UNIVERSITY OF LOUISVILLE

J.B. SPEED SCHOOL OF ENGINEERING

MASTER OF SCIENCE IN

MATERIALS AND ENERGY SCIENCE & ENGINEERING

ONLINE

PROGRAM INFORMATION

UofL's online M.S. in Materials and Energy Science & Engineering (MESE) is a multidisciplinary program, designed for professionals within the field looking to significantly advance their careers and develop the expertise needed to support and implement new energy technologies. Graduates will be prepared to address modern energy-based challenges and positively affect the quality of life around the world.

100% ONLINE COURSES

$791 PER CREDIT HOUR

10 COURSES

1 YEAR PROGRAM

OR LONGER IF PART-TIME

PROGRAM HIGHLIGHTS

- Gain expertise and highly-marketable skills in areas including solar energy conversion, energy storage, biofuels and biomass conversion, solar fuels, materials characterization, and advanced energy materials.
- Understand and effectively communicate about contemporary materials and energy science and engineering topics.
- Join a top Engineering school and learn from faculty with extensive applied experience.
- Complete your degree in just 1 year with 15-week terms, or enroll as a part-time student and move through the program at a pace that works for you.
- Build a strong foundation to pursue doctoral studies in related disciplines.

APPLY NOW

BEST ONLINE PROGRAMS U.S.News & WORLD REPORT GRAD ENGINEERING 2023

BEST ONLINE PROGRAMS U.S.News & WORLD REPORT VETERANS GRAD ENGINEERING 2023

MILITARY FRIENDLY '23-24 GOLD SCHOOL

UPDATED 07.28.23

Curriculum
uofl.me/mesecourses

Tuition & Aid
uofl.me/tuition

Tech Req
uofl.me/techreq

Demo Course
uofl.me/coursedemo

OUTCOMES

Our civilization faces continuously growing energy consumption and subsequent demand challenges. Empowering our students and graduates to apply their knowledge and overcome this challenge through the creation and integration of new, advanced earth-abundant materials into cost-effective technologies lies at the heart of the UofL's energy materials science online program.

"Materials and energy scientists and engineers receive the gratification that comes from working toward addressing the most important challenges of this century. Professionals in this area choose this field not only because of the growing job market and potential compensation, but to be of service to society by applying their engineering knowledge and skills to meet advanced materials challenges and energy challenges faced worldwide. The new M.S. in Materials and Energy Science & Engineering is a multidisciplinary program that prepares graduates for careers in a semiconductor manufacturing industry that targets improving our quality of life."

— Dr. Mahendra Sunkara, Program Director
Conn Center for Renewable Energy Research, M.S. in Materials and Energy Science & Engineering

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COURSES

Required Courses

Course Code	Course Code	Credit Hours
MESE 510 (CHE 698)	Energy Science and Engineering	3
MESE 520 (CHE 532)	Advanced Materials Science & Engineering	3

Fundamental MESE Courses (Choose 3)

Course Code	Course Code	Credit Hours
MESE 625 (ME 675)	Advanced Materials Characterization	9
CHEM 659	Solid State Chemistry or Materials Chemistry	
PHYS 575	Solid State Physics or	
ECE 542	Semiconductor Device Fundamentals	
CHEM 621	Analytical Electrochemistry & Spectroscopy	
ME 575	Computational Modeling of Nanomaterials or Computational Materials Science	

Energy Processing Courses (Choose 2)

Course Code	Course Code	Credit Hours
CHE 581	Chemical Vapor Processing	6
MESE 522	Roll to Roll Processing	
CHE 694 (IE 601)	Additive Manufacturing	
ECE 543/ECE 544	Microfabrications	

Energy Conversion Courses (Choose 2)

Course Code	Course Code	Credit Hours
MESE 512 (CHE 694)	Solar Cells and Fuels	6
MESE 514 (CHE 694)	Biomass and Biofuels	
ME 572	Electrochemical Energy Storage	
ECE 531	Power Electronics	
CHE 694	Industrial Catalysis	

Systems Engineering Courses (Choose 2)

Course Code	Course Code	Credit Hours
MESE 610	Systems Integration & Entrepreneurship in Renewable Energy Sector	3
MESE 620	Techno-economic Analysis and Energy Policy	
MESE 630 (IE 694)	Smart Manufacturing	
MESE 690	Project*	
	Total Credits Required	**30**

ADMISSION REQUIREMENTS

- ❑ Completed graduate application
- ❑ Application fee of $65 (non-refundable)
- ❑ Bachelor's degree in Engineering from an ABET-accredited program or an equivalent bachelor's degree in Physics or Chemistry from an accredited university
- ❑ Successful applicants typically have a 3.0 GPA (on a 4.0 scale)*
- ❑ Official transcripts of all work from previously attended accredited institutions and experience related to materials and energy science and engineering
- ❑ Written statement as to how the M.S. MESE will allow you to fulfill your career goals
- ❑ Two letters of professional recommendation
- ❑ Current resume

*Applicants can be admitted provisionally with a 2.75 GPA with approval, but must maintain a 3.00 GPA in the program to graduate.

PREFERRED APPLICATION DEADLINES

Date	Term	Start Month
August 1	Fall	August
December 1	Spring	January

ENROLLED STUDENTS RESOURCES

Course Registration
Sign up for your classes

Virtual Writing Center
Support from the first draft to the final product

Virtual Library
Find research resources and books

Tech Support
Troubleshoot your technology

For all student support resources visit uofl.me/student-support.

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WHY UOFL ONLINE?

The University of Louisville (UofL) Online paves the way for students of all ages and backgrounds to achieve their academic, professional and personal goals through quality education.

With UofL Online you can:

- access your program anytime, anywhere
- get one-on-one attention from your professors
- collaborate on projects and assignments in real-time through virtual tools
- build your professional network

Visit **uofl.me/student_stories** to see how other UofL Online students are achieving their goals.

Accreditation

The University of Louisville is accredited by the Commission on **Colleges of the Southern Association of Colleges and Schools (SACSCOC)** (louisville.edu/accreditation).

For program availability in your state visit **State Authorization Regulations** (uofl.me/sarstates).

For professional licensure information (if applicable) visit our **Licensing Disclosures** page (uofl.me/licensure).

CONTACT US

UofL Online Learning
Office hours: M-TH, 8:30 a.m. to 6:00 p.m. (ET)
F, 8:30 a.m. to 4:30 p.m. (ET)
Melinda Addie
online@louisville.edu
P: 800.871.8635

UofL Office of Admissions
Office hours: M-F, 9 a.m. to 5 p.m. (ET)
gradadm@louisville.edu
P: 502.852.6495

UofL Office of Financial Aid
Office hours: M-F, 9 a.m. to 4 p.m. (ET)
finaid@louisville.edu
P: 502.852.5511

UofL J.B. School of Engineering
Office hours: M-F, 8 a.m. to 5 p.m. (ET)

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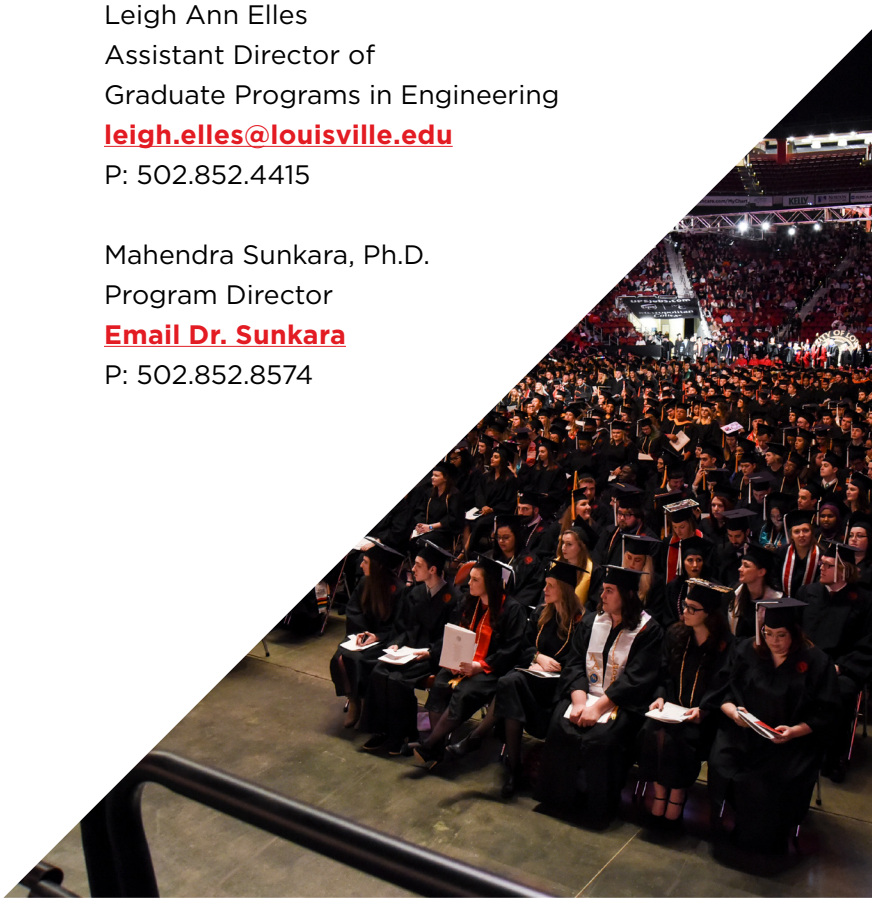

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