

Engineering in a Global Context Synthesis (20% of final grade)

Description:

You will create a synthesis that answers the question “*What does it mean to be a globally competent engineer?*” Synthesis involves “putting together elements and parts so as to form a whole”. You will develop your synthesis individually!

Guiding questions:

- What is (and should be) engineering?
- Who gets to be an engineer (and who should get to be)?
- What shapes these decisions (and what should shape these decisions), and who shapes these decisions (and who should shape these decisions)?
- You may also use the course learning outcomes outlined in the syllabus to help guide you.

You are encouraged to take your own approach for this. You can write a paper, make a YouTube video, or even a graphic story. We are open to different approaches. If you choose to do a traditional paper, please keep it between 6-10pages, single-spaced. See resources for guidance.

Presenting your views on YouTube is a way to engage the broader engineering community. Like any of your written essays, your YouTube video should be grounded, well organized, clear (in both images and language), and engaging. In particular, while YouTube videos in general might look like opinion pieces on the surface, yours should be firmly grounded in the class readings and discussion. YouTube allows you to develop a multimedia message that is not limited by text, and as such, we encourage you to be creative. Your video should be no longer than 10 minutes and no less than 6 minutes. A tip for consideration is to write-up a script for the video and then create the video. You will turn in your script to us and upload your video to YouTube.

Presenting your views graphically as sequential art is a way to engage visual learners. Like any of your written essays, your graphic essay should be grounded, well organized, clear (in both images and language), and engaging. In particular, while you will not be graded on your artistic ability, you will be expected to write up a supporting document showing your rationale for deciding to create your sequential art. While it is hard to quantify the length of your sequential art, it should adequately answer the thesis question.

You are encouraged to meet with the instructors to discuss your draft design and the criteria by which you would like your audience to rate the effectiveness of your video. You will also need to **prepare a brief rationale (no more than 2 pages) that includes a discussion of: (1) who your message is intended for, and why, and (2) what message you hope to send, and why.** Synthesis is the highest level of understanding so understandably it is challenging. We want to monitor your progress so you will have two more check-ins for us to assist you in your progress.

Please utilize the Synthesis resource on Canvas Module 2.

Important Due Dates

- Rationale Brief Due: March 2, 2021
- First Check-in: March 25, 2021
- Second Check-in (Draft review): April 15, 2021
- Final Synthesis: Week of Final Exams

Engineering and Beyond Project

Netflix: Abstract

Outcomes

- Develop research skills and ability.
- Develop communication and team working ability.
- Understanding what design can be and how it is used by different disciplines.
- Foster student ownership of education by teaching each other.

Alignment

- Supporting design chapter in Pathfinder.

Why is this important?

- Choice of profession
- Professional respect and retention
- Dominant images matter



Student teams

- Students are self-selected into teams based on a featured designer in Abstract.
- **Season 1**
- **Ep. 2 Tinker Hatfield: Footwear Design**
- **Ep. 3 Es Devlin: Stage Design**
- **Ep. 4 Bjarke Ingels: Architecture**
- **Ep. 5 Ralph Gilles: Automotive Design**
- **Ep. 7 Ilse Crawford: Interior Design**
- **Season 2**
- **Ep. 1 Olafur Eliasson: Art Design**
- **Ep. 2 Neri Oxman: Bio-Architecture**
- **Ep. 5 Ian Spalter: Digital Product Design**
- **Ep. 6 Jonathan Hoefler: Typeface Design**



Deliverable

- This will be a 20 min presentation with voice over
- Due April 26th

Deliverable (suggested requirement)

- Abstract Episode
 - Who is featured?
 - Describe the person's life background (where are they from, family background, etc)
 - How did they determine their profession?
 - Describe what field the designer is in.
 - How does their field use design?
 - What inspires and informs the designers?
 - What are their contributions to society/discipline?
- Compare and contrast
 - How do you define engineering design?
 - What are the similarities and differences between engineering design and the design used in your episode of Abstract?
 - What are the aspects of design shown in Pathfinder and Abstract that align with your definition of design?

What to do for this presentation

- Use Closed Captioning to make sure you capture details of what the designers are saying.
- You should not just parrot back what was said on the episode, these are real people and there are opportunities to discover more about them outside of Netflix.
- You may have to use screen capture to get graphics for your presentations.
 - Netflix blocks screen captures but you can get a Chrome plugin to help with that.
 - All of Season 1 is also on YouTube.
- Gifs are also acceptable but they must **WORK** during the presentation!
 - Multiple screen captures can be used to make a GIF
 - <https://giphy.com/create/gifmaker>
- Remember Google is your friend.

Potential Sources of Information

- YouTube
- Campbell Library
- Glassboro Library
- Interlibrary loan (ILLIAD) online service
- Google Scholar
- Web of Science
- Purdue OWL (yes you will have to cite videos and images you used)

Tips

- Start SOONER than later!
 - Availability for viewings are fleeting!
- Get together to watch and take notes.
- Utilize library and internet sources to investigate the real events depicted.
 - Wikipedia is ok to start your investigation but use their sources.
 - IMDB helps too. (Maybe there's more than one movie that can help you.)
- BE CREATIVE!

Engineering Disciplinary Project

Alignment

- Supporting chapters in Pathfinder regarding engineering disciplines, DEI, and communication.

Outcomes

- Develop research skills and ability.
- Develop communication and team working ability.
- Create alignment with engineering field.
- Foster student ownership of education by teaching each other.

Why is this important?

- Choice of profession
- Professional respect and retention
- Dominant images matter





Engineers Salaries 2018 - Iris...
shjobs.ie



Build an Unstoppable Engineering Career ...
interestingengineering.com



civil engineer in India ...
economictimes.indiatimes.com



Civil Engineer - Career Rankings ...
money.usnews.com



Successful Engineer ...
engineeringandleadership.com



UK Civil Engineering Jobs for July 2019 ...
newengineer.com



Engineering graduate numbers triple in ...
timeshighereducation.com



10 Stories Profile 1 - EqualEngineers
ualengineers.com



Engineer Professional Corporations ...
kahanelaw.com



What is a Facilities Engineer ...
getskilled.com



Four project management rules of thumb ...
engineerjobs.co.uk



How to become a telecommunications e...
rcrwireless.com



What Are Some Jobs in Chemical Engin...
thoughtco.com



How to Find a Civil Engineering Job...
wikihow.com



Best-Paying Engineering Jobs in 2019
reeraddict.com



What does a Civil Engineer Do?
interestingengineering.com



Top reasons why you should become an ...
hk.jobsdb.com



Engineering - Demma
demma.co.uk



Women in Engineering - We Still Have a ...
engineeringmanagementinstitute.org



Petroleum Engineering Projected as Top ...
naceweb.org



Related searches

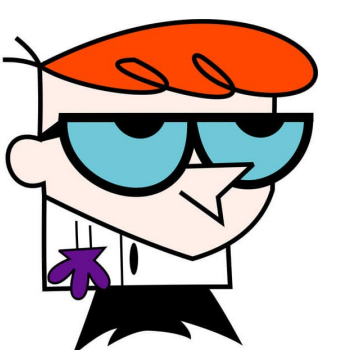
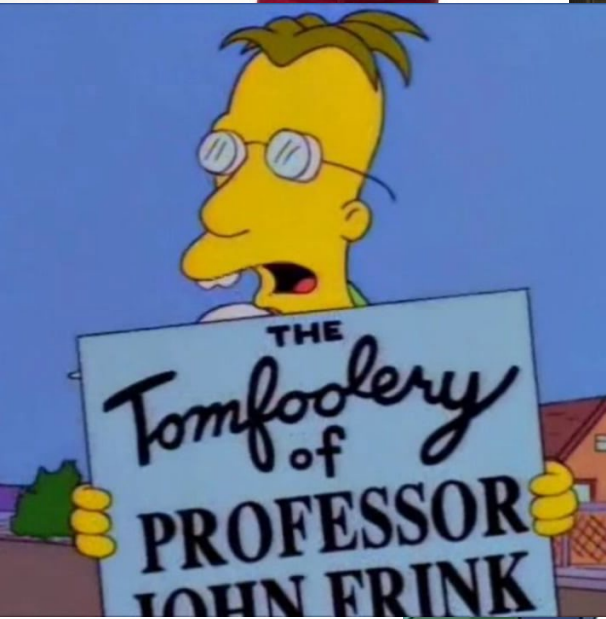
- clipart engineer >
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	Education	Profession/Empl oyment	Social/Political Status	Dominant Images
United States	~4-year B.S.	Industry, then consulting, etc., ~20% P.E.	Medium status, low political profile	Innovative, individualistic, cost-conscious
Great Britain	3-4 year B.Eng.	Mainly industry, CEng or IEng	Medium-low status, low political profile	Craftsmanship, practical professionals
France	Prep for <i>concours</i> then 4 years at <i>Grand Ecole</i>	Government over university or industry	Very high	Math and theory, state engineers





Student teams

- Students are put into teams based on engineering discipline that they do not have.
 - Mechanical
 - Biomedical
 - Civil and Environmental
 - Chemical
 - Electrical and Computer

Deliverable

- This will be a 20 min presentation (max) with voice-over
- Due Dec 1st
- Refer back to Pathfinder Communication chapter
 - Strive to communicate with visuals

Deliverable (suggested requirement)

- Origins of engineering discipline
 - When and where did discipline start?
 - Who are considered founders?
 - What was their socio-economic status?
 - What was their actual profession?
 - What did they share in common?
 - What is the organization in charge of the discipline?
 - When did they start?
 - What does the organization do?
 - What do they care about?
- Current implications
 - Are there any sub-disciplines?
 - What are they concerned with?
 - What are common applications from this field that we encounter every day?
 - What are current challenges being undertaken by the discipline?
 - Can relate to Grand Challenges covered in Pathfinder.
- Underrepresented and Minority Engineers
 - Investigate up to 3 engineers. A potential list is given but students may try to find others. These engineers are chosen because they represent underrepresented parts of engineering culture either by race, gender, sexuality, class, ability, and/or interdisciplinary work.
 - What have these engineers accomplished?
 - Are there any intersections these engineers have with non-engineering elements?

Potential list of Engineers

- Electrical and Computer Engineering
 - William Hewlett
 - Matt King
 - Ellen Ochoa
 - Kimberly Bryant
 - Ayah Bdeir
 - Lynn Conway
 - Mark Smith
- Civil and Environmental Engineering
 - Elsie Eaves
 - Imhotep
 - Herbert Hoover
 - Fazlur Rahman Khan
 - Emily Warren Roebling
 - Heberto Castillo Martínez
 - Nora Stanton Blatch Barney
- Biomedical Engineering
 - Gail R. Martin
 - Patricia Bath
 - Dean Kamen
 - Hermann von Helmholtz
 - Raymond Damadian
- Chemical Engineering
 - Donna Riley
 - Nguyet Anh Duong
 - Tuanku Zara Salim
 - George E. Davis
 - Beatrice Alice Hicks
 - Sherilyn S. McCoy
- Mechanical Engineering
 - Zhang Heng
 - Yi Xing
 - Jiro Horikoshi
 - Alba Colon
 - Kalpana Chawla
 - Mary Golda Ross
 - Mary Winston

Potential Sources of Information

- Campbell Library
- Glassboro Library
- Interlibrary loan (ILLIAD) online service
 - <https://libra.rowan.edu/illiad/campbell/logon.html>
- Google Scholar
 - <https://scholar.google.com/>
- Wikipedia
 - They have lists of engineers