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**Prerequisites:**
- Graduate standing for all EMBA courses.
- EMBA students for courses with the prefix EMBA.
- Graduate standing for courses requiring it.
- EMBA majors for courses requiring them.

**Notes:**
- (Irreg.) indicates irregularly scheduled courses.
- Courses cover a variety of topics including quantitative methods, energy policy, organizational behavior, and decision-making, among others.
- The courses are designed to provide a strong foundation for decision-making in the energy sector, including financial management, accounting, and strategic planning.

**Syllabus highlights:**
- **Energy Policy and Regulations (EMBA 5012):** Examines global energy policy and regulatory development emphasizing resource access, business-government relations, environmental protection, social responsibility, and sustainability.
- **Quantitative Methods and Models (EMBA 5062):** Understanding and applying quantitative methods and models in the context of energy management. The course is organized around three modules: summarizing quantitative data; relating and comparing data; and, predicting outcomes based on sample data. The topics covered in these modules include descriptive statistics, associative statistics, regression, multiple regression, and inferential statistics.
- **Corporate Finance (EMBA 5072):** Provides students with the analytical and conceptual skills required in the modern practice of corporate financial management in energy organizations. Emphasis is placed on understanding the financial management of oil and gas companies, with an emphasis on risk management and decision-making.

**Other Notes:**
- The courses emphasize the importance of technology and innovation in the energy sector, as well as the need for ethical considerations in decision-making.

**Course Formats:**
- The courses are delivered in a variety of formats, including lectures, seminars, and case studies, with a strong emphasis on practical application.

**Placement:**
- The courses are designed for students who are looking to advance their careers in the energy sector, providing them with the knowledge and skills needed to succeed in this rapidly changing industry.
EMBA 5141 Supply Chain Management 1 Credit Hour
Prerequisites: Graduate standing, EMBA students only. An overview of supply chain management principles and management considerations vis-a-vis the energy industry. Students are exposed to frameworks to evaluate the efficiency and effectiveness of a supply chain function, methodologies for managing organizational expenditures, and techniques for maximizing value from supply chain operations. Additional topics are: strategic sourcing, inventory management, global sourcing, contract management, and ethics. (Irreg.)

EMBA 5142 Derivatives and Energy Trading 2 Credit Hours
Prerequisite: Graduate standing, EMBA majors only. Provides a comprehensive review of the organization and structure of the market for energy assets and commodities. Topics include trading platforms, pricing issues, forecasting, role and linkage with associated futures, forwards and options contracts, "basis" and spreads, hedging strategies, the principles governing the valuation of these "derivative" securities, and the ways in which these securities can be used effectively. (Irreg.)

EMBA 5152 Derivative Securities and Markets 2 Credit Hours
Prerequisites: graduate standing, EMBA students only. Develop an understanding, both intellectual and practical, of the organization and micro-structure of the markets for forward, futures, and options contracts, the principles governing the valuation of these "derivative" securities, and the ways in which these securities can be used effectively in investment banking, portfolio management, hedging, and risk management. Particular attention is paid to energy derivatives and the perspective of the energy sector. (Irreg.)

EMBA 5162 Energy Assets and Commodities Trading 2 Credit Hours
Prerequisites: graduate standing, EMBA students only. Provides a comprehensive and in-depth review of the market for energy assets and commodities: including trading platforms, pricing issues, forecasting, role and linkage with associated futures, forwards and options contracts, study of "basis" and spreads, and hedging strategies. The course will be anchored solidly within a theoretical conceptual framework and be supported with relevant case studies. (Irreg.)

EMBA 5182 Enterprise Valuation, Mergers and Acquisitions, and Corporate Restructuring 2 Credit Hours
Prerequisite: graduate standing, EMBA students only. The course covers major aspects of M&A and other corporate restructuring transactions; reasons that deals are done, the mechanics of the transactions, the valuation of the firms involved, various aspects of deal structure, the roles and incentives of the parties involved, and related issues. Brings together materials from previous finance courses and links financial decision-making with firm's overall business strategy. (Irreg.)

EMBA 5191 Marketing Strategy – Changing Energy Mix and New Markets 1 Credit Hour
Prerequisite: Graduate standing and EMBA students only. Covers the challenges faced by the energy industry in developing new markets for its products, and how to manage customer and client relations. Students will learn practical marketing tools and how they can be used to affect corporate strategy. Topics include the strategic marketing process, oil, gas and NGL valuation, market segmentation, supply chain and logistics, pricing mechanisms and hedging. (Irreg.)

EMBA 5201 Managing Change – Role of Leadership 1 Credit Hour
Prerequisite: Graduate standing, EMBA students only. Provides a theoretical understanding and skill development necessary for being an effective leader and manage organizational change. Identify ways to become a more effective leader by applying theories of human behavior to solve day-to-day problems of organizational administration. Examines core decision-making challenges, complex change scenarios, and leadership approaches and strategies to manage change in the context of the energy industry. (Irreg.)

EMBA 5212 Valuation of Hydrocarbon Resources 2 Credit Hours
Prerequisite: Graduate standing, EMBA students only. This course brings together concepts to make better economic decisions in the energy industry. Examines ways to evaluate an energy project's economic viability from an investment opportunity and develop the skills needed to make economic evaluations to assess such projects. The participants perform economic evaluations of field development projects and practice creating value during negotiation skills for an oilfield acquisition. (Irreg.)

EMBA 5222 Corporate Energy Finance 2 Credit Hours
Prerequisite: Graduate standing, EMBA students only. Provides students with the analytical and conceptual skills required in the modern practice of corporate financial management in energy organizations. Will focus on three key areas: (1) optimal allocation of capital; (2) optimal choices for raising capital; (3) optimal management of risk in conjunction with (1) and (2), including measuring and managing risks in energy companies. (Irreg.)

EMBA 5232 Hydrocarbon Law and Regulations 2 Credit Hours
Prerequisite: Graduate standing, EMBA students only. From 'wellhead to burner-tip' or 'shale to sail' - This course will cover the law and regulation related to the full value chain of energy: upstream, midstream (transport, gathering, processing, fractionation); downstream (oil, gas, liquids - petrochem, refining, industrial, commercial, residential). This class will primarily focus on oil and gas but will also cover electric, coal, renewable, and international energy. (Irreg.)

EMBA 5242 Reserve Valuation and Reporting 2 Credit Hours
Prerequisites: graduate standing, EMBA students only. Key objectives are learning compliant methods of preparing reserves/resources estimates, learning to estimate and understand the composition of and variables to the estimates, understanding the impact of economics on those estimates, properly classifying those estimates using current industry accepted definitions, and understanding the use of reports. Will discuss utilizing a reserves report as the basis for company modeling projections. (Irreg.)

EMBA 5251 Electric Utility Fundamentals 1 Credit Hour
Prerequisite: Graduate standing and EMBA majors only. This course covers material on basic concepts, terms, and the integration of primary functions in electric utility systems, including an overview of the utility regulatory environment and markets, general business model of regulated and unregulated utilities, and electric generation options and economic dispatch. (Irreg.)

EMBA 5261 Energy and Environment 1 Credit Hour
Prerequisite: Graduate standing and EMBA majors only. An introduction to the global energy industry's past, present, and future, along with the history and current issues/challenges that different regions face. The course provides a broad look at the fundamentals (resources, politics, culture, regulatory, and legal framework, plus environmental issues) that impact world energy supply and demand. (Irreg.)
EMBA 5271  Energy and Environment II  1 Credit Hour
Prerequisite: Graduate standing, EMBA 5261, and EMBA majors only.
Introduces energy system from an environmental and human health perspective, and the industry's social license to operate. Examines energy supply and use, its environmental and human health impact and mitigating factors. Discusses energy system organization: how we got here, how it operates, feasible paths going forward, and how to leverage forces of change for a more sustainable energy future. (Irreg.)

EMBA 5281  Introduction to Energy Systems I  1 Credit Hour
Prerequisite: Graduate standing and EMBA in Renewables majors only. This course is designed to help understand the earth's energy system and the potential impact of human activity by providing a broad understanding of the current energy system, its challenges, particularly with respect to the environment, and possible paths to a sustainable energy future. (Irreg.)

EMBA 5291  Electric Power Systems  1 Credit Hour
Prerequisite: Graduate standing and EMBA in Renewables majors only. This course discusses power systems and environmental consequence, electric circuit theory, principles and practices of the electrical power industry. The course provides an understanding of how, in an electricity grid, power generation and power consumption are closely matched; integrating renewable energy resources into the grid; and the business model of regulated and unregulated utilities, generation options, and economic dispatch. (Irreg.)

EMBA 5301  Transportation and Residential, Commercial & Industrial Energy Systems  1 Credit Hour
Prerequisite: Graduate standing and EMBA in Renewables majors only. This course covers the technical and economic structure of energy consumption, and the drivers of energy demand in the transportation, residential, commercial and industrial sectors, which define the set of services that can be supplied by renewable sources in each sector. (Irreg.)

EMBA 5312  Introduction to Accounting for Renewable Energy  2 Credit Hours
Prerequisite: Graduate standing and EMBA in Renewables majors only. This course provides an understanding of the accounting cycle with emphasis on the proper accounting treatment of renewable energy activities; uses accounting concepts and applies them to specific reporting and decision-making issues in renewables; and discusses the analysis and presentation of financial statement information for renewable energy companies and cost systems analysis for product costing, decision making, and cost management. (Irreg.)

EMBA 5322  Managing Change in Renewables - Strategy and Leadership  2 Credit Hours
Prerequisite: Graduate standing and EMBA in Renewables majors only. This course provides an understanding of the implementation of major strategic organizational changes and the fundamental leadership theories and management practices associated with managing change within the energy industry, providing participants with the necessary framework and tools to effectively lead organizational changes, with attention placed on the human side of change and how to plan for and manage change accordingly. (Irreg.)

EMBA 5331  Accounting for Renewable Energy  1 Credit Hour
Prerequisite: Graduate standing and EMBA in Renewables majors only. This course will cover advanced financial topics for renewable energy companies, such as financial statement disclosures specific to entities engaged in renewable energy, depreciation and depreciation reserves, accounting for derivatives, and tax equity and tax benefits for renewable energy industry. (Irreg.)

EMBA 5341  Cyber-Physical Security and Resilience for Smart Grid  1 Credit Hour
Prerequisite: Graduate standing and EMBA in Renewables majors only. This course covers introductory topics in cyber-physical systems security, provides a layered perspective of the smart grid security, and provides an overview of the interactions among system components and the interaction between external forces and the system, breaches and enforcement, standardization, best practices, policies, privacy, and legal issues. (Irreg.)

EMBA 5351  Renewable Energy Law and Regulations  1 Credit Hour
Prerequisite: Graduate standing and EMBA in Renewables majors only. The course will be an introduction to the ethical and regulatory issues as well as the legal framework governing renewable energy production and consumption. (Irreg.)

EMBA 5361  Introduction to Energy Systems II  1 Credit Hour
Prerequisite: Graduate standing, EMBA 5281, and EMBA in Renewables majors only. This course provides a framework for thinking about why energy-related events are happening in the world, what they may mean for future energy use and by extension societal and environmental well-being, and how we might improve our current energy system moving forward. (Irreg.)

EMBA 5371  Data Analytics and Digitization  1 Credit Hour
Prerequisite: Graduate standing and EMBA in Renewables majors only. This course provides a broad-based introduction to the use of data science for understanding sustainability problems and energy systems. Course materials will address developing a foundational understanding of terminology, methods, applications, and tools that are employed across all energy sectors, with emphasis on renewable energy. (Irreg.)

EMBA 5381  Renewable Energy Analysis and Forecasting  1 Credit Hour
Prerequisite: Graduate standing and EMBA in Renewables majors only. To reduce the uncertainty inherent in demand and generation, system operators rely upon load and generation forecasts to balance electricity supply and demand. Generating forecasts are critical to reducing the uncertainty associated with variable renewable energy (RE) generation. This course will provide an overview on forecasting to inform estimates of the level and location of generation in the near future. (Irreg.)

EMBA 5391  Renewable Energy Project – Business Plan  1 Credit Hour
Prerequisite: Graduate standing and EMBA in Renewable majors only. This course covers introductory topics in cyber-physical systems security, provides a layered perspective of the smart grid security, and provides an overview of the interactions among system components and the interaction between external forces and the system, breaches and enforcement, standardization, best practices, policies, privacy, and legal issues. (Irreg.)

EMBA 5402  Renewable Energy Project – Develop, Implement, and Manage  2 Credit Hours
Prerequisite: Graduate standing and EMBA in Energy majors only. The course will follow the progression of the development of an energy project, from early-stage site and offtake development issues, through construction and project financing, through operation. Teams determine which renewable energy they want to focus on and develop business propositions accordingly. (Irreg.)

EMBA 5403  Renewable Energy Project (Capstone)  3 Credit Hours
Prerequisite: Graduate standing and EMBA in Renewable majors only. The course will follow the progression of the development of an energy project, from early stage site and offtake development issues through construction and project financing through operation. Teams determine which renewable energy they want to focus on and develop business propositions accordingly. (Irreg.)
EMBA 5412  Carbon Management: Strategies and Steps  2 Credit Hours
Prerequisite: Graduate standing and EMBA in Energy majors only. Carbon footprint is the amount of carbon dioxide, or Greenhouse Gas Emissions, that organizations contribute to the environment. This course is on developing and implementing a long-term carbon management plan to provide an organization with strategies and steps that will help prepare the organization for the physical and economic risks of climate change, remaining competitive in a low carbon economy. (Irreg.)

EMBA 5421  ESG and Sustainability  1 Credit Hour
Prerequisite: Graduate standing and EMBA in Energy majors only. Sustainability factors are part of the fundamentals needed to attain higher returns, organizational resilience, and stakeholder trust. Environmental, social, and governance (ESG) risks have gained increasing attention, and organizations are seeking to proactively manage and report on their ESG risks. This course will provide an understanding of ESG and how to implement sustainable ESG requirements. (Irreg.)

EMBA 5431  Financing Hydrocarbon Projects  1 Credit Hour
Prerequisite: Graduate standing and EMBA in Energy majors only. This course is designed to teach students how to finance hydrogen projects and to provide an understanding of the steps involved in valuation, financing, structuring a deal, addressing carbon footprint issues, and packaging for presentation for securing investments. (Irreg.)

EMBA 5441  Renewable Energy Technology and Innovation  1 Credit Hour
Prerequisite: Graduate standing and EMBA in Energy majors only. Innovations in renewable energy encompass all new approaches that help to overcome barriers and result in accelerated deployment of renewables supporting the energy transition. Innovation powers the ongoing transformation of the global energy system. This course provides a broad overview about energy-related innovation and technology issues, and what they may mean for the future of energy and energy transition. (Irreg.)

EMBA 5451  Renewable Energy Project Valuation  1 Credit Hour
Prerequisite: Graduate standing and EMBA in Energy majors only. This course introduces valuation concepts and the main factors affecting the valuation of a broad range of renewable energy assets, projects, and business enterprises. (Irreg.)