



# WPI

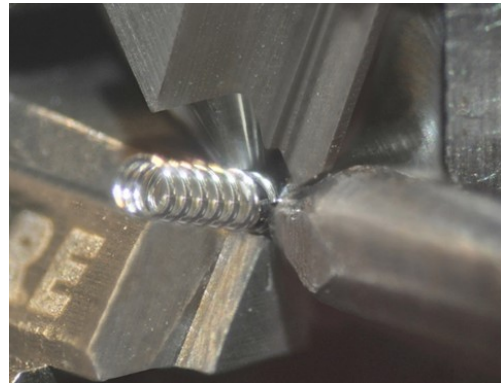
**ROBERT A. FOISIE**  
**SCHOOL OF BUSINESS**

[innovate@wpi.edu](mailto:innovate@wpi.edu)



Kinefac Corporation  
156 Goddard Memorial Drive  
Worcester, MA 01603

Kinefac is an innovative world leader in the development and manufacture of specialized metal forming, metal working, and metal processing equipment. Throughout its 55 year history in Worcester, Kinefac has extended its metal forming technology from its roots in cylindrical die rolling to extrusion, coiling, turning, and other radial forming processes. Kinefac has been built on a cohesive team of engineers, designers, assemblers, and supporting staff committed to establishing world-wide leadership in its various technology markets.



The KineCoil Division of Kinefac produces servo controlled micro spring coiling equipment which is capable of coiling wire as small as 0.0008" (0.020mm) diameter into helical springs with outside diameters as small as 0.005" (.127mm) primarily for the medical industry. Customers usually require a stiffness specification of the spring they want to produce which is critical for navigating the delicate passageways inside the human body. Springs are manufactured from a variety of biocompatible materials which have unique material characteristics. There is a need to determine a calculation which describes the stiffness and maximum achievable back-tension of a spring having a given material, wire diameter, spring diameter, and pitch spacing so that Kinefac and its customers can evaluate the feasibility and spring load requirements of each application.

The company needs 2 engineers to work as a team which can consist of a mixture of graduate & undergraduate students, to work about 10 hours each week. Most of the work may be done on campus after an initial meeting at the company and some testing work will be done in the KineCoil Spring Lab with the coiling equipment. Weekly reports and a summary presentation are required at the end of the project.

**WPI Center for Innovative Manufacturing Solutions** [www.wpi.edu/+centerforIMS](http://www.wpi.edu/+centerforIMS)



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Engineering majors— Analyze the loads and stresses that can be achieved within in a spring and relate them to a horizontal droop specification.

Math Majors— Ability to understand the cumulative loading conditions within a spring and perform mathematical analysis to relate the tension to a horizontal droop specification.

The project timeline begins in February and should be completed before mid-April 2016.

Students will be selected by a brief interview process with the company and should have the following qualifications.

*You should be able to describe why you would be a good match for this paid consulting assignment.*

ME/MFE/MTE major Students:

1. Interest in the Project
2. Engineering Acuity
3. Basic Research and Organizational Skills
4. Ability to do Internet, Phone, and other basic Searches
5. Basic understanding of Materials Science
6. Presentation Skills
7. Availability Minimum 10 Hrs./Week

MA major Students:

1. Interest in the Project
2. Engineering Acuity
3. Basic Research and Organizational Skills
4. Ability to do Internet, Phone, and other basic Searches
5. Ability to perform Mathematical Analysis
6. Presentation Skills
7. Availability Minimum 10 Hrs./Week

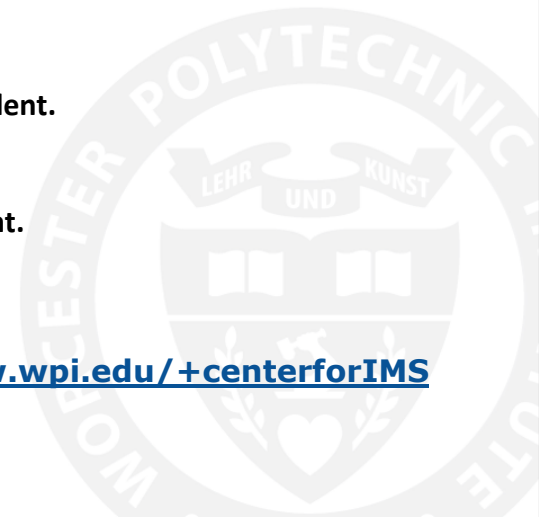
**You will work in a team with the goal of providing actionable advice to the company.**

If you are interested please email [mic-admin@wpi.edu](mailto:mic-admin@wpi.edu) and include a letter explaining why you are a good candidate for one of these positions.

**Undergraduates earn \$14 to \$18/hour.**  
**Initial estimate is 50 hours of work for each student.**

**Graduate/PhDs earn \$18 to \$22 per hour.**  
**Initial estimate is for 50 hours for each student.**

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## Manufacturing Innovation Grants

*Way to grow.*

