Course Description

ENCP 730 - Cases in Technology Feasibility Analysis
To learn and apply the fundamental concepts, theories, and principles employed in the forming tech startups. Specifically the course will provide an overall overview of innovation, exploitation of intellectual property, and technology feasibility analysis. The course will be assignment centered and will include a combination of lectures, case study discussions and invited speaker seminars.

ENCP 735 - Developing andLaunching New Ventures
The objective of ENCP 735 is to immerse you in (1) the frameworks that describe the process of new venture emergence and (2) the strategies and tools used to analyze and facilitate the emergence of new ventures, especially science and technology oriented ventures. We will examine critical issues associated with key activities undertaken for the growth of a new initiative, whether in the form of a startup entity or within an established organization. We will investigate how entrepreneurs address the challenges of creating viable business models and durable organizations. And, we will engage with the entrepreneurial community and with founders of emerging ventures in projects that will provide value to their organizations.

ECIV 707 - Management of Engineering Projects
This course applies a systems engineering approach to project management and introduces the student to the entire lifecycle of technical projects as offered by Project Management Institute’s A Guide to the Project Management Body of Knowledge (PMBOK® Guide) and other resources. Practical assignments are combined with industry-accepted standards for the purpose of developing a logical framework for managing and leading technical projects. The five major process groups of Initiation, Planning, Executing, Monitoring and Controlling, and Closing are investigated in relationship with the ten knowledge areas of Integration, Scope, Time, Cost, Quality, Human Resources, Communications, Risk, Procurement, and Stakeholder Management. Professional responsibility and ethics will receive particular emphasis.

COSM 701 - Business and Legal Issues for Science Managers
The course includes a survey of skills requisite for careers in domestic or international business: economics, finance, accounting, management, marketing, presentation skills, patent law, regulatory issues, other subjects for managers of science/technology-based businesses.

MGMT 780 - Entrepreneurial Finance and the Dynamics of Emerging Ventures
Exploration of funding and financial management of emerging ventures, including sources and structures of capital, financial levers to drive performance and metrics to monitor performance, and the study of how to impact, capture, quantify and realize value.

BADM 790 - Strategic Management of Technology and Innovation
The course has two main focal points: (1) understanding and managing innovation – sustaining and disruptive – and (2) creating new capabilities from the perspective of a new entrepreneurial firm or large corporation. Whereas sustaining innovations build on existing capabilities, disruptive innovations require fundamentally new sets of capabilities. Evolutionary economics and casual observation suggest that management of disruptive innovation is exceedingly difficult, regardless of whether the firm is proactively attempting to create its own disruptive technology or reactively trying to catch a competitor.
M.S. in Technology Innovation and Entrepreneurial Engineering

MGMT 777 - Innovation and New Venture Analysis
This course is designed to help you develop an understanding of how entrepreneurs start, grow, and manage innovations and new ventures successfully. The course will focus on (i) the entrepreneurial perspective and planning a new venture, (ii) analysis of new opportunity attractiveness, (iii) market penetration strategy and tactics, (iv) business model analysis, (v) building competitive barriers, including intellectual property, (vi) developing and managing resources to support early-stage growth, (vii) Business planning, and (vii) fundraising and presenting new opportunities, including collateral and “pitching”.

EMCH 509 - Computer-Aided Manufacturing and Prototyping
This course introduces students to the principles of industrial design, prototyping and development. Students will be guided through the product lifecycle management process through customer needs identification, ideation, concept generation and selection, design development and prototyping. Students will also be exposed to the project management aspect.

ENCP 737 - Entrepreneurial Laboratory
The objective of the internship course is to provide students with a practical working environment, which is essential for a more complete understanding of the application of entrepreneurial engineering theories. Internship locations include startups, innovation units in larger companies, laboratory of USC faculty who are launching companies, and USC incubator hosted companies. Through an internship, students will strengthen their experience in preparation of new venture creation or a leadership position in corporate entrepreneurship. In addition the course will enable students to develop interviewing and job search skills.

ECHE 573 - Next Energy
This course is to an examination of energy technologies that will enable society to move from an economy based on fossil fuels to one based on sustainable energy. By the end of the course, students will be able to (i) analyze the political, social, technical, and economic issues that society is facing with regard to our energy future, and (ii) qualitatively and quantitatively evaluate the various energy options.

CSCE 727 - Information Warfare
The course covers Current trends and challenges in information warfare. High-level analysis of information warfare threats, like cyber terrorism, espionage, Internet fraud, intelligence activities, cyber ethics, and law enforcement.