December 17, 2015

MEMORANDUM

TO: Darryll Pines  
Dean, A. James Clark School of Engineering  
Charles Caramello  
Associate Provost and Dean, Graduate School

FROM: Elizabeth Beise  
Associate Provost for Academic Planning and Programs

SUBJECT: Proposal to Modify the Master of Professional Studies in Technology Entrepreneurship (PCC log no. 15019)

The proposal to modify the Master of Professional Studies in Technology Entrepreneurship has been administratively approved. A copy of the proposal is attached.

The change is effective Spring 2016. Please ensure that the change is fully described in all relevant descriptive materials.

MDC/
Enclosure

cc: Andrew Harris, Chair, Senate PCC Committee  
Barbara Gill, Office of Enrollment Management  
Reka Montfort, University Senate  
Erin Taylor, Division of Information Technology  
Pam Phillips, Institutional Research, Planning & Assessment  
Anne Turkos, University Archives  
Linda Yokoi, Office of the Registrar  
Alex Chen, Graduate School  
William Fourney, A. James Clark School of Engineering
THE UNIVERSITY OF MARYLAND, COLLEGE PARK
PROGRAM/CURRICULUM/UNIT PROPOSAL

- Please email the rest of the proposal as an MSWord attachment to pcc-submissions@umd.edu.
- Please submit the signed form to the Office of the Associate Provost for Academic Planning and Programs, 1119 Main Administration Building, Campus.

PCC LOG NO. 15019

College/School: A. James Clark School of Engineering
Please also add College/School Unit Code-First 8 digits: 01203200
Unit Codes can be found at: https://kypprod.umd.edu/Html_Reports/units.htm

Department/Program: Maryland Technology Enterprise Institute (Mtech)
Please also add Department/Program Unit Code-Last 7 digits: 1321101

Type of Action (choose one):
× Curriculum change (including informal specializations) □ New academic degree/award program
□ Curriculum change for an LEP Program □ New Professional Studies award iteration
□ Renaming of program or formal Area of Concentration □ New Minor
□ Addition/deletion of formal Area of Concentration □ Request to create an online version of an existing program
□ Suspend/delete program

Italics indicate that the proposed program action must be presented to the full University Senate for consideration.

Summary of Proposed Action:
The A. James Clark School of Engineering and Mtech are requesting approval to add “ENES672: Launching the Technology Venture” to the eligible courses for the Master of Professional Studies in Technology Entrepreneurship.

Departmental/Unit Contact Person for Proposal: James V. Green  jvgreen@umd.edu  301-314-1450

APPROVAL SIGNATURES - Please print name, sign, and date. Use additional lines for multi-unit programs.

1. Department Committee Chair
   
2. Department Chair
   
3. College/School PCC Chair
   
4. Dean
   
5. Dean of the Graduate School (if required)
   
6. Chair, Senate PCC
   
7. University Senate Chair (if required)
   
8. Senior Vice President and Provost

4/29/15
4/29/15
10/7/2015
10/7/2015
12/9/15
12/4/2015
10/17/2015
10/17/2015
PCC PROPOSAL FOR CURRICULUM CHANGE
ADD COURSE ENES672 TO THE MASTER OF PROFESSIONAL STUDIES IN
TECHNOLOGY ENTREPRENEURSHIP

OVERVIEW OF MASTERS
The Master of Professional Studies in Technology Entrepreneurship aims to first equip students with a conceptual understanding of the principles of effective new venture creation and launch. The program then prepares its students to apply these insights and acquired competencies to real-world entrepreneurial opportunities across five major stages of the innovation value chain from idea generation to launching a technology-based venture. The curriculum maps to the lifecycle of new venture creation and launch.

CURRENT CURRICULUM
The 30-credit, 10 course curriculum is completed on a 15-month schedule. Students enroll in two 3-credit courses per 12-week term.

Table 1. Curriculum Overview (Existing)

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
<th>Term 4</th>
<th>Term 5</th>
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</thead>
<tbody>
<tr>
<td>Innovative Ideas &amp; Concept Development</td>
<td>Innovative Thinking</td>
<td>Creative Design, Prototyping, &amp; Testing</td>
<td>Legal Aspects of Entrepreneurship</td>
<td>Corporate Technology Entrepreneurship</td>
</tr>
</tbody>
</table>

A detailed description of the courses is provided as table 2 on the next page.
| Term 1 | ENES662 Innovative Ideas and Concept Development: Focuses on the content, methods, and models for new venture opportunity assessment and analysis. Learn how to identify and analyze entrepreneurial opportunities for technology-based ventures by first understanding their personal self and decision-making factors. Examine how to evaluate the opportunities and challenges within industries and markets of interest. |
| Term 2 | ENES664 Business Modeling and Customer Validation: Focuses on how to create and deliver value for customers and how to sustainably extract value for the venture. Develop business models that encompass the product or service, customers, and the economic engine that will deliver on venture objectives. |
| Term 3 | ENES666 Creative Design, Prototyping, and Testing: Enables students to transition from creative, innovative, design thinking methods to prototyping and concept testing their products and services. Emphasis is placed on an integrated and interdisciplinary approach to engineering design, concurrent engineering, design for manufacturing, industrial design, and the business of new product development. |
| Term 4 | ENES669 Legal Aspects of Entrepreneurship: Highlights the critical legal and business issues entrepreneurs face as they build and launch a new venture. Explore real world scenarios, and address legal and business issues from ideation to all of the important junctures along the path to success. Significant attention is placed on new venture formation, intellectual property management, and financing arrangements. |
| Term 5 | ENES668 Corporate Technology Entrepreneurship: Provides insight into the innovation process in corporations and the unique problems and opportunities that managers and corporate entrepreneurs face in translating innovative ideas into successful results, from opportunity recognition to new venture corporation. |

| Term 1 | ENES663 Strategies for Managing Innovation: Emphasizes how innovative leaders can use strategic management of innovation to enhance firm performance. Understand the process of technological change; the ways that firms come up with innovations; the strategies that firms use to benefit from innovation; and the process of formulating technology strategy. Provides frameworks for analyzing key aspects of these industries and teaches students how to apply these frameworks. |
| Term 2 | ENES665 Innovative Thinking: Introduces tools to boost creative problem solving skills. Rediscover personal thinking preferences, identify and eliminate mental blocks, and enhance communication and teaming skills. Unlock their creative potential, and explore win-win approaches to problem solving. |
| Term 3 | ENES667 Market Development and Commercialization: Provides an orientation to key marketing concepts critical to marketing technology-based products and services. Identify market opportunities, understand customer preferences, evaluate market acceptance, and devise the appropriate going to market strategies. |
| Term 4 | ENES670 Financial Management and New Venture Financing: Provides the essential tools and know-how to build a strong financial foundation for a new technology venture. Examines accounting principles as well as methods for keeping firm financial control of your enterprise. Insights are shared on navigating financial barriers as well as how to raise the right amount of capital at the right time from the right source. |
| Term 5 | ENES660 Fundamentals of Technology Startup Ventures: Explores the processes and skills needed to launch and manage startup ventures. Examines best practices for planning, launching, and managing new companies. Discusses how to launch and grow the venture effectively by leveraging models and approaches to navigate uncertainty. |
NEW COURSE PROPOSED FOR INCLUSION IN THE MASTERS

ENES672: Launching the Technology Venture

The A. James Clark School of Engineering is requesting approval to add “ENES672: Launching the Technology Venture”. This new six-credit course is to be offered as the fifth term course as the final course in the program. ENES672 will replace the current three-credit ENES660 and ENES668 courses.

Table 1. Curriculum Overview (New: Term 5 three-credit courses replaced with the new ENES672 six-credit course)

<table>
<thead>
<tr>
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<td>• Innovative Ideas &amp;</td>
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<td>• Launching the Technology Venture</td>
</tr>
<tr>
<td>Concept Development</td>
<td>Concept Development &amp;</td>
<td>Testing</td>
<td>Financial Management &amp; New Venture</td>
<td></td>
</tr>
<tr>
<td>• Strategic for</td>
<td>Customer Validation</td>
<td>Market</td>
<td>Financing</td>
<td></td>
</tr>
<tr>
<td>Managing Innovation</td>
<td></td>
<td>Development &amp; Commercialization</td>
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ENES672 explores the processes and skills needed to launch and manage technology startup ventures. Students learn how to apply best practices for planning, launching, and leading new companies. We discuss a wide range of issues of importance and concern to technology entrepreneurs, to include how to navigate uncertainty.

ENES672 is currently pending approval from VPAC.
COURSE DESCRIPTION

This course helps students to learn the processes and skills needed to launch and manage technology startup ventures. Students learn how to apply best practices for planning, launching, and managing new companies. Students will discuss a wide range of issues of importance and concern to technology entrepreneurs, to include how to navigate uncertainty.

COURSE GOALS

• To learn how to plan, launch, and manage a technology start-up venture;
• To build confidence in students’ personal talents, develop an entrepreneurial skill set, and learn how to pair these talents with others who have complementary skills;
• To develop specific skills, competencies, research and analysis methods, and perspectives of technology start-up success factors; and
• To provide students with the skills for identifying and analyzing entrepreneurial opportunities throughout their career.

STATEMENT OF CONFIDENTIALITY

Throughout the course, students will be exposed to proprietary information from other students, guest lecturers and faculty. All such information is to be treated as confidential. By enrolling in and taking part of this course, students agree not to disclose this information to any third parties without specific written permission from students, guest lecturers or faculty, as applicable. Students further agree not to utilize any such proprietary information for their own personal commercial advantage or for the commercial advantage of any third party. In addition, students agree that any advice provided by the instructor and any affiliated parties will not serve as the basis of any legal suit. Any breach of this policy may subject a student to academic integrity proceedings as described in the University of Maryland policies and procedures, and to any remedies that may be available at law. Receipt of this policy and registration in our classes is evidence that you understand this policy and will abide by it.

UNIVERSITY CODE OF ACADEMIC INTEGRITY

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit http://www.shc.umd.edu.
COURSE MATERIALS

- Articles and readings as assigned.

GRADING

<table>
<thead>
<tr>
<th>Interim Assignments</th>
<th>35%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Concept Submission</td>
<td>5%</td>
</tr>
<tr>
<td>2. Competitive Analysis</td>
<td>10%</td>
</tr>
<tr>
<td>3. Marketing Strategy</td>
<td>10%</td>
</tr>
<tr>
<td>4. Financial Statements</td>
<td>10%</td>
</tr>
</tbody>
</table>

| Business Plan                     | 35% |
| Investor Presentation             | 30% |

PARTICIPATION POLICY

Active participation in the online conferences and discussion boards are expected each week. Our class for the each week will start on Monday morning and conclude at midnight on Sunday.
Concept Submission

Develop a five-page description and analysis on your new venture concept with attention to:

1. Defining the concept.
2. What is unique about the concept compared to current and expected competitors?
3. What is the current and expected state of the market (customers)?
4. How do your personal interests, ambitions, and relationships align with the opportunity?

Competitive Analysis

Develop a five-page competitive analysis for your venture. Focus on:

1. Defining each of the Five Forces impacting your venture
2. Assessing the relative force (low, medium, high) on your venture for each force
3. Discussing potential strategies to position your venture successfully given the forces

Marketing Strategy

Develop a five-page marketing strategy for your venture. The outline for the marketing plan is:

1. Marketing objectives
2. Target customer segments: With consideration of how you will Cross the Chasm
3. Marketing mix: Product, price, promotion, & placement
4. Sales methods to include personal selling and/or sales channels, etc.

Financial Statements

Develop comprehensive sales forecasts and financial statements:

1. Sales Forecast
2. Income Statement
3. Cash Flows Statement
4. Balance Sheet

Within each of these items, include 3 years of forecasts from the time that revenues are initially generated. For example, include 3 years if revenues start in year 1, 4 years if revenues start in year 2, etc. Include a page to define key assumptions about Revenues and Expenses.

Business Plan

Using the outline provided in the text, develop a business plan of approximately 25 pages including cover page, tables of contents, executive summary (of 1 to 2 pages), financials, tables, charts, etc.

Investor Presentation

Develop and present a presentation to share your concept with a panel of investors.
PART I: VENTURE OPPORTUNITY, CONCEPT, AND STRATEGY

1. Economic Growth and the Technology
   a. The Entrepreneur
   b. The Entrepreneur's Challenge
   c. The Entrepreneur
   d. Economics and the Firm
   e. Creative Destruction
   f. Innovation and Technology

2. Opportunity and the Concept Summary
   a. Opportunity Identification
   b. Trends and Convergence
   c. Opportunity Evaluation
   d. The Concept Summary

3. Vision and the Business Model
   a. The Vision
   b. The Mission Statement
   c. The Value Proposition
   d. The Business Model
   e. Business Model Innovation in Challenging Markets
   f. Core Competencies
   g. Sustainable Competitive Advantage

4. Competitive Strategy
   a. Venture Strategy
   b. The Industry and Context for a Firm
   c. SWOT Analysis
   d. Barriers to Entry
   e. Achieving a Sustainable Competitive Advantage
   f. Alliances
   g. Matching Tactics to Markets
   h. The Socially Responsible Firm

5. Innovation Strategies
   a. First Movers Versus Followers
   b. Imitation
   c. Creativity and Invention
   d. Types and Sources of Innovation
   e. Technology and Innovation Strategy
   f. New Technology Ventures

PART II: VENTURE FORMATION AND PLANNING

6. Risk and Return
   a. Risk and Uncertainty
   b. Scale and Scope
   c. Network Effects and Increasing Returns
   d. Risk Versus Return
   e. Managing Risk

7. The Business Plan
   a. Creating a New Business
   b. The New Venture Story
   c. Crafting the Business Plan

8. Types of Ventures
   a. Independent Versus Corporate Ventures
   b. Nonprofit and Social Ventures
   c. Family-Owned Businesses
   d. Corporate New Ventures
   e. The Innovator's Dilemma
   f. Incentives for Corporate Venture Success
   g. Building and Managing Corporate Ventures

9. Knowledge, Learning, and Design
   a. The Knowledge of an Organization
   b. Managing Knowledge Assets
   c. Learning Organizations
   d. Product Design and Development
   e. Product Prototypes
   f. Scenarios

10. Legal Formation and Intellectual Property
    a. Legal Form of the Firm
    b. Company Name
    c. Intellectual Property
    d. Trade Secrets
    e. Patents
    f. Trademarks
    g. Copyrights
    h. Licensing
PART III: FUNCTIONAL PLANNING FOR THE VENTURE

11. The Marketing and Sales Plan
   a. Marketing
   b. Marketing Objectives and Customer Target Segments
   c. Product and Offering Description
   d. Market Research and Customer Development
   e. Brand Equity
   f. Marketing Mix
   g. Customer Relationship Management
   h. Diffusion of Technology and Innovations
   i. Crossing the Chasm
   j. Personal Selling and the Sales Force

12. The New Enterprise Organization
   a. The New Venture Team
   b. Organizational Design
   c. Leadership
   d. Teams
   e. Management
   f. Emotional Intelligence
   g. Organizational Culture
   h. Social Capital
   i. Attracting and Retaining Talent
   j. Ownership and Stock Options
   k. Board of Directors

13. Acquiring and Organizing Resources
   a. Acquiring Resources and Capabilities
   b. Influence and Persuasion
   c. Location and Cluster Dynamics
   d. Facility Planning
   e. Telecommuting and Teleconferencing
   f. The Internet
   g. Vertical Integration and Outsourcing
   h. Innovation and Virtual Organizations
   i. Acquiring Technology and Knowledge

14. Management of Operations
   a. The Value Chain
   b. Processes and Operations Management
   c. The Value Web
   d. Strategic Control and the Balanced Scorecard
   e. Scheduling and Operations

15. Acquisitions and Global Expansion
   a. Acquisitions and the Quest for Synergy
   b. Acquisitions as a Growth Strategy
   c. Global Business
PART IV: FINANCING AND BUILDING THE VENTURE

16. Profit and Harvest
   a. The Revenue Model
   b. The Cost Model
   c. The Profit Model
   d. Managing Revenue Growth
   e. The Harvest Plan
   f. Exit and Failure

17. The Financial Plan
   a. Building a Financial Plan
   b. Sales Projections
   c. Costs Forecast
   d. Income Statement
   e. Cash Flow Statement
   f. Balance Sheet
   g. Breakeven Analysis
   h. Measures of Profitability

18. Sources of Capital
   a. Financing the New Venture
   b. Venture Investments as Real Options
   c. Sources of Capital
   d. Bootstrap and Seed Financing
   e. Debt Financing
   f. Grants
   g. Angels
   h. Venture Capital
   i. Corporate Venture Capital
   j. Valuation
   k. Terms of the Deal
   l. Initial Public Offering

19. Presentations and Deal Negotiations
   a. The Elevator Pitch
   b. The Presentation
   c. Negotiating the Deal
   d. Critical Issues for the Business Plan

20. Leading Ventures to Success
   a. Execution of the Business Plan
   b. Stages of a Business
   c. The Adaptive Enterprise
   d. Ethics
Mike,

For the rationale:

- From a course management and student workload perspective, we see a single 6-credit course as a more cohesive, coordinated experience for students versus the two 3-credit courses completed in parallel per our current model.
- From a content perspective, a single capstone experience within the new ENES672 course allows students to develop their own startup company instead of completing a course in corporate entrepreneurship (intrapreneurship) per the current model. Our current students are overwhelmingly interested in developing their own company instead of working within an existing company.

For currently enrolled students, we will offer students the option of aligning their ENES672 assignments with (1) a new startup company or (2) a new entity within an established corporation. This will preserve key elements of the corporate entrepreneurship course should there be any students that desire that option at that time.

Thanks,

James

Dr. James V. Green
Director of Entrepreneurship Education
Maryland Technology Enterprise Institute (Mtech)
A. James Clark School of Engineering
University of Maryland, College Park
Tel: 301.314.1450 Fax: 301.314.9192 Web: Mtech.umd.edu

Hi James,

We are looking over http://www.provost.umd.edu/ProgDocs/15-16/15019_GRAD_ENGR_ModifyMPSTechnologyEntrepreneurship.pdf and have a couple questions. What is the rationale for the change to the curriculum? Also, how will you handle students who are currently in the program?

Thanks,

Mike

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