



Online Robotics Pro

Online Robotics Project-based Learning Approach in a First-year Engineering Program

Abstract

Manufacturing Prototypes with Robotics Project kits

Table 1: Sample course schedule for a Fall semester

Wk	Lecture Topics	Lab Activities	Deliverables
	Course Overview		
	Engineering Design-thinking		
	No Class		
	Manufacturing Technology		
	Engineering Tools		
	Ideation to Fabrication		
	Engineering Communications & Ethics		
	Design Review (DR) Presentations		
	Instrumentation Engineering		
	Design Optimization		
	Entrepreneurship Mindset		
	Engineering Technical Report	No Class	
	Project Work Week		
	Project Showcase Competition	No Class	
	Submit Executive Summary 2	No Class	

Table 2: Description of Individual Roles in a Team

Engineering Lead Roles	Duties
<i>Project</i>	
<i>Test</i>	
<i>Software</i>	
<i>Product Development</i>	
<i>Design</i>	

Table 3: Budget for essential project materials

Materials	Quantity	Estimated Cost
<ul style="list-style-type: none"> • • • • • • • • 		
	Total	\$60.00

Table 4: List of course reflection questions asked students during mid-term

Table 5a: List of project reflection questions asked students at the end of the course

Table 5b: List of team reflection questions asked students at the end of the course

-

-

- *With respect to course structure i.e. Lecture, Lab activities, Assignments, and the use of MS Teams. What are the things you wish we could do differently?*

-

-

-

- *With respect to Course and Lab content i.e. Design Process, Programming, Fabrication, Design Heuristics, Instrumentation, Design Review Presentations etc. What are the things you wish we could do differently?*

-

-

-

-

-

•

•

•

•

•

•

•

References

year engineering design classroom

Flip-J instructional strategies in the first-