REQUIRED COURSES

MEB 7001 - Perspectives in Energy Business
Overview of the energy industry from the systems perspectives, with discussion of the operating diversity among different energy companies. Explores the relationships among all major energy sectors—oil, gas, coal, nuclear, electricity, and renewables—and their value chains.

MEB 7010 - Residency Seminar I
A face-to-face non-credit laboratory course required for graduation. Satisfies program orientation requirements and facilitates student engagement with the energy industry.

MEB 7020 - Residency Seminar II
A face-to-face credit laboratory course required for graduation that is focused on industry engagement and development of leadership skills.

MEB 7023 - Leading and Managing Energy Organizations
A survey of the principles and best practices for managing and leading people and organizations, with special emphasis on organizational situations and workforce challenges that are unique to the energy industry.

MEB 7033 - Analytical Tools for Energy Business Management
A modular study of management tools and resources pertinent to the energy industry, including problem-framing and analysis, project management, decision analysis, energy information systems, and basic data analysis methods applied to commercially-available energy data. Includes computer exercises.

MEB 7043 - Energy Accounting and Financial Reporting
Study of financial information used by energy companies. Primarily focused on upstream/midstream oil and gas operations, topics include successful-efforts and full-cost accounting, impairments, asset retirement obligations, production costs, joint interest operations, revenue streams, unitization, supplemental disclosures, conveyances, completion decisions, and basic energy economics. Addresses other energy sectors and international activities as time permits.

MEB 7053 - Financial Management in the Energy Enterprise
Fundamental principles of finance and microeconomics for energy operations, including supply and demand, opportunity cost, marginal and average cost, revenue and profit, and maximum/minimum relative to cost. Includes aspects of corporate finance from the energy perspective such as capital budgeting, asset management, financial decision-making and risk, and energy project financing mechanisms.

MEB 7063 - Energy Policy & Sustainability
Survey of initiatives, laws, treaties, and agency derivatives used by government entities to promote development of, and commercial investment in, specific energy resources, technologies, or markets. Addresses the macroeconomic issues and technical viability of competing energy sources, and presents the concept of sustainability from the corporate, environmental, and social perspectives.

MEB 7073 - Legal and Regulatory Environment of the Energy Industry
Survey of laws, legislation, and regulations governing development, production, and disposition of energy resources and related business transactions, and the federal and state agencies that have regulatory responsibility. Includes a discussion of economic, environmental, resource conservation, and market theories that underlie the establishment of energy laws and regulations.

MEB 7083 - The Business of Renewable Energy and Alternative Fuels
Principles and practices of doing business in the renewable energy and alternative fuels sectors. Investigates the feasibility and economics of competing energy sources and technologies and considers their contribution to a total systems approach to energy business. Includes concepts of innovation, relevant business models, the use of government incentives, and related topics.

**MEB 7173 - Management of the Energy Supply Chain**
An in-depth study of the supply and value chain for the energy industry from a theoretical and systems perspective, with a discussion of supply chain management as it relates to oil, natural gas, and power.

**MEB 7183 - Energy Economics**
Study and application of energy market economics from both a theoretical and applied perspectives. Covers the role of primary energy resources in global markets, as well as differences in market structures between and among various energy resources.

**ELECTIVES**

**MEB 7123 - Energy Markets and Commodities Trading**
A technical presentation of the processes and economics of moving energy resources, products, and supplies from point of production to marketplace. Includes specific information about how energy markets are established and how end products are priced and traded. Addresses all major resource/product groups, but uses natural gas as a template.

**MEB 7143 - US Oil and Gas Law**
Survey of the legal environment of the domestic oil and gas industry and its operations. Covers property and contract law pertinent to conducting business in the US upstream and midstream segments of the oil and gas industry. Topics include pooling/unitization/conservation agreements, drilling contracts and permits, conveyance issues, and mineral estates.

**MEB 7153 - Energy Transactions in the International Arena**
Survey of the legal environment of international petroleum business. Covers property and contract law in the international arena, agreements governing international energy commerce and business transactions, and US laws regulating international business activity. Topics include foreign legal systems, national oil corporations, international operating agreements, concessions, foreign direct investment, and dispute resolution.

**MEB 7163 - Economic Evaluation of Energy Assets**
Study of petroleum project economic analysis and decision-making, including cash flow, risk analysis, reserves calculations, property valuation, asset management, and risk. Topics include time value of money, profitability measures, engineering analysis and prediction of cash flow for oil, gas, and other properties, tax and depreciation effects, international contracts, inflation, and uncertainty analysis.

**MEB 7193 - Energy Analytics & the Digital Energy Enterprise**
Study of the evolving discipline and practice of Big Data analytics in the energy industry, including discussion of contemporary business analytics principles and models employed in energy organizations and the move to increased use of digital and other automated technologies in corporate operations. Examples and cases from the oil, gas, and power sectors are presented.

**MEB 7203 - National Oil Companies: Operations, Policies, and Investments**
Study of the history, politics, and operations of state-run energy companies (national oil companies), and how private firms make energy investments in countries where political uncertainty may be high. Compares characteristics of oil-producer countries such as Saudi Arabia, Iran, Kuwait, Mexico, Brazil, Venezuela, Norway, and Nigeria. The role of state energy firms in upstream and downstream competition in global and regional markets (e.g., coal, power, transportation) is also considered. A writing intensive course.

**MEB 7213 - Global Power Markets and Operations**
Survey of the global power industry, including markets, economics, operations, and finances. Provides a broad overview of the way in which international electric utilities operate, the role of cross-border interconnections, and challenges for both developed and developing countries.

**MEB 7223 - Global LNG Markets and Operations**
Study of the contemporary and evolving global liquefied natural gas (LNG) industry, including markets, economics, operations, and finance.

**MEB 7233 - International Energy Finance**
Study and application of energy finance in the international context, covering foreign exchange rates and markets, project finance, and the financing of energy projects in developing countries. The course focuses on problem solving and employs cases addressing a full range energy sector activity, including the petroleum and power sectors.

**MEB 7991/2/3 - Directed Research in Energy Business**
A guided seminar designed to teach research skills, critical thinking and synthesis of multiple sources of information, and writing skills that are useful to energy business. May also serve as a capstone research project.

**MEB 7973 - Seminar in Energy Business**
Topical study of current issues in energy business. Topics rotate depending on student and instructor interest.

**ON-DEMAND ELECTIVES OFFERED AS PART OF THE SEMINAR SERIES**

**The Electric Utility Industry & Demand Side Management**
The study of the electric utility industry, with specific focus on power demand management, conservation, and energy efficiency. Topics may include technological advances such as smart grids.

**The Refining and Petrochemicals Business**
A survey of the business aspects of the refining and petrochemicals sectors of the energy industry.

**Comparative Management Strategy in Energy Corporations**
Comparative study of business and management strategies used by contemporary energy companies.

**Energy Risk Modeling**
Study of energy risk combined with practice in the quantitative and computational tools and techniques used in modeling various energy industry risk scenarios. Topics may include refinery blending problems, comparison of petroleum exploration projects, forecasting oil and gas prices, project financing issues, electricity demand, and related concerns. Requires intermediate-to-advanced level expertise in Excel spreadsheet modeling and strong background in probability and statistics.

**Energy Logistics and Transportation Management**
Survey of the operational aspects of moving energy assets, including equipment, products, and people, from one point to another. Includes investigation of conceptual models and optimization techniques, as well as the regulatory environment of energy distribution. Topics include domestic and international transportation of energy equipment, marine transportation of petroleum products, liquids and gas pipelines, contracting and procurement, workforce issues, safety, and ethics.

**Energy Infrastructure and Asset Management**
Survey of the theory and practice of managing physical assets and infrastructure to improve operational efficiency and financial performance in energy corporations. Topics include infrastructure as a strategic investment, financing and managing large-scale infrastructure development projects, physical security of assets, the evolution to digital operations, public-private partnerships, assembling and managing portfolios of energy assets (refineries, power plants, process plans, pipeline systems, etc.), operational efficiency strategies and metrics, safety, and risk management/mitigation.