

Proceedings
Teaching Entrepreneurship to Engineering
Students

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Entrepreneurial Engineering Education
at the University of Maryland

David Barbe
University of Maryland

Scott Magids
University of Maryland

Karen Thornton
University of Maryland

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Entrepreneurial Engineering Education at the University of Maryland

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Vision

A robust culture in which technical students and faculty learn to be leaders in transforming knowledge and technology into commercial enterprises



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Outline

- Technology Entrepreneurship Culture Building
- Resources for Tech Entrepreneurs
- Hands-On Venture Formation



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Technology Entrepreneurship Culture Building

- Technical Entrepreneurship course in Engineering school
- Tech Ventures Club
- Hinman CEOs Program
- Tech Startup Boot Camp



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Course: Fundamentals of Technology Startup Ventures

- 30 technical graduate students
- Boardroom setting
- Study basic processes of tech company formation and operation
- Form into teams
- Teams develop business plans during semester
- Teams present plans to “judges”
- Course co-taught by engineering professor and venture capitalist



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Tech Ventures Club

- Dynamic forum for technical graduate students to network and explore commercializing an idea and forming a venture
- 75 active members
- Monthly meetings include start-up workshops, speakers, and social mixers
- Members have opportunity to network with local VCs, service providers, business students and entrepreneurs



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Hinman CEOs Program

- 100 undergrads, one-half majoring in technical disciplines
- **Community**
- Technology
- Seminars and Workshops
- Product Development Projects; Internships
- Business School Entrepreneurship Courses
- Start companies



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Tech Startup Boot Camp

- Kicks off the academic year
- 200+ students and faculty
- Regional sponsors
- Basic startup processes
 - Evaluating tech ideas
 - IP basics and licensing
 - Legal fundamentals
 - Building a team
 - Obtaining financing
 - Entrepreneur experiences
- Presented by experienced VCs, service providers, and tech executives
- Networking



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Resources for Tech Entrepreneurs

- Business Plan Competition
- Web Resources
- Mentoring



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Business Plan Competition

- Culmination of academic year
- \$50,000 in prizes raised from sponsors
- 60+ entries
- Select top 16 based on executive summaries
- Judging panel selects top six for full plans and presentations
- Usually three awards
- Networking and mentoring sessions between six finalists and judges/sponsors during the Spring semester



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Web Resources

- Technical entrepreneurship web portal under development:
 - Forecasting template
 - Business plan preparation guidance
 - IP rules
 - Information on funding sources
 - Testimonials and case studies



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Mentoring

- Business plan reviews, questions about funding, advice about IP
common inquiries to mentors
- Available to students in Hinman CEOs program, ENES course, and Tech Ventures Club
- University staff involved in technical entrepreneurship provide “level one” mentoring
- Extensive database of entrepreneurs, consultants, retired execs, VCs, and service providers offer “level two” mentoring



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Hands-On Venture Formation

- VentureAccelerator
- Seed-Stage Funding
- Full-Service Tech Incubator



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VentureAccelerator

- Substantial Hands-on consultation and advice to selected entrepreneurs and young firms:
 - Introductions to funding sources
 - Preparation of presentations and business-plans
 - Strategic planning
 - Executive recruitment
- Play same roles as active Advisory Board members
- Former VC Partner manages Accelerator



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Seed Stage Funding

- Product and prototype development projects for startup companies
- Matching funds up to \$80K/yr
 - 90% of the funding with 2% royalty payback
 - 100% funding with 2% royalty and 2% equity
- Conducted jointly by faculty/graduate students and startup companies



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Full-Service Incubator

- 21,500 NASF building for tech startups
- Outstanding on-campus technology and business environment
- 17 year track record
 - 45 companies graduated
- Up to four years of nurturing
- Populates the region with tech companies
- Provides internships to technical students
- Incubator companies can access VentureAccelerator services



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Implementing an engineering approach to technical entrepreneurship education

- Systematic
- Comprehensive
- Experiential
- www.mtech.umd.edu



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