
MIT Job Description

Job Title: Postdoctoral Associate	Position Title: Digital Learning Lab Fellow in Mechanical Engineering
Reports to: Principal Investigator of the Learning Engineering and Practice (LEAP) Group (primary) and the Mechanical Engineering Associate Department Head for Education (secondary)	% Effort or Wkly Hrs: 100%
Department: Mechanical Engineering	Prepared by: John Liu
Date:	

Position Overview:

The MechE Digital Learning Laboratory (DLL) Fellow works in education development, research, and strategy for the Department of Mechanical Engineering.

The MechE DLL Fellow will serve as an ambassador and resource within the Mechanical Engineering Department by leveraging insights from their own disciplinary knowledge, education research, and cognitive science to 1) blend digital and face-to-face learning to enhance the learning of MIT students, 2) develop innovative digital learning content and tools for Department use on campus and in MOOCs, and 3) collaborate with faculty to develop and sustain innovative Mechanical Engineering courses in the online context (MOOCs) for learners around the globe.

The position will contribute to engineering education by identifying promising areas of engineering education research in residential and MOOC contexts, securing internal education R&D grants, and presenting findings and innovations at national and international conferences. The position may also involve teaching MIT courses in supportive roles, particularly those in the process of revision or development as blended or digital courses.

The MechE DLL Fellow may assist the supervisor and other faculty to develop, maintain, and update the Department's educational mission and the Department's strategy to maintain continued excellence in education, especially in the context of digital learning. The position is an ambassador for the learning sciences (focusing on, but not limited to digital learning) within their Department and will catalyze their faculty colleagues to apply the learning sciences into their teaching and jump-start learning initiatives.

The position will also participate in the broader MIT education community and collaborate with other educators to identify and promote best practices in engineering education, help strengthen residential and Digital Learning Lab offerings, and develop innovative course content and tools.

Principal Duties and Responsibilities (Essential Functions):**

- Keep abreast of advances in the learning sciences and digital and residential learning tools for engineering and other STEM disciplines, and work with supervisor and instructors to apply best practices from the learning sciences into teaching in the Department.
- Develop innovative residential and online courses (MOOCs) and learning tools that enhance the learning of students in online, face-to-face, and blended learning.

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- Reach out and collaborate with instructors with building massive open online classes (MOOCs) on the EdX platform, develop residential classes or modules on MITx, and contribute original education content.
 - Support the use of digital learning in residential education (e.g., Canvas, MITx modules, OpenCourseWare (OCW), etc.), particularly the use of MITx and digital tools in the core MechE class on mechanics, 2.001 Mechanics and Materials I. Lead the teaching of MOOCs in the introductory mechanics area.
 - Teach MIT MechE residential courses in supporting roles, particularly those in the process of revision or development as blended or digital courses.
 - Evaluate the effectiveness of courses and pedagogical approaches by performing quality control reviews on courses, collecting statistics of usage and other relevant data.
 - Assist supervisor in the development, maintenance, and updating of the education strategy, and particularly the digital learning strategy, for the Department.
 - Work with supervisor to identify promising areas of interest in education research and explore opportunities in the context of educational innovations and practices for implementation within the Department. Collaborate with supervisor or instructors to write grant proposals for internal education research and innovation grants. Present findings and innovations at national and international conferences.
 - Actively participate in MIT's education community (e.g. staff of the Office of Digital Learning, DLLs, other educators) to incorporate and advance education research within the Department.

Supervision Received:

This position primarily reports to and is supervised by the Principal Investigator of the Learning Engineering and Practice (LEAP) group in the Mechanical Engineering Department of MIT. Secondly, this position reports to the Mechanical Engineering Associate Department Head for Education.

Supervision Exercised:

Supervise staff and student TAs in education R&D and tasks related to creation and running of learning projects, such as writing online problems and tutorials, creating graphics or simulation videos, responding to discussion groups, scribing lecture notes, and troubleshooting digital tools.

Qualifications & Skills:

- A Ph.D. degree in engineering or science that includes domain-specific knowledge within Mechanical Engineering, preferably in mechanics.
- Demonstrated excellence in teaching and developing Mechanical Engineering courses in higher education settings, both residentially and online. Track record of delivering projects on time and within budget preferred.
- Strong experience in implementing best practices from education research literature and innovating on models and tools within STEM education. History of catalyzing faculty to education innovation is a plus.
- Proficiency in evaluating the effectiveness of learning materials and education programs.
- Proven track record of working independently, collaboratively, and managerially; must be organized, able to support multiple projects simultaneously, work effectively in a fast-paced work environment, and manage a team.
- Good communication skills and ability to build strong working relationships with faculty and staff.
- Strong problem-solving skills and working knowledge or ability to learn languages commonly used in Mechanical Engineering (e.g. MATLAB and Python). Knowledge of or ability to learn LMS and

other web publication tools. Competency with Adobe tools (Illustrator, Photoshop, After Effects), Camtasia, and all stages of video production (storyboarding, filming, and editing) a plus.

** To comply with regulations by the American with Disabilities Act (ADA), the principal duties in job descriptions must be essential to the job. To identify essential functions, focus on the purpose and the result of the duties rather than the manner in which they are performed. The following definition applies: a job function is essential if removal of that function would fundamentally change the job.