

# Frank J. Regal

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## Education:

### Mechanical Engineering, Master of Science (MS)

Drexel University, Philadelphia, PA; Current GPA: 3.85

Oct. 2016 - Present  
Graduation: June 2019

### Mechanical Engineering, Bachelor of Science (BS)

Drexel University, Philadelphia, PA; Current GPA: 3.88

Sept. 2014 - Present  
Graduation: June 2019

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## Professional Experience:

### Robotics Engineering Co-op

The Dow Chemical Company | Digital Operations Center (DOC)

April 2018 - Present  
Lake Jackson, TX

- Managed product development and completely designed a modular electro-mechanical magnetic inspection crawler used for vertical inspection of boiler pipe panels that produced an annual cost savings of \$400k
- Designed a high tolerance linearly actuated sealed sample carrier and integrated it onto robotic platforms used to eliminate confined space entries (CSE), collect plant fouling samples, and reduce plant down time
- Identified consumables, reverse engineered, performed cost/benefit analysis, and manufactured various plant process equipment using advanced additive manufacturing technology that yielded \$100k in savings
- Explored current market robotic solutions, facilitated capital spending purchasing efforts with vendors, and created informational packets to market robot solutions globally

### Production Engineering Co-op

The Dow Chemical Company | Dow Electronic Materials

April 2017 - Sept. 2017  
Newark, DE

- Implemented newly refined visual inspection criteria, trained six operators, and aligned two internal global customers on new inspection methods that generated an estimated \$200k in savings annually
- Headed the development of a new preventative maintenance (PM) plan to completion that provided a new visual to plant process belt wear and reduced the frequency of belt replacements by 33%
- Led troubleshooting efforts on a faulty automated cleaning brush height adjustment and designed, tested, and integrated a new mechanical height adjustment device that helped reduced product scrap
- Collaborated daily with various site staff (i.e. operators, engineers, maintenance) to troubleshoot and resolve daily technical problems by using root-cause analysis tools and providing mechanical insight

### Plumbing Apprenticeship

Regal Plumbing and Heating, Inc.

June 2011 - Sept. 2015  
Carbondale, PA

- Worked in parallel with foremen and journeymen plumbers to create project goals, submit material requests, read and interpret blueprints, and decipher state plumbing codes
  - Developed creative piping solutions for unforeseen structural obstacles in new commercial building projects located throughout the states of Pennsylvania, New York, and Ohio
  - Directed a team of three in the completion of a two week long underground drainage project
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## Technical Skills:

**Software:** Solidworks, PTC Creo, AutoCAD, LabVIEW, NXT, Maple, Mathematica, PyCharm, R, Arduino IDE, JMP, Microsoft Visio, ReCap, Microsoft Office Suite

**Language:** MATLAB (Advanced), Python (Intermediate), C/C++ (Basic)

**Machine:** FDM, DLP, SLA 3D Printers, CMM, Injection Molding, CNC Mill/Lathe (GD&T), Drill Press, Electroplating

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## Honors and Awards:

*Six Sigma Yellow Belt Certification*, The Dow Chemical Company, September 2017

*Ruth Giles Schroeder Scholarship*, Private, September 2014 - Present

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## Extracurricular:

*Concrete Canoe Team*, Drexel University, *Construction Manager*, March 2016 - March 2017

- Facilitated duties to improve canoe molds and temporary structural components

*Sigma Phi Epsilon*, Pennsylvania Beta Beta Fraternity, *Event Organizer*, January 2015 - June 2015

- Coordinated fundraising event logistics, organized volunteer schedules, promoted new marketing strategies