

# Defining Methods and Measures for Objectives



SUCCEED Outcomes  
Assessment Planning Workshop



# Outline

- Describe steps in the assessment process: how to link instructional objectives with appropriate assessment methods and measures
- Go through each step
- Give examples at each step



# Steps in the Assessment Process

- Identify goals: What is to be accomplished?
- Identify objectives: How will you know that the goal has been achieved?
- Develop performance criteria or indicators of performance
- Determine practices to achieve goals



# Steps in the Assessment Process

- Specify assessment methods for each objective
- Conduct assessments - develop measurements
- Determine feedback channels: Who receives the data?
- Evaluate: were criteria met and objectives achieved?



# Identify goals: What is to be accomplished?

- e.g., ABET Criterion 3. (i)
- “ A recognition of the need for and ability to engage in lifelong learning”



# Identify objectives: how will you know goal is achieved?

- e.g., for lifelong learning:
  - Can use the Internet independently to locate previously unknown material
  - Can use a library to locate previously unknown material
  - Understands importance of professional societies in his/her engineering discipline
  - Is committed to further engineering education either formally or informally



# Develop performance criteria (or) indicators of performance

- e.g., for lifelong learning - Internet
  - Use more than one search engine
  - Describe how three different search engines differ from each other in seeking engineering data
  - Identify the three best sites for technical information in the discipline
  - Identify the best site for other information, such as news items, in the discipline



# Develop performance criteria (or) indicators of performance

- e.g., for lifelong learning - library
  - Identify the section of a library where the books in a discipline are located
  - Identify the top five journals in the field
  - Explain how the top five journals differ from one another
  - Identify the best news sources in the field



# Develop performance criteria (or) indicators of performance

- e.g., for lifelong learning - societies
  - Describe role of professional societies in the field
  - X% belong to student division of one society
  - Y% of alumni report belonging to one society
  - Z% of alumni take an active role in a society appropriate to their professional ages



# Develop performance criteria (or) indicators of performance

- e.g., for lifelong learning - continuing education
  - A% plan on further formal education
  - B% plan on further non-credit education
  - C% of alumni five years out or less report attending credit classes
  - D% of alumni five years out or less report attending non-credit classes



# Determine practices to achieve goals

- i.e., where are these things in the curriculum?
- e.g., for lifelong learning - Internet
  - ENGR 101 has Internet activities where students are tested on these skills
  - ENGR 205 utilizes the Internet for research purposes; reinforcement of 101 learning
  - ENGR 495, capstone design, requires research via the Internet



# Determine practices to achieve goals

- e.g., for lifelong learning - library
  - ENGR 101 has library activities where students are tested on these skills
  - ENGR 305 utilizes the library for research; reinforcement of 101 learning
  - ENGR 495, capstone design, requires research via the library



# Determine practices to achieve goals

- e.g., for lifelong learning - societies
  - ENGR 101 discusses and tests on the role of societies in the discipline
  - The discipline club, which all students are encouraged to join, is a student affiliate of the national society
  - Faculty act as role models by being active members and leaders of their own societies



# Determine practices to achieve goals

- e.g., for lifelong learning - continuing education
  - ENGR 101 discusses the need for continuing education in the fast changing discipline
  - The discipline club invites guest speakers on important issues in the discipline
  - Advising includes and emphasis on continuing education & questions about it



# Specify assessment methods for each objective

- e.g., for lifelong learning
  - Internet: class assignments; retain documentation of student achievement
  - Library: class assignments; document also
  - Societies: alumni survey results
  - Continuing Education:
    - Senior exit interviews; senior surveys
    - Alumni surveys
    - Employer surveys



# Conduct assessments - Develop measurements

- e.g., for lifelong learning - Internet
  - Show use of multiple search engines
    - provide a printout showing the first page of each
    - compare results of three of them
  - Write two paragraphs describing the pros and cons of each of three different web browsers



# Conduct assessments - Develop measurements

- Locate the best site for news items in the discipline
  - provide a printout of it
  - write a summary describing why it is the best
- e.g., for lifelong learning - library
  - Identify section of library with books in the discipline
    - Describe the physical location
    - Give the Library of Congress numbers



# Conduct assessments - Develop measurements

- Name the top five journals in the field - may differ by specialty a bit
  - In a paragraph, explain why these are the top five
  - In a paragraph, describe the areas covered by each

## ■ Societies

- In a class or classes or lab, write a paragraph describing the function of professional societies in the discipline



# Conduct assessments - Develop measurements

- From school records:
  - report the data on the number of students belonging to the professional society
  - list any student achievements in the societies, such as student competitions or awards
- From alumni survey results:
  - state the percent of alumni reporting membership in the professional societies
  - some measure of activity of membership such as offices held, meetings attended



# Conduct assessments - Develop measurements

## ■ Continuing Education

- In exit interviews, determine % going on to graduate school
  - full-time
  - part-time
- In alumni and employer surveys, ask about
  - graduate school
  - non-credit classes - employer conducted
  - non-credit classes - employer supported
  - other credit or non-credit classes



# Determine feedback channels

- e.g., for continuing education
- Who is to gather and maintain the data?
  - Faculty teaching particular classes
  - Faculty on the curriculum committee (with assistance from others)
- Who is to receive the data?
  - Faculty on the curriculum committee
  - Other faculty in department meetings
  - Students



# Evaluate: Were criteria met and objectives achieved?

- Should any of the objectives be changed?
  - Too ambitious/not ambitious enough
  - No longer appropriate
  - Insufficient
- Performance criteria/indicators of performance?
- Practices in class to achieve goals?



# Evaluate: Were criteria met and objectives achieved?

- Are there better assessment methods?
- Are there better measurements?
- Feedback channels? Are the right people hearing this information?
- The process begins again and continues
- KISS - Keep It Short and Simple



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