Architecture-based Enterprise Systems Engineering Leadership Program
Graduate Education for Engineering Professionals

Vision

The rapid growth of the Internet and information technology has altered the demands and possibilities for competitive **A**dvantage and enhanced productivity for enterprises, both defense and commercial.

Successful organizations have embraced a holistic, **E**nterprise-wide strategy that facilitates evolutionary change in processes and functions to better respond to the complex and event-driven environments in which they are forced to compete.

The Master of Advanced Study in Architecture-based Enterprise Systems Engineering bridges the gap between engineers and managers, helping engineers gain a better understanding of management essentials coupled with a broadened view of **S**ystems engineering disciplines that enable a more holistic approach to problems of the enterprise.

Program graduates should be well-prepared to assume a leadership role in enabling their organizations to respond innovatively to the challenges of the dynamic, competitive and **E**vent-driven environment.

DEVELOP A COMPREHENSIVE AND BALANCED UNDERSTANDING OF COMPLEXITY AND THE TOOLS FOR BUILDING EFFECTIVE ENTERPRISE SYSTEMS.

Learn the role of enterprise **A**rchitecting in bridging management and engineering practices to develop effective corporate strategy.

Understand program and project management approaches to dealing with challenges of complex large scale **E**nterprise systems and unexpected complex events.

Apply state-of-practice knowledge spanning enterprise-wide **S**ystems engineering methods and processes for modern, distributed decision support systems.

Gain hands-on experience as an enterprise architect and **E**ngineer in a program-long team-based project.

ENHANCE AND BROADEN LEADERSHIP SKILLS TO ENABLE GREATER CONTRIBUTION TO FUTURE CORPORATE STRATEGY

About the Master of Advanced Study

The MAS in Architecture-based Enterprise Systems Engineering is a degree conferred by the University of California, San Diego. Courses are taught by faculty in the Jacobs School of Engineering and Rady School of Management, with guest speakers from other leading universities and industry.

This high quality degree program is designed for engineering professionals. Students are able to continue full-time employment while participating in the program. Classes are held primarily on Fridays and Saturdays from 8 a.m. to 5 p.m., and meet every other week.

Who Should Apply

The program is intended for senior engineers and engineering managers who want to build leadership and management skills, enhance strategic thinking and decision making through enterprise architecting tools, and improve opportunities for personal career growth.

Distance Learning

An online synchronous distance learning option is available for those not able to attend classes locally.
Online students are expected to attend the four day workshops in each quarter in La Jolla.

How to Apply

Visit aese.ucsd.edu for complete application procedures, deadlines, and fees.
Prospective students enter the program in the Fall.

Faculty Directors

Hal Sorenson
Professor
Mechanical and Aerospace Engineering

Joseph Engelberg
Associate Professor
Rady School of Management

Coursework

The MAS in Architecture-based Enterprise Systems Engineering is a 42-unit degree to be completed in one year of study. Courses are offered over four consecutive quarters, beginning in the Fall. The curriculum consists of 9 courses and a capstone team project, which is conducted throughout the execution of the program.

FALL QUARTER

Essentials for Business Practice
This course is an introduction to the foundations of strategic thinking, structures of finance and investment planning, and business operations and marketing.

Leadership Skills, Values and Teambuilding
The process of understanding self and others, emotional intelligence, and group dynamics through team building as well as applying influence and collaboration in various situations will be examined.

Complexity and Large-scale Systems
Students will explore the bases of system and event complexity and learn how to review case studies such as The Beer Game and The Oceans Observatory Initiative. Overview of the essentials on managing complex projects, iterative and spiral development, agile and plan-driven development, and the phases of enterprise transformation.

WINTER QUARTER

Enterprise Architecting
Develop architecture frameworks while working with enterprise architecting. Emphasis on cases as well as ontologies and domain models. Look into Service-Oriented Architectures (SOA) in terms of infrastructure (Enterprise Service Business, Registry and Repository) and security.

Engineering Essentials for Open, Distributed Systems
Implement systems by utilizing business-driven development software tools, model driven architecture and design tools, and business process modeling tools. Learn to understand the fundamentals of architecture evaluation and participate in exercises in domain modeling and architecture development.

Modeling, Simulations & Analysis
This course looks into architecture descriptions and modeling languages, discrete event dynamic systems, and SOA and IT governance. Examine colored petri nets, and the process of analyzing and executing architectures.

SPRING QUARTER

Patterns for Enterprise Architecting
Introduction on implementing pattern concepts and their use for enterprise integration and enterprise "chat." Develop various service patterns, event-driven architectures, and complex event processing.

Decision and Risk Analysis
Explore human decision making and investment planning. Define the real option investment valuation and compete on analytics while looking at risk and utility theory and multi-attribute utility theory (MAUT).

Managing Stakeholder Relationships
Students will learn how to build and leverage business relationships and create business development strategies. Acquire the techniques for writing winning proposals and learn to strategize in account planning.

CAPSTONE TEAM PROJECT

The capstone team project will be conducted throughout execution of the program. A topic will be selected during the first quarter of enrollment and will be worked on in conjunction with industrial partners.

Contact

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