Minor in Innovation and Transformational Change

Tailor Your Minor Plan of Study

Choose your own path to obtain the Minor in Innovation and Transformational Change. Achieving the Minor requires 18 credits drawn from three categories of classes: Core Courses, Selectives, and Electives, with the latter two categories offering numerous opportunities to ensure you are linking your new knowledge and skills to problems you care about.

CORE COURSES

The CORE COURSES are required, and bookend the Minor experience providing an introduction to problem framing, solution space development, innovation, and design fundamentals at the onset of the program, and an in-depth experiential learning opportunity to apply your skills to a real grand challenge problem as you prepare to graduate. There are no prerequisites for the core courses.

- ENGR305 Fundamentals of Innovation Theory and Practice 3 credits
- ENGR490 Breakthrough Thinking for Complex Challenges 3 credits

SELECTIVES

SELECTIVES provide an opportunity for you to develop mindsets and capabilities that are critical to driving the innovative change necessary to address complex socio-technical challenges. You choose one course in each of three key areas to build your background:

✔ employ systems thinking and rigorous innovation processes to DESIGN HOLISTIC SOLUTIONS,
✔ help realize a shift in paradigm by MOTIVATING CHANGE, and
✔ ensure your ideas are viable by DEVELOPING STRATEGIES FOR FINANCIAL SUSTAINABILITY

DESIGN HOLISTIC SOLUTIONS

Prerequisites

- AAE 56000 System-of-Systems Modeling and Analysis None
- EEE 25000 Environmental, Ecological and Engineering Systems None
- IE 49000 Imagine, Model, and Make None
- ME 55300 Product and Process Design None
- TECH 53300 Design Theory and Technology None
- TLI 52000 Foundations of Innovation Studies None
- CE 39800 Intro CE Systems Design > C- in (MA 26100, MA 26300, MA 27100, MA 18200, or MA 17400)
- EPCS-Any level Engr Proj Cmty Service None for EPCS 10100; for others, > D- in ENGR13300 AND prior EPCS level
MOTIVATE CHANGE ....................................................................................................................3 credits

- COM 30300  Intercultural Communication  None
- COM 31800  Principles of Persuasion  None
- CSR 33100  Consumer Behavior  None
- MGMT 44362  Leadership and Organizational Change  None
- OBHR 33000  Introduction to Organizational Behavior  None
- PHIL 22100  Introduction to Philosophy Science  None
- TLI 25400  Leading Change in Technology Organizations  None
- TLI 31400  Leading Innovation in Organizations  None
- COM 21000  Debating Public Issues  > D- in (COM 11400, COM 21700, or COMM R1100)
- COM 44400  Introduction to Communication and Social Entrepreneurship  > D- in (ENTR 20000 or ENTR 31000)
- ECON 47100  Behavioral Economics  > C- in ECON 34000 OR (MA 16200 or MA 16600)
- MGMT 42710  Digital and Social Media Marketing  > C- in MGMT 32400
- PSY 27200  Introduction to Industrial-Organizational Psychology  > D- in PSY 12000
- TLI 35600  Global Technology Leadership  > C in TLI 31400

DEVELOP STRATEGIES FOR FINANCIAL SUSTAINABILITY ....................................................3 credits

- ENGR 596-H / CE596-H  Entrepreneurship and Business Strategy in Engineering  None
- ENTR 20000  Introduction to Entrepreneurship and Innovation  None
- IET 45100  Monetary Analysis for Industrial Decisions  None
- MGMT 30400  Introduction to Financial Management  None
- MGMT 42310  Global Marketing Management  None
- MGMT 48400  Management of New Enterprises  None
- POL 23500  International Relations Among Rich and Poor Nations  None
- SOC 33900  Introduction to the Sociology of Developing Nations  None
- ENTR 31000  Marketing and Management for New Ventures  > D- in (ENTR 20000 or Professional level ENTR 20000)
- MGMT 35200  Strategic Management  > C- in MGMT 20100 AND ECON 25100
ELECTIVES

ELECTIVES enable you to further contextualize your minor by gaining depth in an area that will enhance your potential to drive innovation and transformational change in industry, academia, or the non-profit sector. Accumulate 3 credits from any of the following areas:

**Learn versatile RESEARCH METHODS to gain insight into human behavior.**

- ANTH 38000 Using Anthropology in the World
  - None
- ANTH 38500 Community Engagement in Anthropology
  - None
- ANTH 59200 Evidence, Power, Politics: Working in Expert & Technical Cultures
  - None
- SOC 38300 Introduction to Research Methods in Sociology
  - None
- AD 51200 Interaction Design Studies
  - Instructor approval
- AGEC 45100 Applied Econometrics
  - ≥ D- in (STAT 22500, STAT 26000, STAT 30100, STAT 30100, STAT 31100, STAT 35000, STAT 35000, STAT 41600, STAT 50100, STAT 50300, STAT 51100, STAT 51100, STAT 51600, or STAT E2700)
- ANTH 41800 Field Methods in Cultural Anthropology
  - ≥ D- in ANTH 20500
- COM 32500 Interviewing: Principles and Practice
  - ≥ D- in (COM 11400, COM 21700, or COMM R1100)
- ECON 36000 Econometrics
  - ≥ C- in (MGMT 30500, ECON E2700, STAT 35000, or STAT 51100)
- MGMT 42110 Marketing Analytics
  - ≥ C- in (MGMT 30500 or STAT 35000) AND (MGMT 32400)

**Gain a deeper understanding of the cultural and social aspects of GRAND CHALLENGES.**

**GENERAL**

- AGEC 20400 Introduction to Resource Economics and Environmental Policy
  - None
- ANTH 20500 Human Cultural Diversity
  - None
- ANTH 21000 Technology and Culture
  - None
- ANTH 32700 Environment and Culture
  - None
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<tr>
<th>Course Code</th>
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<th>Prerequisites</th>
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<tbody>
<tr>
<td>ANTH 57500</td>
<td>Economic Anthropology</td>
<td>None</td>
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<tr>
<td>ENE 55300</td>
<td>Introduction to Globalization and Engineering</td>
<td>None</td>
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<tr>
<td>ENGR 31000</td>
<td>Engineering in Global Context</td>
<td>None</td>
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<tr>
<td>HIST 33300</td>
<td>Science and Technology in Western Civilization I</td>
<td>None</td>
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<tr>
<td>HIST 33400</td>
<td>Science and Technology in Western Civilization II</td>
<td>None</td>
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<tr>
<td>ME 49200</td>
<td>Technology and Values</td>
<td>None</td>
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<tr>
<td>PHAD 55600</td>
<td>Healthcare Economics and Public Policy</td>
<td>None</td>
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<tr>
<td>SOC 57200</td>
<td>Comparative Healthcare Systems</td>
<td>None</td>
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<tr>
<td>AGEC 34000</td>
<td>International Economic Development</td>
<td>&gt; D- in (AGEC 20300, AGEC 20400, AGEC 21700, ECON 21700, ECON 25100, ECON E1030, ECON E2010, ECON E1040, or ECON E2020)</td>
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<tr>
<td>AGEC 40600</td>
<td>Natural Resource and Environmental Economics</td>
<td>&gt; D- in (AGEC 20300, AGEC 20400, ECON 25100, ECON E1030, or ECON E2010)</td>
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**EDUCATION**

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<tr>
<td>EDCI 56500</td>
<td>Principles of Adult Education</td>
<td>None</td>
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<tr>
<td>EDST 51200</td>
<td>Foundations of Educational Policy</td>
<td>None</td>
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<tr>
<td>EDST 51400</td>
<td>Economics of Education</td>
<td>None</td>
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<tr>
<td>EDPS 30102</td>
<td>Social-Emotional Aspects of Learning in Diverse Environments</td>
<td>&gt; D- in EDPS 23500</td>
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**ENVIRONMENT**

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<tbody>
<tr>
<td>AGEC 52500</td>
<td>Environmental Policy Analysis</td>
<td>None</td>
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<tr>
<td>ASM 33600</td>
<td>Environmental Systems Management</td>
<td>None</td>
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<tr>
<td>BCM 41900</td>
<td>Sustainable Construction</td>
<td>None</td>
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<tr>
<td>BCM 51000</td>
<td>Topics in Environmentally Sustainable Construction, Design and Development</td>
<td>None</td>
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<tr>
<td>EAPS 32700</td>
<td>Climate, Science And Society</td>
<td>None</td>
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<tr>
<td>EEE 35500/ CE 35500</td>
<td>Engineering Environmental Sustainability</td>
<td>None</td>
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<tr>
<td>FNR 30200</td>
<td>Global Sustainability Issues</td>
<td>None</td>
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<tr>
<td>FNR 48800</td>
<td>Global Environmental Issues</td>
<td>None</td>
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<tr>
<td>HIST 39400</td>
<td>Environmental History of the United States</td>
<td>None</td>
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• HTM 37000  Sustainable Tourism And Responsible Travel  None
• PHIL 29000  Environmental Ethics  None
• POL 22300  Introduction to Environmental Policy  None
• POL 32700  Global Green Politics  None
• POL 42300  International Environmental Policy  None
• POL 32300  Comparative Environmental Policy  None
• BIOL 48300  Great Issues: Environmental And Conservation Biology  > D- in (BIOL 11000, BIOL 11100, BIOL 12100, BIOL 24100, BIOL 28600, or BIOL 58500)
• EAPS 36000  Great Issues In Science And Society  > D- in (COM 21700, BIOL 23200, or BIOL 27100)

ENERGY
• EAPS 37500  Great Issues-Fossil Fuels, Energy, and Society  None
• EAPS 30100  Oil!  > D- in (ENGL 10100, ENGL 10200, ENGL 10300, ENGL 10400, ENGL 10600, ENGL 10800, ENG W1310, ENG W1320, ENG W1400, ENG W1500, or ENG W2330)
• ME 44000  Automotive Prime Movers: Green Engines and Clean Fuel  > D- in ME 30000

FOOD
• AGEC 25000  Economic Geography of World Food and Resources  None
• AGEC 52800  Global Change and the Challenge of Sustainably Feeding a Growing Planet  None
• AGEC 41000  Agricultural Policy  > D- in AGEC 22000 AND (AGEC 21700, ECON 25200, ECON E1040, or ECON E2020)

HEALTH
• ANTH 34000  Global Perspectives on Health  None
• HK 58100  International Health  None
• BIOL 31200  Great Issues Genomics And Society  Department consent
• HK 36500  Principles of Community Health Promotion  > D- in (HK 21500, HK 21900, or SPEA H1200)