

# Advanced material processes and die design DSL 732

## Topic 13

### Project Development

Instructor: Jay Dhariwal,  
Asst. Prof., Dept. of Design,  
IIT Delhi

14<sup>th</sup> November 2019

# Where do we go from here?

- Learnt skills in mechanical based prototyping
- Being Cyborgs, some exposure to electronics and web development
- Your skills in this domain are as good as the best in the world
- There is no stopping you now!
- Use Makerspace to get better. Its as good as the best Fab Labs in world



# Skills learnt in DSL 732

- Web development through HTML5, Portfolio
- Introduction to electronics, embedded programming with uC, input and output devices. Some of you have gone beyond things taught in the class – that’s good but others shouldn’t feel bad. DSL 810 covers many of these aspects.
- CAD, Additive manufacturing, Subtractive manufacturing, Reverse Engineering, Molding and casting, Composites, Fits and Tolerances (Press fit designs), Making things big and small.
- Project to bring these skills together, Video making
- These skills represent possibilities
- Focus on “How to learn” rather than “What to learn”
- Explore MOOCs to learn more theory on any topic where you want to go deeper
- Improve every year – DIY foundry, waterjet cutting, etc.

# Sequel to this course (Advanced Prototyping)

- DSL 810 (Special Topics in Design-I) in Spring 2020
- Focus more on integration of electronics + networking/communication, programming software (mobile apps, desktop apps, web apps)
- Introduction to AI/ML -> Data Driven Design
- Integrated design of cyber physical systems (boundaries between product and interaction, getting blurred)
- The idea is to get you started to make whatever you want to.

# Framework of Design

- When to go for paper based/quick prototyping?
- Fail early – IDEO CEO, Stanford D-School
- Mock-ups based prototyping
- Course emphasis on functional prototyping

# Announcements

- Today, last day to submit assignments
- We can't promise to grade anything new after today. That would be TA's prerogative
- TAs would start grading remaining assignments after today, finish by 18<sup>th</sup> November
- TAs would also evaluate the resubmissions of assignments

# Major Test written exam

- 22<sup>nd</sup> November, 3:30 pm to 5:30 pm
- LHC 318
- Please go through the shared slides
- Assignments and Project
- Application of what has been learnt in the class
- Fill in the blanks, Multiple choice questions

# Schedule for Project Ppt.

- 23<sup>rd</sup> Nov, 3:30 pm to 6:00 pm: Project presentations
- 6:00 pm – 7:00 pm: Course treat? What can we have?
- 7:00 – 8:00 pm: Department faculty and students invited. Invite your friends and others too!



# What is AI? Why should we care?

- Prof Uday Athavankar, IDC, IIT Bombay: [Is AI taking away our jobs?](#) Google's AI Alpha Go beat best GO (world's most complex strategy game) player of the world. Alpha-zero beats Alpha-GO. Learns much faster. It learns by playing with itself. No need for human data.
- Elon Musk: Speaking [at MIT in 2014](#), he called AI humanity's "biggest existential threat" and compared it to "summoning the demon." [Another Link It's already too late.](#) AI is much more dangerous than nuclear warheads. Benign AI. Democratize AI. Neuralink – Brain Computer Interfaces
- [AI: The Last Invention We Will Ever Make](#), The last challenge we will ever face.
- Eric Schimdt: Chairman, Alphabet (parent company of Google): [Self Driving Cars are the future](#), [AI assisted health care](#).
- Mr Vinod Khosla: Generative Design (CAD+AI)

# Have you used AI before?

- Siri, Google Assistant, Alexa.
- Amazon suggestions to buy stuff, Film suggestions on Netflix, Music suggestions on Music Apps

# Introduction to AI/ML/Data Science

- Pankhil and Iman's project on a [Smart Fan](#)
- George and Ishnishan's project on [IRIS Lamp](#)
- What could be different/better/worse?
- Can the Fan or the Light itself learn what the user wants? Every user may be different.
- Example of Text mining for smart home automation project using AI
- **Provide Data, Train AI/ML Model, Make Game or App**

# Thank you!

- You have been a great class to teach!
- Any questions?