



Are our Engineers PM-Ready?

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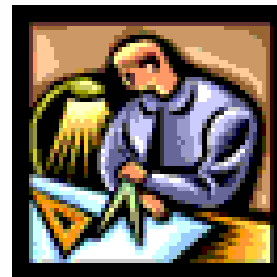
Kuwait University





Outline

- What makes an engineer?
- What is currently being taught?
- How can PM be incorporated in an academic program?





What makes an engineering program?

- In GCC universities:
 - Recognition by government
 - Substantial Equivalency credential by ABET





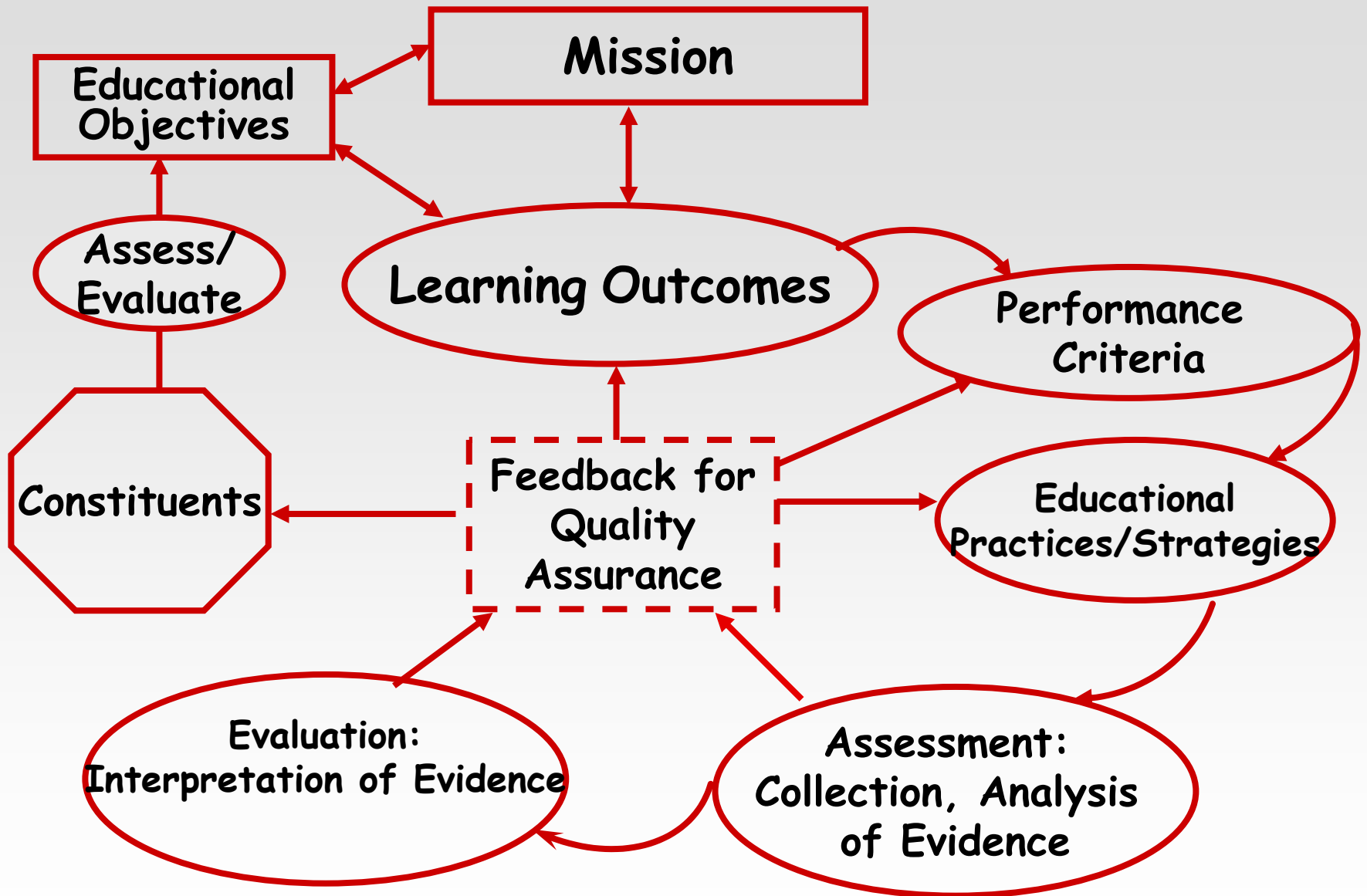
*Leadership and Quality Assurance in Applied Science,
Computing, Engineering, and Technology Education*



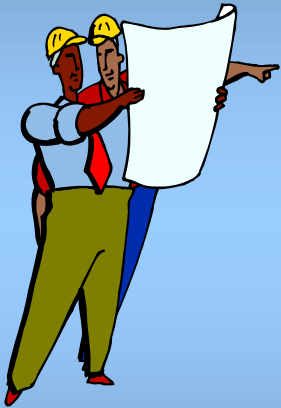
- **ABET is the Accreditation Board for Engineering & Technology**
- **Based in Baltimore, MD**
- **Has evaluated eng. programs in:**
 - **Kuwait University (7)**
 - **King Fahd U. of Pet & Minerals (15)**
 - **King Abdulaziz University (12)**
 - **UAE University (6)**
 - **Univ. of Qatar (4)**



A program that has been reviewed by ABET is said to be **“comparable in program content and educational experience”** to a similar engineering program in the USA.



ABET's Assessment for Quality Assurance



According to ABET, engineering programs must demonstrate that their students attain:

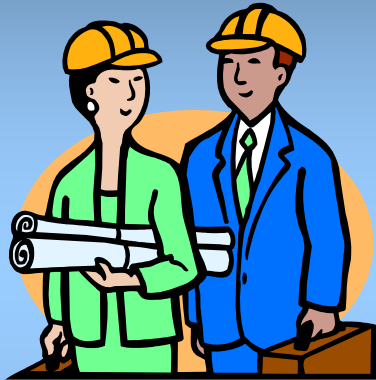
- (a) an ability to apply knowledge of **mathematics, science, and engineering,**
- (b) an ability to design and conduct **experiments,** as well as to analyze and interpret **data,**



- (c) an ability to design a **system, component, or process** to meet desired needs within realistic **constraints** such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability,



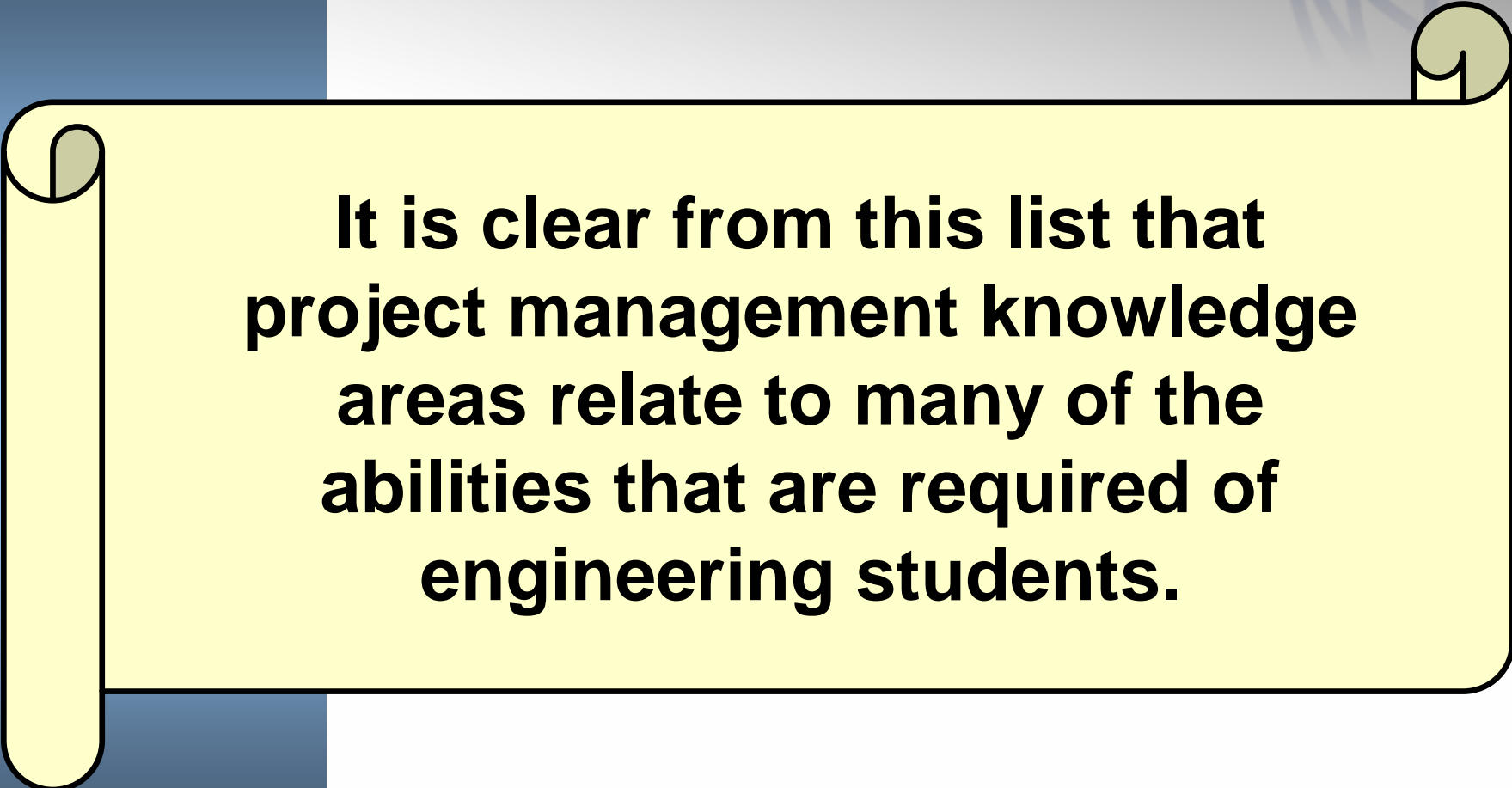
- (d) an ability to function on multi-disciplinary **teams**,
- (e) an ability to **identify, formulate, and solve** engineering problems,
- (f) an understanding of professional and **ethical responsibility**,
- (g) an ability to **communicate** effectively,



- (h) the **broad education** necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context,
- (i) a recognition of the need for, and an ability to engage in **life-long learning**,



- (j) a knowledge of **contemporary issues**, and
- (k) an ability to use the techniques, skills, and **modern engineering tools** necessary for engineering practice.



It is clear from this list that project management knowledge areas relate to many of the abilities that are required of engineering students.



What is being taught?

- **Some general management course in some programs**
 - **Mostly emphasized in Industrial Engineering and Civil Engineering programs**





What is being taught?

- **Some PM techniques incorporated in design project courses**
 - Scheduling & planning techniques
 - Teamwork and leadership
 - Written and verbal communication
 - Economic analysis
 - Engineering ethics issues





The topics covered often depend on the expertise and experience of the faculty members teaching the cornerstone and capstone courses.



Proposed Course

- PM based on PMI approach
- Emphasize Earned Value Technique
- Includes non-traditional topics:
 - Project risk management
 - Project procurement management
 - Project integration management

Easier said than done !!!



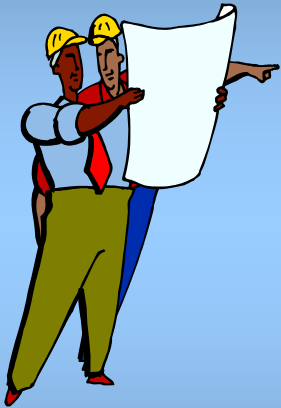


Developing a course for a university curriculum is markedly different from developing a short course for professionals.



Constraints

- **Time Constraint**
 - About 40 contact hours over a three month period
 - 3 hr/wk spread over 12-14 weeks
- **Must assess performance**
 - Tests, HW, class participation
 - Will over-emphasize numerical problem solving and software training





Constraints

- **Lack of actual experience**
 - Students may not be able to appreciate complexity of actual projects
 - Must provide complete case studies with adequate background information
 - Lack of PM experience on part of most faculty members !





Start dialog between:

- Practitioners
- Instructors
- Employers
- Students





Building the Next Generation

Q & A



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