



**MS in Electrical and Computer Engineering
With an Emphasis in Entrepreneurship and Technology Management**

Joint program- UNM Anderson School and the School of Engineering

Innovation that results from engineering research leads to new business ideas that are the basis for new companies. These new small high-technology startups drive economic growth. These activities also help the rest of the economy due to the trickle-down effects from the top-of-the-pyramid wealth and high paying jobs to all levels of the economic strata providing regions and countries with economic development results that cannot be reaped without it. To build this enterprise, you need not only technology but models of deployment of technology, management talent, financial resources, policies and educational programs that supply the right talent to create the human infrastructure to manage all aspects of this enterprise.

The National Science Foundation (NSF), the National Institutes of Health (NIH) and many government entities, both foreign and domestic have made this a priority and have allocated large funds to support programs such as the NSF Integrative Graduate Education and Research Traineeship (IGERT) and Innovation Corps Program (I-Corps), the NIH's High-Risk Research and Innovation initiative as well as Brazil's well publicized "PhD students to foreign universities" program designed for the new crop of researchers to learn how to move technology into economic benefits. Spanish universities that we recently visited impressed upon us the importance of the topic to Spain's struggling economy.

Industries, both small and large, have developed techniques and processes such as lean startup launch pad (I-Corp equivalent) with leading companies emphasizing innovation and entrepreneurship in their strategy.

UNM and particularly the School of Engineering and the Anderson School of Management designed a new program with an interdisciplinary MS in Engineering with an emphasis in Technology and Engineering Management (with a PhD in the same emphasis forthcoming) that is governed by the faculty of both schools and managed by the deans of the schools and a PhD program director.

The program uses the existing structure of MS and PhD programs in Engineering for these new joint programs. The MS will fill the gap for engineering undergraduate and graduate students in required economic, statistics, organizational behavior, finance and technology management among other courses readying these students to get into a research-focused PhD program that is centered on systems and models.

MS in ECE-ETM:

MS in ECE

With an Emphasis in Entrepreneurship and Technology Management (ETM) Program

This program is a new concentration in the existing MS program. It is not a new degree.

1) ETM at UNM

- 15 credits at ECE + 1 credit for seminar
 - 3 credits for Project/Thesis/BPLAN
- 15 credits at ASM
 - 3 credits for Project/Thesis/BPLAN
- Total credits = 31

2) ETM at UNM – Double Degree

- 9 credits at ECE + 1 credit for seminar
 - 3 credits for Project/Thesis/BPLAN
- 6 ECE credits at home institution - transfer
- 9 credits at ASM
 - 3 credits for Project/Thesis//BPLAN
- 6 ASM credits at home institution - transfer
- Total credits = 31

EXAMPLES (note: other designs possible with approval from Program Directors)

CASE 1: Electrical Engineering

Signal Processing – ETM Emphasis

- Major Core Courses and Seminar
 - ECE500 – Theory of Linear Systems (core)
 - ECE541 – Probability Theory and Stochastic Processes (core)
 - ECE539 – Digital Signal Processing (core)
 - ECE533 – Digital Image Processing (outside core)
 - ECE590 – Graduate Seminar
- Project/Thesis/BPLAN
 - ECE556/595 – Entrepreneurial Engineering
- MGT Courses (must choose 4 with assistance from supervisor)
 - MGMT 511 Technology Commercialization and the global environment (on line)
 - MGMT 512: Strategic Technology Management

- MGMT 513: Technology Assessment and Forecasting
- MGMT 515: Innovative New Product Development
- MGMT 516: Entrepreneurial Finance for Technology
- MGMT 519: Projects in Technology Commercialization (Synchronous on line)
- MGMT 517: Technology Project Management (Synchronous on line)
- MGMT 594/490: Introduction to Project Management
- MGMT 594/490: Advanced Project Management Techniques
- MGT Project/Thesis/BPLAN
 - MGMT 514 – Technological Entrepreneurship

CASE 2: Computer Engineering

Computer Networks and Systems – ETM Emphasis

- Major Core Courses and Seminar
 - ECE537 – Foundations of Computing (core)
 - ECE536 – Computer Systems Software (core)
 - ECE540 – Advanced Networking Topics (core)
 - ECE541 – Probability Theory and Stochastic Processes (outside core)
 - ECE590 – Graduate Seminar
- Project/Thesis/BPLAN
 - ECE556/595 – Entrepreneurial Engineering
- MGT Courses (must choose 4 with assistance from supervisor)
 - MGMT 511 Technology Commercialization and the global environment (on line)
 - MGMT 512: Strategic Technology Management
 - MGMT 513: Technology Assessment and Forecasting
 - MGMT 515: Innovative New Product Development
 - MGMT 516: Entrepreneurial Finance for Technology
 - MGMT 519: Projects in Technology Commercialization (Synchronous on line)
 - MGMT 517: Technology Project Management (Synchronous on line)
 - MGMT 594/490: Introduction to Project Management
 - MGMT 594/490: Advanced Project Management Techniques
- MGT Project/Thesis/BPLAN
 - MGMT 514 – Technological Entrepreneurship (on-line)

Program Directors

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