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TOPIC: Engineering Licensure

In this issue, you'll find the tools to help your students explore...assess...and experience engineering! From a look into the world of Dyan Damron, a Civil engineer and her work at Neel-Schaffer, Inc. to a process to design a timer that will measure exactly three minutes. Students will recognize first-hand how engineering is all around them. Enjoy!

EXPLORE...

Find your dream job, meet extreme engineers, watch videos

Make it Happen: Engineering Licensure

One of the most important decisions you can make early in your engineering career is to place yourself on a course to become licensed as a professional engineer (P.E.).

The licensing of engineers is important because of the significant role engineering plays in society, affecting every human being in terms of safe buildings and roads, clean water, functional machinery, communication, and medicine. The profession is regulated by licensing boards—composed of P.E.'s and members of the public—in each U.S. state and territory. The licensing boards set high standards for professional engineers, and these high standards help protect the public health, safety, and welfare. As a result, engineers must be licensed to offer their services to the public.

Licensure is the mark of a professional. It demonstrates a commitment to the high standards of professionalism to which the engineering profession subscribes.

Licensure is important because it demonstrates the accomplishment of a set of standards to which all engineering professionals recognize. Consider the following:

- It serves as a protection of public health, safety, and welfare. It demonstrates that you've accomplished a recognized standard.
- In most cases, it provides a "portable" credential, which means once you've received your P.E., you can carry the P.E. credential with you throughout your career. True, you will need to register with the states in which you want to use the P.E. credential, and some states may have additional requirements, but the P.E. credential itself is very portable.
- It sets you apart from others in your profession.
- It gives you career options and opportunities that might not have been available to you without the licensed professional engineer designation.

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Extreme Engineer: Dyan Damron, P.E.

What She Does

Dyan currently is employed at [Neel-Schaffer, Inc.](#) where she works closely with the Tennessee Department of Engineering to help plan roadways and/or make road improvements

Making a Difference

Dyan makes a difference and improves the local community's quality of life through cost-effective solutions while providing technical and strategic planning services for Tennessee's road systems. She also enjoys going out to local schools and talking about careers in engineering in order to open the possibilities for children who may not be familiar with the field.

Why Engineering?

From a very young age Dyan always remembered loving to calculate and count things. Throughout high school she was very involved in a members only Math Society where she competed in various math competitions. Damron notes that during this time she tested very high in school aptitudes involving math and science, thus pointing her logically in the direction of engineering. Damron said she loves Civil engineering "because you can see immediate results that have a direct response".

Advice

Damron believes that it's very important to seek out other engineers (her uncle is an engineer) and speak with them to find out all you can before going to college. She even advised visiting a local engineering firm and asking to talk to an engineer about what they do from day to day in order to get a better understanding of their profession. Lastly, she believes that it's very important to make sure that the college or University you are thinking of attending is ABET accredited.

Hobbies/Free Time

While in college Dyan was a pitcher for her college baseball team and still gives pitching lessons from time to time. Her other hobbies include cooking, watching all kinds of movies, and solving any kind of puzzles or brain teasers. Damron is also runner and says that it's a great stress reliever.

Education

Damron is a 2002 graduate of Tennessee Tech where she majored in Civil Engineering. Pre-college, Dyan attended Battleground Academy in Franklin, TN.

ASSESS...

Find your strengths, prepare for the future

PathAssess NOW Available!

PathAssess is an online tool aligning students' interests with careers in engineering. Students answer a series of questions and receive a customized profile relating their interests to engineering careers they may wish to pursue. Go to www.jets.org/assess to learn more.

EXPERIENCE...

Get active and unlock the mysteries of engineering

Hand-On Activity



Ready, Set, Escape

Grade Level: 9 (9-12)

Group Size: 4

Time Required: 2 hours

In this month's activity, [Ready, Set, Escape](#), students use the engineering design process to design a timer that will measure exactly three minutes. Engineers are constantly trying to make better and more accurate timing devices. This activity focuses on designing an accurate, yet simple device with limited supplies. Students are given the following instructions:

You have been taken prisoner in a foreign country. You are going to try to escape from the prison. In order to escape, you must time the movements of the guards exactly! You have to design a method of timing 3 minutes (the time it takes the guards to change posts) so you can make your break. You will be able to use a timing device to check the accuracy of the device. No clock/watch may be used in the device itself. You will be graded on how close you come to the 3 minutes. Good Luck!

Students are then provided with materials and time to work in groups using the engineering design process to solve the problem.

The [Engineering Pathway Portal](#) to the National Science Digital Library (NSDL) brings together quality engineering education materials for from all over the internet allowing teachers to search all of these documents in a single location. Each month during the year in the Pre-Engineering Times, the Engineering Pathway highlights one or more engineering activities available on the collection related to the month's theme. This month's activity is from the [TeachEngineering Digital Library](#), which is a part of the Engineering Pathway.

JETS Challenge



Each Friday JETS posts a new challenge question. Use these challenges to warm up for TEAMS or NEDC competition, in your classroom for extra credit, or at an engineering club meeting.

This Week's Challenge:

Challenge 123 — Engineering Salaries

[Click here to download a printable version.](#)

Engineers have the highest starting salary at about \$45,000 per year. Business graduates start at about \$35,000 per year. Assume that both salaries increase an average of 2% from graduation on their 22nd birthday to retirement on their 66th birthday. The equation to find the sum of the annually increasing salaries over a number of years is given by:

$$S = S_0 [(1+i)^n - 1]/[i] \text{ where}$$

S = total salary for the given period (\$)

S_0 = initial starting salary (\$/year)

i = annual increase above initial salary (expressed as a decimal value)

N = number of years of analysis (year)

The Challenge: Find the lifetime earning difference between the average engineer and the average business major.

Submitting Answers to JETS

E-mail your answer to JETS at challenge@jets.org and enter 'Challenge xx' in the subject line. NOTE: Only those submissions with 'Challenge 123' (enter the actual week's challenge number) in the subject line will be considered for the monthly drawing.



JETS Challenge Sponsored by: 

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