

Curriculum

Executive Engineer Dual Master's Degree Program

The University of Iowa
Henry B. Tippie School of Management
Iowa City, Iowa

Iowa State University
College of Engineering
Ames, Iowa

Curriculum

The curriculum builds cross-functional competencies and strategic perspectives. The first year includes work in core areas such as quantitative methods, statistics, systems engineering fundamentals, marketing, managerial economics, financial accounting, managerial finance, and systems effectiveness. Year 1 also includes a five-day residency on the campus of The University of Iowa. Participants complete core courses their second year with human resource management, managerial accounting, macroeconomics, and operations management. The second year also includes a five-day residency on campus at Iowa State University, advanced business and engineering classes, and an international trip. The program concludes with the capstone course in strategic management, which is integrated with a creative component project in which teams develop a product idea based on new technology of interest to all members. The team will conduct research and develop a business plan to implement and market the product.

Value

The University of Iowa/Iowa State University curriculum places a premium on practical value. Classroom discussions serve as a laboratory for solving business issues faced on the job. For example, in the statistics course participants are encouraged to share data sets and applications in areas such as compensation design and manufacturing process control. Student teams have business simulations, problem-solving discussions, team presentations, individual study, lectures, assigned readings, state-of-the-art analytic software packages, and distinguished guest speakers and capitalize on the collective professional experience of participants and faculty at The University of Iowa College of Business and Iowa State University College of Engineering.

For more information call, 1-877-4IA-EMBA or 319-335-3789

Intersession 2007

Systems Engineering Fundamentals I (ENG-1) takes an overall system development approach in which the product is a part rather than a traditional focus on product performance as the main objective. Design for the entire system life cycle is emphasized.

Marketing Management (MBA-1) explores the concepts, principles, and models of marketing in profit and non-profit organizations. The relationships among marketing and other functional areas of business are thoroughly analyzed. Topics include marketing strategy, buyer behavior, marketing tactics, and marketing implementation.

Fall Semester 2007

Technology, Globalization, and Culture (ENG-2) provides a cross-disciplinary examination of the present and future impact of globalization with a focus on leadership roles in diverse professional, social, and cultural contexts. The course examines the threats and opportunities inherent in the globalization process as they are perceived by practicing professionals and articulated in debates on globalization.

Managerial Economics (MBA-2) analyzes the production and pricing decisions of the firm. Special attention is paid to the problem of transfer pricing and resource allocation among divisions of corporations. Topics include drivers of demand, the concept of economic cost, value creation, modern theories of market structure, auctions, electronic trading, and anti-trust issues.

Managerial Finance (MBA-3) provides an overview of the basic concepts and principles of financial management and insight into the decision-making process of financial managers. Topics include the time value of money, the tradeoff between risk and return, valuation techniques, capital budgeting, capital structure, and the role of financial managers.

Data and Decisions (MBA-4) includes the use of linear and non-linear optimization, decision trees with sensitivity analysis, and simulations for solving managerial problems in such areas as product make-or-buy, product blending, scheduling, financial portfolio analysis, and market positioning under risk. The course examines decision making under uncertainty and applies probability models, estimation, hypothesis testing, simple and multiple regression, and introductory time series to real-world data.

Spring Semester 2008

Human Factors and Product Design (ENG-3) addresses human factors methods applied to product design and evaluation. Concepts of human-product usability, interface design, warnings and instructions, and error reduction will be covered. The course will also look at human factors as related to human-computer interface.

Corporate Financial Reporting (MBA-5) provides an introduction to financial accounting, reporting, and analysis from the perspective of those who use financial reports. Topics are organized around three modules: (1) Measurement rules and bookkeeping procedures for production of corporate financial statements and use of the information for credit decisions; (2) Strengths and weaknesses of alternative accounting methods and financial disclosures; and (3) Analysis for valuation purposes.

Management in Organizations (MBA-6) focuses on management issues and skills necessary for understanding how individuals, teams, and organizations function. It emphasizes individual differences, motivation, leadership, teams, organizational and international culture, organizational design, and organizational change. The course additionally addresses a systematic approach to managing human resources through strategically aligned recruitment and selection systems, training and development, performance management, career management, and reward systems.

Managerial Accounting (MBA-7) provides an introduction to cost accumulation, reporting, and cost management systems; managerial and divisional performance evaluation; appropriate use of cost data for short- and long-run decisions; and product costing in manufacturing and service industries.

Intersession 2008

International Economic Environment of the Firm (MBA-8) analyzes measures of economic activity; determinants of national income, investments, and business fluctuations; money, prices, and inflation; exchange rates; and monetary and fiscal policy and forecasting. It examines basic theories of the determination of aggregate output, employment, wages, unemployment, and consumption. Students analyze objectives, strategies, and procedures of policy makers who seek to modify economic conditions and examine the roles of consumers and firms in the macroeconomic "game."

Virtual Systems Engineering: Decision Making for Complex Systems (ENG-4) introduces the concepts of vertical and horizontal integration of information, models, and simulation to create an interactive decision-making space. Issues of discussion will include human-computer interaction in decision making, model integration, and deployment of various virtual engineering tools.

Fall Semester 2008

Operations Management (MBA-9) emphasizes the planning and decision-making activities associated with the management of an organization's operations. There will be emphasis on overall operations management, planning and decision-making activities, insights into the basic tradeoffs associated with operations management decisions, and techniques for helping operations managers implement their decisions and achieve their goals. Topics include production and service delivery strategy, capacity planning, product and process design, total quality management, demand management, production and service planning, scheduling, materials control, and emerging production and service technologies.

Data Mining (ENG-5) explores the value of data mining for decision support and the requirements of a successful data-mining project. The data-mining process is defined starting with understanding the business problem and the available data through data preparation, modeling, evaluation, and finally deployment of the data-mining solution.

Project Management (ENG-6) examines the principles of project management and the best practices in implementation. There will be discussion of real-world applications, problems, and implementations of the basic principles.

Leadership and Personal Development (MBA-10) examines major leadership theories, determinants of leader effectiveness, personal and career success, and practical development of leadership and managerial skills to enhance individual organizational effectiveness. The class will focus on analysis of leadership in competitive environments with an emphasis on the ethical challenges facing corporate leaders in a dynamic global market place.

Spring Semester 2009

Information Technology for the Industrial Enterprise (ENG-7) introduces state-of-the-art information technology applications and systems employed in large manufacturing organizations and the challenges associated with their integration. Topics include the theory and practice of modern information systems with emphasis on Internet, data modeling, and enterprise application integration using XML, SQL, and SOAP.

Dynamics of Negotiation (MBA-11) introduces predictable aspects and dynamics of bargaining experiences as well as simulations and experiential exercises to foster skills needed for effective negotiation in almost any situation.

Strategic Management and Business Policy (MBA-12) is the capstone course for the program. There will be heavy emphasis on discussion of strategic business frameworks. Teams will analyze a "live case" and will be required to apply cross-functional concepts and tools to current business challenges. Visiting executives from the companies being studied will lead discussions. The course focuses on the student's ability to identify problems and to lead others toward viable strategic solutions. Course work will be highly integrated with ENG-8 (team projects).

Creative Component (ENG-8) will be integrated with MBA-12 and is a project in which each team develops a product idea based on new technology of interest to the team. The team will conduct research and develop a business plan to implement and market the product.