

Homework Assignment #2 – Engineering Resources on the Internet

The first several weeks of EGR 120 deal with topics such as the engineering profession, accreditation, licensing, engineering societies, ethics, the TCC engineering program, and college transfer information. The Internet is a valuable resource for obtaining information on such topics.

Investigate each Internet site listed on the attached pages. Find the requested information from each site and record the results in the spaces provided. Note that Internet sites are constantly being changed, so the links listed below may vary somewhat. In addition, there are often several paths that may be taken to arrive at a particular web page. Be creative and resourceful in trying to find the information if you have trouble! Also note that many sites contain internal search tools to assist you in finding information.

Assignment by last name:

In most parts below, 5 items are listed (labeled A, B, C, D, and E) that are to be investigated. Each student should only use 1 of the 5 items according to the first letter of the last name, as follows:

First letter of last name	Item to use in each case below
A - E	A
F - J	B
K - O	C
P - T	D
U - Z	E

Submitting the assignment by Email (required):

This assignment must be submitted by Email as described below.

- Create a word-processing document containing the answers to each part of the assignment. For example:

Student Name Course and section Assignment Number <i>Answer #1</i>) The following _____ electives (PLS, PSY, etc) can be used to satisfy the Social Science (or Humanities) Elective: _____ (assigned part only). <i>Answer #2</i> _____ (course number) is available in these semesters: _____ <i>Answer #3</i>) A minimum GPA of _____ is required to transfer to _____ • • <i>Answer #20</i>) According to the Pickens Plan video, In 1970, what percentage of our oil was imported? _____ % Etc.

- Do not type the answers into an email. They will not be accepted unless they are in *an attached document*.
- Attach the document to Email and send it to the instructor. Use the following format for the subject line in the email: **Name, Course-Section, Assignment Number** (for example, **John Doe, EGR 120-D01B, HW #2**).
- The instructor will grade the assignment and return the grade and any comments/corrections by email.

Universities and Colleges

1. **Tidewater Community College** - go to www.tcc.edu
 - Browse the site to see what information is available
 - Find the **Engineering Curriculum** by following the links below:
 - **Academics**
 - **Programs and Degrees**
 - **Associate in Science**
 - **Engineering (Program Information)**
 - Notice that note (1) is listed next to the Humanities Elective and the Social Studies Elective in the A.S. degree in Engineering. The note directs you to a page in the TCC College Catalog. Find the TCC College Catalog under:
 - **Academics – College Catalog**
 - Select the pdf file for the **Entire College Catalog** and go to the page indicated in the note above.
 - List all course numbers that can be used to satisfy the elective listed below (assigned part only).
 - A) Social Studies Elective (list all Political Science courses (PLS) that can be used
 - B) Social Studies Elective (list all Psychology courses (PSY) that can be used
 - C) Social Studies Elective (list all Sociology courses (SOC) that can be used
 - D) Humanities Elective (list all Philosophy courses (PHI) that can be used
 - E) Humanities Elective (list all Music (MUS) that can be used

Answer #1) The following _____ electives (PLS, PSY, etc) can be used to satisfy the Social Science (or Humanities) Elective: _____ (assigned part only).

TCC Student Handbook for Engineering - go to www.tcc.edu

- Find the Paul Gordy's web page by following the links below:
 - **Faculty and Staff**
 - **E-Directory**
 - Enter the instructor's last name (**Gordy**) and click on **Search**
 - Pick the **Detail** link next to the instructor's name
 - Pick the **Homepage** link under the instructor's contact information
- **TCC Student Handbook for Engineering**
- Check the **Tentative Annual Schedule for Engineering** in the Handbook. During which semester(s) is the following course available (assigned part only)?

A) EGR 140 B) EGR 125 C) EGR 245 D) EGR 246 E) EGR 260

Answer #2 _____ (course number) is available in these semesters: _____

- Also check the **Transfer Options** listed in the Handbook. What GPA is required to transfer into the following university (assigned part only)?

A) ODU B) Virginia Tech C) University of Virginia

D) George Mason University E) Virginia Military Institute

Answer #3 A minimum GPA of _____ is required to transfer to _____

2. **Old Dominion University Engineering** - go to www.odu.edu

- Browse the site to see what information is available

Mechanical Engineering Course Information

- Follow the links below:
 - **Academic**
 - **Undergraduate**
 - **Mechanical Engineering**
 - **Course Description**
- Determine the title, the pre-requisite(s) and the co-requisite(s) for the course indicated below (assigned part only).
A) ME 303 B) ME 305 C) ME 311 D) ME 312 E) ME 315

<p><i>Answer #4</i>) The title for _____ (course number) is: _____ The pre-requisite(s) the course above is(are): _____ The co-requisite(s) the course above is(are): _____</p>

Civil Engineering Course Information

- In a manner similar to the last step, find course descriptions for the ODU Civil Engineering program.
- Determine the title, the pre-requisite(s) and the co-requisite(s) for the course indicated below (assigned part only).
A) CEE 305 B) CEE 310 C) CEE 323 D) CEE 330 E) CEE 350

<p><i>Answer #5</i>) The title for _____ (course number) is: _____ The pre-requisite(s) the course above is(are): _____ The co-requisite(s) the course above is(are): _____</p>

3. **Virginia Tech Engineering** - go to www.vt.edu

- Browse the site to see what information is available

Mechanical Engineering Student Projects

- Follow the links below:
 - **Academics Programs**
 - **Colleges - Engineering**
 - **Departments**
 - **Mechanical Engineering**
 - **Programs**
- Under Student Projects, determine either the meeting time & place or the faculty advisor's name for the project listed below (assigned part only).
A) Baja SAE Team B) Formula SAE Team C) Hybrid Electric Vehicle Team
D) Autonomous Vehicle Team E) Autonomous Aerial Vehicle Team

<p><i>Answer #6</i>) The _____ project meets at the following time & place (or name the faculty advisor or some other key information): _____</p>

Virginia Tech Aerospace and Ocean Engineering Course Information

- In a manner similar to the last step, find course descriptions for the Virginia Tech Aerospace and Ocean Engineering program.
- Determine the title, the pre-requisite(s) and the co-requisite(s) for the course indicated below (assigned part only).
A) AOE 3014 B) AOE 3024 C) AOE 3034 D) AOE 3044 E) AOE 3054

<p><i>Answer #7)</i> The title for _____ (course number) is: _____ The pre-requisite(s) the course above is(are): _____ The co-requisite(s) the course above is(are): _____</p>

Professional Licensing and Accreditation

1. National Council of Examiners for Engineering and Surveying (NCEES)

FE Exam Dates

- Go to www.ncees.org
- Browse the site to see what information is available
 - Follow the link for **Exam Schedule**
- List the two dates that the FE exam is offered in the year listed (assigned part only).
A) 2010 B) 2011 C) 2012 D) 2013 E) 2014

<p><i>Answer #8)</i> The two dates in _____ (year) that the FE exam is offered are _____ and _____.</p>

FE Exam Specifications

- Follow appropriate links on the NCEES web site to find information on FE Exam Specifications.
- Find information of the **Fundamentals of Engineering (FE) Exam Specifications** (you might want to print this for your reference)
- What percentage of the questions on the morning exam is on the topic of (assigned part only)?
A) Chemistry B) Statics & Dynamics C) Mathematics D) Computers E) Fluid Mechanics

<p><i>Answer #9)</i> _____% of the questions on the morning FE exam is on the topic of _____ (assigned part).</p>

- The same link above also shows FE Exam afternoon specifications. Examinees can pick 1 of 7 subject areas in the afternoon section of the exam. Each subject area contains problems in a number of different categories. For the subject area listed below, what is the first category listed (assigned part only)?

A) Electrical B) Mechanical C) Civil D) Industrial E) Environmental

<p><i>Answer #10)</i> For _____ (assigned subject area) in the afternoon FE exam, the first category of problems is _____.</p>
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- Also follow appropriate links to find
 - **FE Study Materials**
 - **FE-Supplied Reference Handbook (free view)**
 - Fill out the form for free download
 - After filling out the form, links for the handbook will appear. The links include a single pdf for the entire handbook or separate pdfs for different sections. You can use either.
- What is the first topic listed in the following section of the FE-Supplied Reference Handbook (assigned part only)?
 - A) Mathematics B) Statics C) Dynamics D) Chemistry
 - E) Electrical & Computer Engineering
- Also look in the Chemistry section of the FE-Supplied Reference Handbook to locate the page number of the periodic table of the elements.

Answer #11) The first topic listed in the _____ (assigned section name) section of the FE-Supplied Reference Handbook is _____ .
The periodic table of the elements is located on page _____ of the handbook.

Principles and Practices Exam Specifications

- Follow appropriate links on the NCEES web site to find information **on Principles and Practices Exam Specifications.**
- Find **Detailed PE-Civil Exam Specifications**
- Find the Civil **Breadth Exam Specifications**
- What percentage of the questions on the **PE-Civil Breadth Exam** is on the topic of (assigned part only)?
 - A) Construction B) Geotechnical C) Structural
 - D) Transportation E) Water Resources and Environmental

Answer #12) _____% of the questions on the Civil Breadth Exam is on the topic of _____ (assigned part).

- Follow appropriate links on the NCEES web site to find information **on Principles and Practices Exam Specifications.**
- Find **Detailed PE-Civil Exam Specifications**
- Find **PE-Civil Depth Exam – Water Resources and Environmental**
- What percentage of the questions on the **PE-Civil Depth Exam – Water Resources and Environmental** is on the topic of (assigned part only)?
 - A) Hydraulics – Closed Conduit B) Hydraulics – Open Channel C) Hydrology
 - D) Groundwater and Well Fields E) Wastewater Treatment

Answer #13) _____% of the questions on the PE-Civil Depth Exam – Water Resources and Environmental is on the topic of _____ (assigned part).

- Follow appropriate links on the NCEES web site to find information on the most recent passing rates for the FE Exam.
- What percentage of **first-time takers** passed the FE Exam in the following area (examination module)?
 - A) Chemical B) Civil C) Electrical D) Environmental E) Mechanical

Answer #14) _____% of the **first time examinees** passed the FE Exam in the _____ (assigned part) area for the _____ exam (list month and year).

2. The Accreditation Board for Engineering and Technology (ABET)

- Go to the website www.abet.org and follow the links below:
 - **Find an accredited program**
 - **Engineering Programs**
 - **Search by state - Virginia**
- For the college listed below (assigned part only), how many engineering programs are ABET-accredited and when is the next ABET General Review?
 - A) Old Dominion University B) Virginia Tech C) University of Virginia
 - D) George Mason University E) Virginia Military Institute

Answer #15) _____ (college) has _____ (how many?) ABET accredited programs. The next ABET General Review is scheduled for _____ (year(s)).

Professional Organizations

1. Engineering Journals

- IEEE (The Institute of Electrical and Electronic Engineers) is the largest engineering society. Since the field of electrical engineering is so broad, the society is broken up into about 40 Technical Societies. Each technical society produces journals containing new developments within a very specific area. This can be a very useful resource for engineers.
- Visit the IEEE site at www.ieee.org
- Follow the links below:
 - **Publications**
 - **IEEE Journals and Magazines**
- List the name of the following **IEEE Transactions, Journals, or Letters** (assigned part only)
 - A) 1st transactions listed B) 2nd transactions C) 3rd D) 4th E) 5th

Answer #16) The _____ (1st, 2nd, etc) IEEE Transaction, Journal, or Letter listed is _____ .

2. Engineering Standards

- Engineering Societies play a lead role in the development of standards. The Internet can be a useful resource for gathering information related to standards in your area of work. Suppose that you were a mechanical engineer and needed information on current standards for chains. The steps below illustrate how to find information related to standards for chains.
- Visit the ASME (American Society of Mechanical Engineers) site at www.asme.org
- Follow the links below:
 - **Codes and Standards**
 - **Publications**
 - **Electronic Editions**
 - **Chains**
- List the title corresponding to the following standard number (assigned part only):
 - A) B29.8 B) B29.22 C) B29.200 D) B29.26 E) B29.10

Answer #17) ASME standard number _____ (assigned number) is entitled _____ .

3. **Society of your choice**

- Search the Internet (perhaps with a search engine such as www.google.com) to find a link to an engineering society of your choice
- Find the following information related to the site that you selected.

Answer #18) Name of the organization chosen: _____
 Internet address of the organization: www
 Student membership fee to join the organization: _____
 Mission statement: _____

Energy1. **Nuclear Power Plants**

The US has not built a new nuclear power plant in 30 years, but changes in the licensing process and pressure to reduce the use of fossil fuels has led to a number of energy companies to begin efforts that may lead to new nuclear power plants.

- Go to the site for the Nuclear Energy Institute at www.nei.org
- Select **Resources and Stats**
- Select **New Nuclear Power Plant status**
- Download the Excel spreadsheet containing the status of New Nuclear Plants and count the number of energy companies pursuing new nuclear power plants.
- Also search through the site to determine the number of current nuclear plants and how many states have nuclear plants.

Answer #19) Currently there are _____ nuclear power plants in _____ states
 How many companies have begun the process that might lead to the construction of a new nuclear power plant? _____
 Dominion Power had an Early Site Permit approved in _____ (when).

2. **Wind Power**

There is currently tremendous interest in alternate forms of energy, including wind powered turbines. T. Boone Pickens, chairman of BP Capital Management, has generated much attention with the Pickens Plan, which would help to reduce our dependence on foreign oil by using wind power.

- Learn more about the Pickens Plan at www.pickensplan.com . View the 5 minute video that initially appears when you visit the site. You can also locate the video by searching in Google for **YouTube Pickens Plan**

Answer #20) According to the Pickens Plan video,
 In 1970, what percentage of our oil was imported? _____ %
 In 2008, what percentage of our oil was imported? _____ %
 Wind-powered turbines are only effective in areas with high sustained winds.
 What geographical portion of the US is best for using wind-powered turbines? _____
 The Pickens Plan estimates that _____ % of the US electric power could be generated by wind-powered turbines.
 Shifting our natural gas supply from electric power generation to transportation could reduce our need for foreign oil by _____%.