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–CALL: UNDERGRADUATE RESEARCH OPPORTUNITY PROGRAM–

**Center of Excellence for Energy,
Education, Research, and Entrepreneurship**

Undergraduate Research Opportunity Program (UROP)

Deadline: May 1, 2020 (for Summer Round)

Deadline: October 1, 2020 (for Fall and Spring Semesters)

[Note: The call deadline will be in October 2020 and every October for students to submit their proposals in the beginning of the Academic year, but they will indicate in the application the preferred semester to conduct their research and the timeline. There is an upper limit of implementation of one academic year]

The Massachusetts Institute of Technology (MIT) established the **Center of Excellence for Energy, Research, Education and Entrepreneurship (COE)** at Ain Shams University in Egypt in collaboration with partners at Mansoura University, Aswan University, the Ministry of Higher Education and Scientific Research (MOHESR), and USAID. MIT's mission is to bring knowledge to bear on the world's greatest challenges while educating students in engineering, science and the social sciences to best serve the world in the 21st century. Working collaboratively with public and private sector partners in Egypt to build the capacity of Egyptian universities to **1) produce high quality applied research in energy, 2) deliver world-class training in engineering, and 3) create a dynamic energy innovation ecosystem focused on meeting local challenges and contributing to economic growth** is well aligned with this mission. With over six decades of experience strengthening the education, research and innovation efforts at universities around the world, MIT is well positioned to lead this effort.

Under the technical leadership of MIT and in deep collaboration with our Egyptian partners, the COE is organized around four key elements: 1) new paradigms in **engineering education**; 2) market-driven **applied research projects**; 3) catalyzation of local and global **industry-university-government networks**; and 4) a sustainable foundation built on **good governance and synergistic policy** to ensure maximum impact on the Egyptian economy. The American model of a research university, exemplified by MIT, is grounded in integrating research and education while working closely with industry and government; these will be the guiding principles, not a blueprint, for this effort. At the strategic level, the COE's primary objectives are to build local capacity for the organization and pursuit of a number of market- driven applied research projects that address Egypt's needs in the energy sector, while simultaneously promoting an inclusive educational culture that focuses on solving local and global problems. MIT will provide training and mentorship to build the physical and policy infrastructure required to guide an effective pipeline— from conception to results, commercialization to scaling— and to engage the diverse set of organizations required to achieve broad impact.

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Based on the MIT Undergraduate Research Opportunity Projects Program (UROP) model, the UROP provides undergraduate students with funding for research opportunities. The Center of Excellence for Energy is issuing this call for undergraduate students at each of the three COE Energy partner universities: Ain Shams, Aswan and Mansoura to conduct undergraduate research. The UROP offers the following options:

1. **Research Project Proposed by Student(s):** the student proposes a research project to be conducted in the laboratory under the supervision/support and tutelage of a faculty member at any of the 3 partner universities. Deliverable will be a final product/prototype and presentation. Commitment letters should be signed by the student(s) and professor.
2. **Participation in on-going or existing research activities (*defined by each partner university by March 10, 2020*) led by a Faculty mentor at one of the partner universities:** Receive research proposals from professors offering a research opportunity for undergraduate students' participation. The maximum number of students is three per faculty member in a research team. The student applies to participate in a research initiative proposed by faculty at any of the 3 partner universities. Deliverables: a model/prototype, presentation and a research paper. Commitment letters should be signed by student(s) and professor.
3. **Undergraduate graduation research project:** this is a group opportunity for an energy related research graduation project. Deliverable will be a final product and presentation. Commitment letters should be signed by student(s) and professor.

***Note:** Priority will be given to students who have not previously been awarded a UROP opportunity through the COE Energy project.

PLEASE APPLY FOR THE COE ENERGY UROP THROUGH THE FOLLOWING LINK:

<http://bit.ly/coe-energy-urop>

Eligibility Criteria:

- Student at Ain Shams University, Mansoura University and Aswan University for all grades except option 3, which is only applicable to students conducting a graduation project.
- Students from any of the three partner universities can apply to participate in a UROP in collaboration with students / faculty at another partner university, however the student will be responsible to arrange and fund his/her own logistics and accommodations. Partner universities will indicate whether student dorm housing is available to students during the summer, however this is not a guarantee.
- Student Transcript
- Research must address energy related topics
- Motivation letter
- CV
- Application

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- Recommendation letter
- Proposal
- Timeline and budget
- The maximum number of students is three per faculty member in a research team.
- Bonus: For PWD (topics addressing disability related problems), Gender, Academic Excellence

UROP Research Topics:

The topic of the proposal may include, but not limited to, one of the following. The COE Energy encourages proposals of other energy related topics proposed by students and/or faculty:

- Renewable energy and applications
- Biomass and alternative fuel generation
- Waste to energy
- Energy storage: techniques and applications
- Energy efficiency
- Zero energy buildings
- Energy generation and pollution control
- Traffic and green roads
- Sustainable energy for developing countries which might include:
 - micro-grids,
 - micro-hydro, and
 - off-grid solutions for agriculture, cooking, lighting, etc.

UROP Proposals:

Research proposals describe the student's project and illustrate understanding of expectations for the given UROP semester. The proposal should include:

- Term
- Names of faculty and direct Supervisor(s)
- Location(s) of research
- Descriptive project overview - Provide background on UROP project including overall project aim, context and scope.
- Explanation of specific research role and your tentative work plan - Describe the applicant contribution to the project.
- Duties and responsibilities throughout the research duration.
- Goals - including personal goals for the UROP, including any anticipated end of term deliverables.
- Personal statement – including the candidate interests and hope to learn in this.

Selection Phases:

- Phase I: this is the eligibility criteria and complete submission of documents for students. (deadlines: May 2-4 for summer round and October 2-4 for academic year-round).
- Phase II: this is the technical evaluation phase for proposals and the topics (deadlines: May 5-15 for summer round and October 5-15 for academic year-round)
- Phase III: C&I Committee Panel Interviews will be conducted (deadlines: May 15-22 for summer round and October 15-22 for academic year-round)

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Any reviewer or panel member who is an immediate family member, partner of, employed by or has a financial interest in a private sector company listed in a submitted application will be recused from deliberating, scoring, or making decisions on awards during the proposal review and final product evaluation process.

Post-Award Process:

- Students and Faculty supervisors are requested to submit first progress report covering the regular check-ins as listed under “**UROP Process**” before the any funds are disbursed.
- Commitment letters will be signed by both the professor and the student(s).

UROP Process:

- UROP Evaluations: Evaluations from students and faculty supervisors are due at the end of each term/summer.
- Regular Check-in reports include:
 1. Progress according to plan
 2. Challenges
 3. Problems and obstacles
 4. Planning to accomplish any incomplete goals, including:
 - a) Additional training/guidance would help you achieve these goals
 - b) Resources
 - c) Mentor support
 5. Lessons learned
 6. Goals for the following month. (What do you plan to examine/complete?)
 7. Experiences gained
- Submission timeline
 - First report is requested to be submitted after two weeks for both summer and academic year UROPs.
 - The progress check-in reports should be submitted monthly for academic year UROP
 - The progress check-in reports should be submitted bi-weekly for summer UROP



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The Center of Excellence for Energy is providing the remaining 156 funding opportunities for the promotion of undergraduate research at partner universities. Each undergraduate student/group will receive a total of \$1000 for funding per project. The UROPs are divided proportionally according to students' density in each partner university as 60% ASU, 30% Mansoura and 10% Aswan. So, the remaining UROPs will be distributed as follows:

Call	UROPs for ASU	UROPs for Mansoura	UROPs for Aswan
May 1, Summer 2020	10	5	2
October 1, Fall and spring 2020	19	9	3
May 1, Summer 2021	10	5	2
October 1, Fall and spring 2021	18	8	2
May 1, Summer 2022	10	5	2
October 1, Fall and spring 2022	18	8	2
May 1, Summer 2023	10	5	2
Total	95	46	15

Each partner university will disseminate this UROP call to students who wish to apply to receive funding support through the Center of Excellence for Energy as per the criteria and guidelines outlined in this call. The Curriculum and Instruction Committee will oversee the final selection, and funding will be provided by the Center of Excellence for Energy project, supported by USAID and implemented by the Massachusetts Institute of Technology (MIT).

PLEASE APPLY FOR THE COE ENERGY UROP THROUGH THE FOLLOWING LINK:

<http://bit.ly/coe-energy-urop>

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