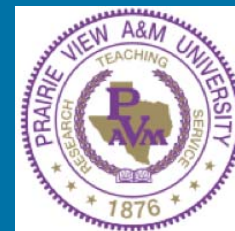


Practical Ideas from Professors: Standards Education in Your Courses

# Teaching Standards in Engineering Technology



## About the Department of Engineering Technology at Prairie View A&M University

Prairie View A&M University is located in eastern Texas, north of the city of Houston. The Department of Engineering Technology at Prairie View A&M offers educational programs and experiences designed to prepare students to meet the challenging demands of industry, society, and the nation as a whole. The goal of the department is to produce technology professionals capable of applying engineering principles in design, construction, and maintenance of electrical and computer systems. The Department of Engineering Technology offers two degree programs: Computer Engineering Technology (CPET) and Electrical Engineering Technology (ELET). Both these programs are accredited by the Engineering Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ETAC of ABET). Each program prepares students to work as engineering technologists capable of applying engineering principles to design, construction, operation, and industrial production.

## Using Standards in Engineering Technology Courses:

It is valuable to include standards in engineering technology courses, such as CPET 4063 Data Communications Methods and CPET 4363 Computer Networking, because standards are used in industry, and they help students to bridge the real world and academia. I also use standards to evaluate student performance in my courses, analyze outcomes, and for ABET accreditations.

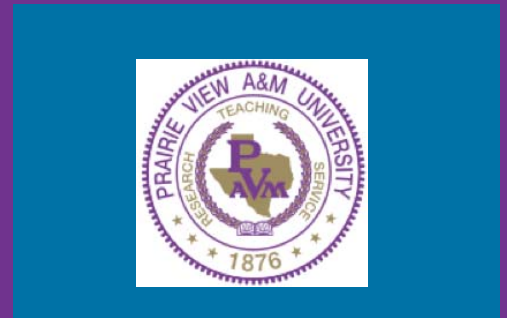


Dr. Sarhan M. Musa

As director of the Prairie View A&M University Avaya Networking Academy (PVNA), a senior member of IEEE, and a professor with sixteen years experience teaching data communications and networking for academia and industry, my goal is to prepare students for professional engineering practice. Since my involvement with Avaya, I have been exposed to Shortest Path Bridging (SPB), which is a technology detailed in an IEEE standard. Thus, I decided to teach my students about IEEE standards in my courses, focusing on the IEEE 802.1aq™ standard.

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## Using Standards in Engineering Technology Courses (continued):

For example, I might assign students to groups, and have each group select two students to deliver a presentation on IEEE 802.1aq (SPB) following the guideline below:

1. Define IEEE 802.1aq standard
  - a. Sponsoring organization/Key stakeholders
  - b. Competition/Conflicts of interest
  - c. Evolving concerns
  - d. International concerns
2. Purpose of standard
  - a. Why was the standard needed?
  - b. Testing and evaluating standard guidelines
  - c. Expanded product applications of standard
  - d. Provide an executive summary
3. Competing standards
  - a. Who? What? Why? When?
  - b. Competing standards
4. Outlook
  - a. Current and future outlook of network challenges and supporting standards and certifications
5. Presentation requirements
  - a. Minimum of 10 slides
  - b. Minimum of 20 minutes/Maximum of 30 minutes

- c. Ability to organize and plan, and design, prepare, and use appropriate visual aids for communication/presentation
- d. Ability to articulate subject knowledge (technical content)
- e. Appearance and ability to provide good oral delivery
6. Identify references/resources

Students need to be aware of standards due to rapid changes in technology today. Today's network, as shown in Figure 1, is consistent and complex due to multiple segments, multiple protocols, multiple resiliency constructs, box-by-box configuration, and manual device configuration. But, there is a better way to build today's networking, as shown in Figure 2, using the IEEE 802.1aq standard (SPB) through Fabric Connect's one network, one protocol, one active-active resiliency model, automatic core configuration, automatic device configuration, and IP extension.

Industry is always looking for young engineers who know about the advanced technology, such as Shortest Path Bridging.

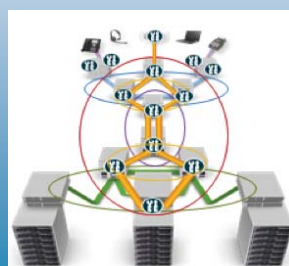


Figure 1

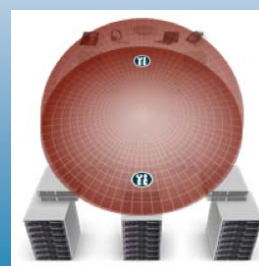


Figure 2