WTP-ME Instructor Job Description

The Women's Technology Program-Mechanical Engineering is a 4-week-long program that introduces 20 female high school students to ME the summer after 11th grade. WTP really makes a difference: a majority of alumnae cite the WTP high school summer as the beginning of their current college majors in engineering. Past WTP instructors have noted that working for WTP gave them real teaching and supervisory experience they could discuss in interviews for post-graduate academic positions.

WTP-ME Staff: 3 Instructors (master’s or PhD candidates or recent graduates), 6 Residential Tutors (Course 2 undergraduates or recent graduates), 1 Residential Assistant (WTP alumna who just finished her freshman year at MIT), Track Coordinator (Barbara Hughey, ME Senior Lecturer).

Class Structure: The ME program offers approximately 4.5 – 5.5 hours of classroom activities per day, often but not always divided as three 1.5-hour-long classes, with occasional longer classes or activities at the end of the class day. Classes are taught by a member of the WTP-ME staff – most by the Instructors, but each Residential Tutor or Residential Assistant usually teaches one class, and the Track Coordinator, Barbara Hughey, teaches a few topics.

Time Commitment: Eight weeks in the summer: 3 weeks before the students arrive for preparation, 4 weeks while the students are here, and a final week for cleanup activities and making sure the curriculum is in shape for the next summer. A few hours for organizational meetings in May will be required.

Instructors must be available full time from **Monday, June 10, 2019 through Friday, Aug 2, 2019** The WTP high school students arrive on Saturday, June 29, 2019 and depart on Saturday July 27, 2019. **Some evening and weekend hours will be required during the four weeks the WTP students are here** and will be specified during staff training, but schedule flexibility is greatly appreciated and will be offered in return.

The Instructors must sign and abide by the [MIT Code of Conduct for Programs Involving Minors](https://www.mit.edu/consorg/standards-code/conduct). You will also be asked to undergo a routine background check before you are hired for the position. Instructors should be friendly and welcoming to the WTP high school students, but they are also figures of authority and responsibility who must enforce WTP rules and policies. It is very important that all staff report anything that might require counseling, medical attention, or judicial follow up as soon as possible to the WTP Track Coordinators to ensure the safety of the WTP students.

During June and July, WTP must be top priority for Instructors, above any other responsibilities, including research. Instructors must have the flexibility to change class schedule at short notice if need be, so cannot have outside time commitments.

Compensation: Registered graduate students receive a full summer RA-ship from the department covering June – August, but have no WTP responsibilities in August. Recently graduated students will be hired as MIT contractors and receive the same net pay, paid over the 8 weeks of employment.

Instructors have the following responsibilities:

- Be a good role model for the students, provide them with emotional support and encouragement; work to ensure their safety and well-being.
- Teach an average of one class period per weekday and assist during other weekday class periods as needed. This work will involve revising an existing curriculum, setting up hands-on activities, preparing class materials, assisting students with concepts, assignments and class projects, and limited homework correction (mostly done by Residential Tutors).
- Be available for weeknight/weekend classes as specified in advance, including Rube Goldberg evening building during the last week the students are here.
- Provide occasional preview/review evening sessions for WTP students as needed, with help from the Residential Tutors
- Attend scheduled daily staff meetings (Monday through Friday) with the WTP Track Coordinator, Tutors, and RA.
- Work collaboratively with the other Instructors, Tutors, RA, and the WTP-ME Coordinator to ensure a cohesive, rewarding, educational experience for the students.

This is a time-consuming position that involves long days and intense work. The job requires true commitment and dedication, but it is also fun and very rewarding.
WTP-ME Curriculum

The ME curriculum exposes students to the wide range of disciplines within Mechanical Engineering. Three integrated daily class periods explore selected topics using both intensive analytical and modeling work and nuts and bolts designing and building.

Students study a variety of topics including solid materials, fluid mechanics, thermodynamics, heat transfer, system design, manufacturing, bioengineering, and alternative energy. Students learn to use SolidWorks, a 3-dimensional solid modeling program, to design mechanical systems. Integrated into these topics, students are equipped with the mathematical tools needed for more in-depth study of ME topics. Matlab, a numerical computing package widely used by mechanical engineers, is used for applications ranging from data analysis to numerical methods for solving complicated problems.

Final Projects: Students select and complete two capstone projects. In the first, they concentrate on the analytical and modeling work essential to effective engineering by working in pairs to investigate and formally present an in-depth mathematical model of a specific topic in ME of personal interest. In the second, small groups of students design and build multi-step machines for a Rube Goldberg Challenge. Both projects are demonstrated to the wider MIT community.

Guest Speakers: MIT faculty and engineers from industry present information about their research and career paths at lunch time sessions as well as during selected class periods several days each week.

Staff Calendar

Jan-Feb  WTP-ME Track Coordinator interviews and hires 3 Instructors, 6 Residential Tutors, and 1 Residential Assistant

Feb-Apr  Former WTP staff evaluates WTP admissions applications from high school students.

May      Instructors review curricula from previous years and have a few brief organizational meetings with ME Track Coordinator and the rest of the WTP–ME Staff

June 10 - 14 Work with ME Track Coordinator to finalize curriculum (M – F)

June 17 - 28 Work with Residential Tutors and RA to set up classroom and prepare for WTP students’ arrival (M – F)

Weekend of June 29: Orientation Activities with Students, attendance required

Jun 29 - Jul 27  WTP High School Students at MIT - Teaching and fun!

Jul 29 – Aug 2  WTP wrap-up activities after high school students leave (M-F)

August   You are free to do what you want (research, vacation) while collecting your last month of WTP summer RA funding. (Note that graduated students will receive all their pay during the 8 weeks of employment and will not be paid in August)