presentations of your projects   | 1 | 2 | 3 | 4 | 5 |

**DEPARTMENT OF MECHANICAL ENGINEERING, IUPUI  
FACULTY FEEDBACK FORM FOR COURSE OUTCOME SURVEYS**

Note: This form must be completed and submitted to the department by each instructor at the end of the semester based on the survey results of courses taught. It is designed to monitor student learning, keep track of progress and changes made in the program, and allow faculty reflect upon the results. The survey results may be viewed from the department's **survey database**. The completed form may be sent to the assessment database of the department via e-mail at: [et\\_me@iupui.edu](mailto:et_me@iupui.edu).

Course:	Year:	Semester:
Instructor:	Course Average: (Out of 4)	Survey Average: (Out of 5)

1. List the outcomes that did not meet the Department's current threshold of 3.75 out of 5.0 and explain the reasons. If all or most outcomes in your course are above 3.75, please reflect upon on lowest two or three. Please state the outcomes fully as possible, as in the latest course outcomes list, with the numbers same as on the list.

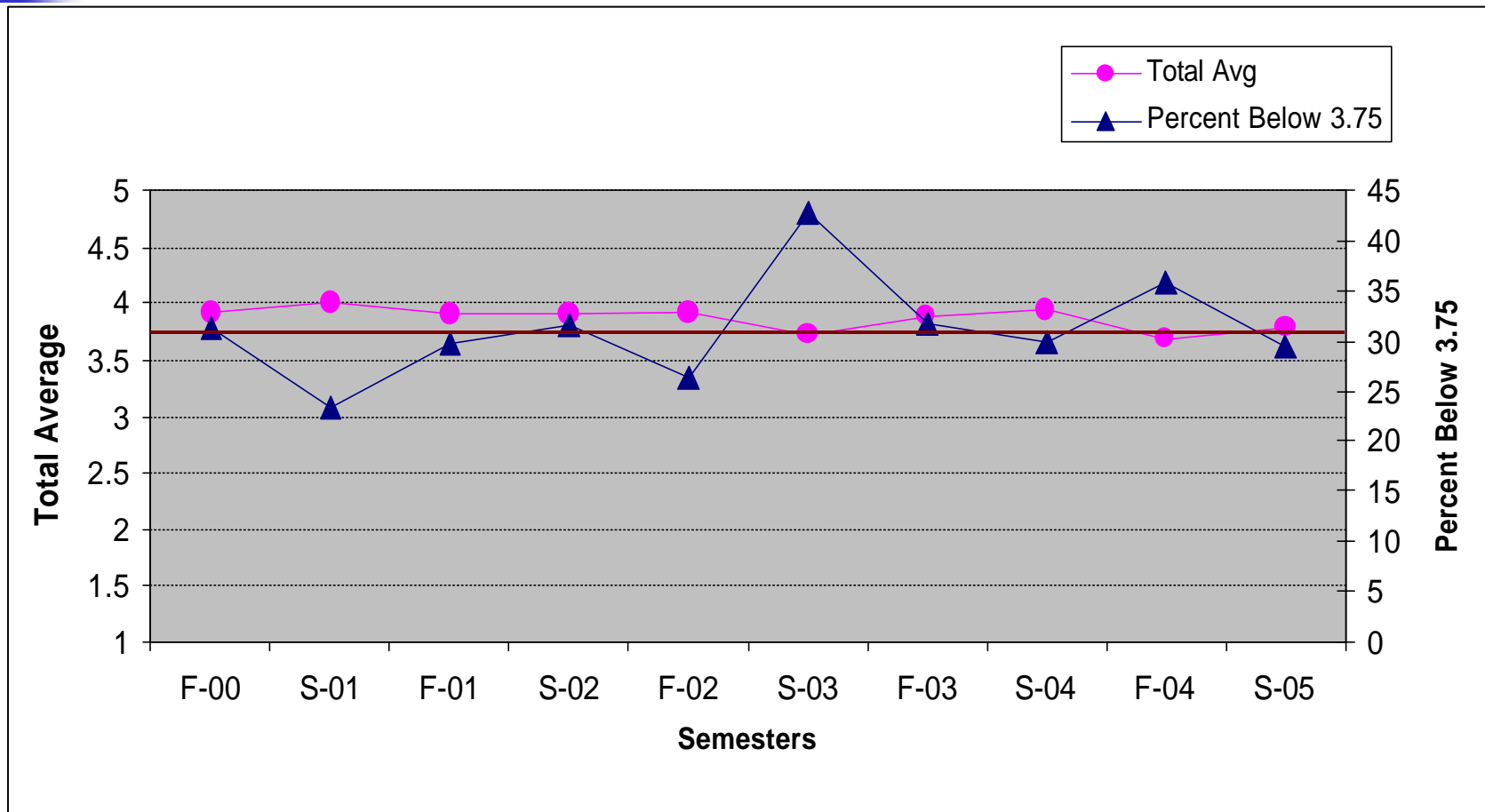
2. Were there any significant changes made to the course during the semester? If so, explain.

3. Are there any recommendations for improvement?

4. Additional reflections/suggestions for assessment?

# Semester Averages of all Course Outcomes

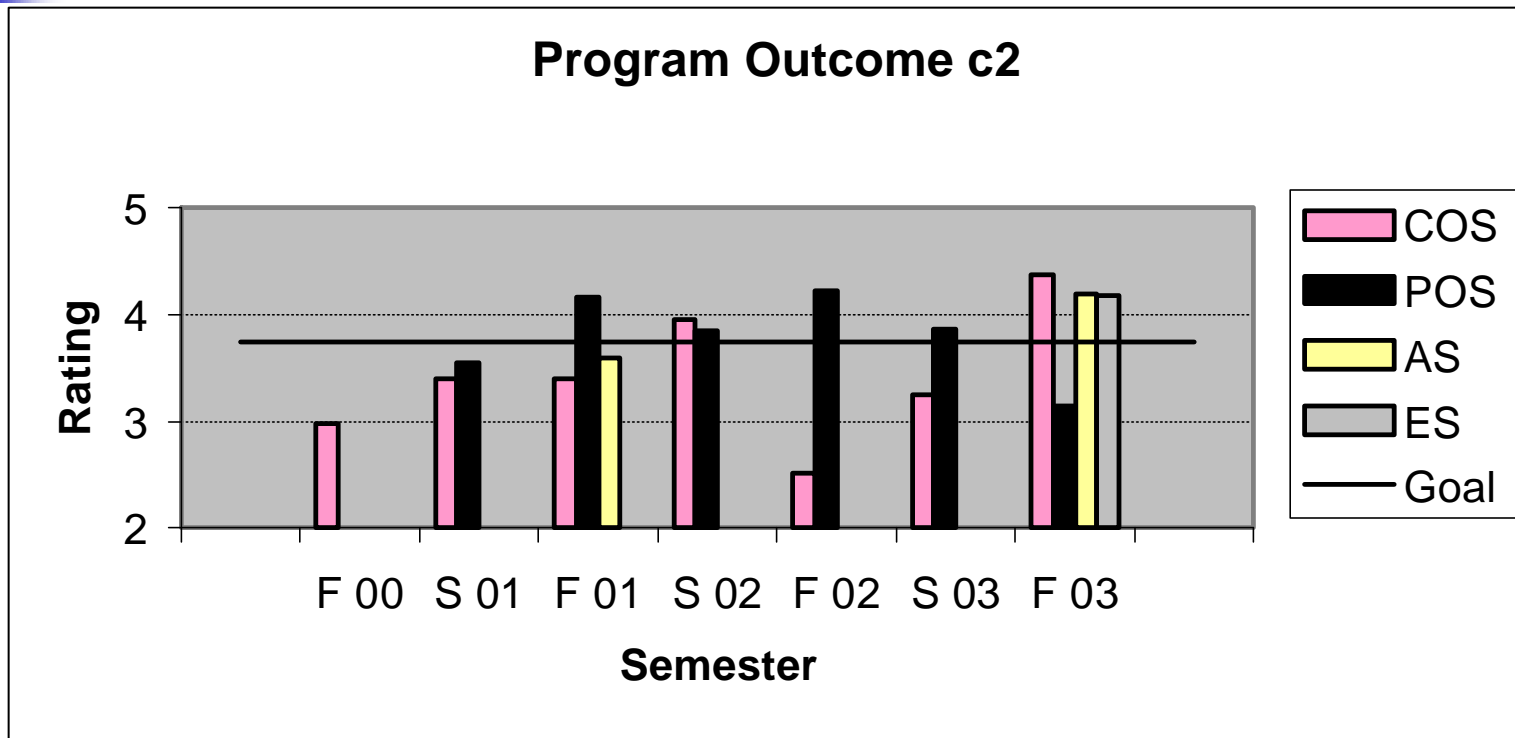
*Goal: > 3.75/5*



# A Sample Analysis for Coverage of Program Outcomes

Goal: > 3.75/5

COS: Course Outcomes Surveys, POS: Program Outcomes Survey, AS: Alumni Survey, ES: Employed Survey



## Program Outcome c2

*“Design a system, component, or process to meet desired needs with applications to thermal systems”*



## What do we do with the surveys?

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- By monitoring, documenting and statistically analyzing the course outcomes survey results each semester:
  - We continuously make updates to the course contents and delivery methods
  - Faculty provide feedback on the results and changes made to become a permanent record for other faculty to benefit
  - Everyone gets involved
- By monitoring, documenting and statistically analyzing the exit survey results on program outcomes:
  - We identify the shortcomings/strengths of the program
  - We make plans/changes to address shortcomings



## What do we gain?

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- A systematic approach for evaluating and detecting the strengths and weaknesses of the program
- A systematic feedback method for making changes
- A methodology for promoting and maintaining quality
- More attention given to outcomes in the courses
- Maintaining continuity among the changing instructors of the same course

*More information is available on the department web site: [www.engr.iupui.edu/me/fassessment.shtml](http://www.engr.iupui.edu/me/fassessment.shtml)*