MEMORANDUM

TO:        Darryll Pines
        Dean, A. James Clark School of Engineering

FROM:     Elizabeth Beise
          Associate Provost for Academic Planning and Programs

SUBJECT: Proposal to Modify the Minor in Technology Entrepreneurship (PCC log no.
          14037)

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

The change is effective immediately. Please ensure that this change is fully described in
the Undergraduate Catalog and in all relevant descriptive materials, and that all advisors are
informed.

MDC/
Enclosure

cc:        Gregory Miller, Chair, Senate PCC Committee
        Barbara Gill, Office of Student Financial Aid
        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
        Cynthia Stevens, Office of Undergraduate Studies
        William Fourney, A. James Clark School of Engineering
        James Green, Maryland Technology Enterprise Institute
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.

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://hypprod.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

Italicics 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 "ENES466: Leading and Financing the Technology Venture" to the eligible courses for the Minor in Technology Entrepreneurship.

Note: This proposal also includes the removal of ENES470 from the list of eligible courses for the curriculum.

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 Peter Sandborn, 2/12/15
2. Department Chair Peter Sandborn, 2/12/15
3. College/School PCC Chair Carrie Bucci, 2/24/15
4. Dean William F. Freaney, 2/25/15
5. Dean of the Graduate School (if required)
6. Chair, Senate PCC
7. University Senate Chair (if required)
8. Senior Vice President and Provost Gyiakh Faire, 2/27/2015
PCC PROPOSAL FOR CURRICULUM CHANGE
ADD COURSE ENES466 TO THE MINOR IN TECHNOLOGY ENTREPRENEURSHIP

OVERVIEW OF MINOR

The Minor in Technology Entrepreneurship prepares students for launching successful technology ventures and bringing life-changing products and services to market. The Minor develops the entrepreneurial mind-set and functional skillsets of students to improve their ability to create, launch, and manage technology ventures. Students may earn a minor in Technology Entrepreneurship by completing coursework which focuses on entrepreneurial opportunity analysis, marketing high-technology products, strategies for managing innovation, and international entrepreneurship and innovation.

Since the establishment of the Minor in Technology Entrepreneurship in fall 2011, 91 students have graduated with the Minor. As of spring 2015, there are 246 students enrolled in the Minor.

CURRENT CURRICULUM

The 15-credit undergraduate Minor is completed from a subset of 11 courses. At least 9 credits must be completed at the 400-level to earn the Minor. While course options are available, application of 100 and 200-level courses is limited to a total of six credits.

ENES 140 Discovering New Ventures
Students explore dynamic company startup topics by working in teams to design a new venture. This multi-disciplinary course helps students to learn the basic business, strategy, and leadership skills needed to launch new ventures. Topics include learning how to assess the feasibility of a startup venture, as well as how to apply best practices for planning, launching, and managing new companies. Students discuss a wide range of issues of importance and concern to entrepreneurs and learn to recognize opportunities, assess the skills and talents of successful entrepreneurs, and learn models that help them navigate uncertainty. (3 credits)

ENES 210: Entrepreneurial Opportunity Analysis & Decision-Making in Technology Ventures
This interdisciplinary course helps students learn the principles of entrepreneurial opportunity analysis and decision-making in an increasingly dynamic and technically-inclined society. Emphasis is placed on how aspiring technology entrepreneurs can develop their entrepreneurial mindset and opportunity recognition capabilities to develop winning entrepreneurial plans for future ventures. ENES 210 is currently approved as a scholarship in practice and I-series course. (3 credits)

ENES 460: Fundamentals of Technology Start-Up Ventures
Fundamental aspects of creating, organizing, funding, managing, and growing a technology startup venture. This multidisciplinary course will draw on management, business, legal, financial, as well as technical, concepts. Students form teams and develop a business plan for a technology company, based on each team's own business idea and then present the plan to a panel of outside experts. (Formerly ENES489A). (3 credits)

ENES 461: Advanced Entrepreneurial Opportunity Analysis in Technology Ventures
This course explores the factors that influence entrepreneurial opportunity analysis in technology-based ventures, to include, but not limited to, software, IT, biotech, and energy startups. Using a cognitive theoretical framework the course examines the integration of motivation, emotions and information processing modes to make complex entrepreneurial decisions in fast pace technology venture environments. The course is an informed and interesting exploration of entrepreneurial cognition with both theoretical and methodological contributions for active and aspiring student technology entrepreneurs. (3 credits)
ENES 462: Marketing High-Technology Products and Innovations
Marketing of high-technology products occurs in turbulent environments and requires rapid decision making with incomplete information. Innovations are introduced at frequent intervals, research-and-development spending is vital, and there are high mortality rates for both products and businesses. The course will provide a balance between conceptual discussions based on readings of concepts and practices, and applied/hands-on analysis through industry analyses, cases, guest speakers, and a semester project. (3 credits)

ENES 463: Strategies for Managing Innovation
This course emphasizes how the technology entrepreneur can use strategic management of innovation and technology to enhance firm performance. It helps students to 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. It provides frameworks for analyzing key aspects of these industries and teaches students how to apply these frameworks. (3 credits)

ENES 464: International Entrepreneurship & Innovation
This course focuses on the need for every entrepreneur and innovator to understand the global market in today’s hypercompetitive world, and to appreciate how to compete effectively in domestic markets by managing international competitors, suppliers, and influencers. As an ever-growing number of countries become market oriented and developed, students explore how the distinction between foreign and domestic markets is becoming less pronounced. Students also develop skills to identify and manage opportunities on a global basis. (3 credits)

ENES 465: Entrepreneurial Design Thinking
This course explores the use of design thinking as an approach to developing customer-centered solutions to problems and fostering sustained innovation within an organization. Through interactive lectures, discussions, and hands-on, team-based activities, students will learn design thinking strategies and apply them to finding innovative product- or service-based solutions to contemporary issues. ENES 465 is currently approved as a scholarship in practice course. (3 credits)

HEIP 143: Foundations of Entrepreneurship and Innovation
This course introduces foundational ideas and terms in entrepreneurship and innovation, with attention to developing students understanding of cultivating a business in diverse, global environments; leading and collaborating in a competitive world; developing an entrepreneurial mind for an entrepreneurial world; and industry dynamics of technological innovation. Restricted to students in the Honors Entrepreneurship and Innovation Program. (1 credit)

HEIP 240: Exploring International Entrepreneurship & Innovation
This course provides an introduction to the opportunities and challenges of entrepreneurship and innovation from an international perspective through lectures and guest speakers with international experiences. Restricted to students in the Honors Entrepreneurship and Innovation Program. HEIP 240 is currently approved as a scholarship in practice course. (3 credits)

HEIP 241: Social Entrepreneurship Practicum
This capstone course is for enhancing strategic capabilities and leadership skills through the development of an innovative for-profit product or service concept with social benefits. Restricted to students in the Honors Entrepreneurship and Innovation Program. (2 credits)

All courses counted towards the Minor must be completed with a C- or better, and students who matriculated to UM in or after the Fall of 2012 must earn a 2.0 cumulative Minor GPA.
NEW COURSE PROPOSED FOR INCLUSION IN THE MINOR

ENES 466: Leading and Financing the Technology Venture

The A. James Clark School of Engineering is requesting approval to add “ENES466: Leading and Financing the Technology Venture” to the Minor in Technology Entrepreneurship curriculum. ENES 466 is in alignment with the goals of the Minor to develop the entrepreneurial mind-set and functional skillsets of students to improve their ability to create, launch, and manage technology ventures. ENES 466 would be a valuable addition to the Minor, and an opportunity for students to diversify and customize their Minor curriculum.

This course focuses on the challenges associated with leading and financing new technology ventures. Leadership topics include team selection and formation, aligning rewards with relative contributions of team members, and how early decisions can enable or prevent founders from achieving results that align with their individual motivations for becoming an entrepreneur. Essential tools and methods for building a strong financial foundation for a new technology venture are examined. This includes important accounting principles as well as methods for keeping financial control of the technology venture. Insights are shared on navigating the multitude of financial barriers that may block your entrepreneurial success, as well as how to grow the technology venture from concept through launch.

ENES 466 is currently pending approval from VPAC. This is a three credit course.
Removal of ENES470 from curriculum

Earlier this academic year, a PCC proposal (log number 14020) was approved to include ENES470 New Venture Financing and Growth as an eligible course for the minor in Technology Entrepreneurship. During the course proposal process, the Robert H. Smith School of Business expressed concerned that the content of the course duplicated the BMGT365 Entrepreneurial Finance and Private Equity. After discussing with the Smith School, the decision was made to withdraw the course proposal for ENES470 and remove the course from the current curriculum. ENES466 was designed to take its place as a course that integrates leadership, accounting and finance for technology entrepreneurs.
ENES466: Leading and Financing the Technology Venture

COURSE DESCRIPTION

This course focuses on the challenges associated with leading and financing new technology ventures. Leadership topics include team selection and formation, aligning rewards with relative contributions of team members, and how early decisions can enable or prevent founders from achieving results that align with their individual motivations for becoming an entrepreneur. Essential tools and methods for building a strong financial foundation for a new technology venture are examined. This includes important accounting principles as well as methods for keeping financial control of the technology venture. Insights are shared on navigating the multitude of financial barriers that may block your entrepreneurial success, as well as how to grow the technology venture from concept through launch.

COURSE GOALS

• Understand the leadership strategies for how to anticipate and avoid the pitfalls associated with launching and leading a technology venture;
• Learn how to create accounting and financial statements for new technology ventures; and
• Develop skills for applying methods for structuring funding deals to benefit both the financier and the technology entrepreneur.

COURSE MATERIALS

• Case Study: Apple’s Core (Graphic Novel Version), Noam Wasserman; Thomas Alexander; Product # 814059-PDF-ENG (Available at a Student Discount via Harvard Business Publishing).
• Case Study: Slicing Pie With A Razor: Ockham Technologies’ Founding Agreement, Noam Wasserman; Yael Braid; Product #814017-PDF-ENG (Available at a Student Discount via Harvard Business Publishing).
• Additional recommended readings and videos are detailed within the course syllabus.

GRADING

Class Discussions
• Contribution and Discussion of Readings 7.5%
• Quizzes 7.5%

Assignments
• Case Study - Apple’s Core 15%
• Case Study - Ockham Technologies 15%
• Founding Team Dilemmas 15%
• Company Valuation 15%
• Funding Plan and Pitch 15%

Peer Evaluations 10%

100%
GUIDELINES FOR ALL COURSE ASSIGNMENTS

The following guidelines apply to all assignments without exception.

- Written assignments will be in 12 pt font, Times New Roman, & single-spaced with 1” margins, with the exception of the student presentations that will be delivered using PowerPoint.
- Submit all assignments online within Canvas by the start of class on the due date, but you are highly encouraged to turn in papers before the deadline.
- References should be cited in APA format.
- Late assignments will receive a 10% penalty for each day the assignment is late.
- Do not exceed the page limit requirement as stated in each assignment (minimum 5 pt. penalty).
- Assignments not meeting all of these guidelines will not be accepted.

ACADEMIC INTEGRITY

The University of Maryland is one of a small number of universities with a student-administered Honor Code and an Honor Pledge. The Code prohibits students from cheating on exams, plagiarizing papers, submitting the same paper for credit in two courses without authorization, buying papers, submitting fraudulent documents, and forging signatures. The University Senate asks instructors to consider asking students to write the following signed statement on each examination or assignment: I pledge on my honor that I have not given or received any unauthorized assistance on this examination (or assignment). Compliance with the code is administered by the Student Honor Council, which strives to promote a "community of trust" on the College Park campus. Allegations of academic dishonesty should be reported directly to the Honor Council (314-8450) by any member of the campus community. For additional information, consult the Office of Student Conduct website. For a description of the University's definition of academic dishonesty, suggestions on how to prevent cheating, and practical answers to frequently asked questions about the Code of Academic Integrity, consult the Student Honor Council's Resources for Faculty webpage.

ATTENDANCE AND PARTICIPATION POLICY

Attendance is expected, as topics increase in complexity and build upon one another daily. You are expected to come to class prepared, and play an active role in the discussions that take place during class periods. In the event that a class must be missed due to an illness, the policy in this class is as follows. For every medically necessary absence from class, a reasonable effort should be made to notify the instructor in advance of the class. When returning to class, students must bring a note identifying the date of and reason for the absence, and acknowledging that the information in the note is accurate. If a student is absent more than one time, the instructor may require documentation signed by a health care professional. If a student is absent on days when tests are scheduled or papers are due [or other such events as specified in the syllabus] he or she is required to notify the instructor in advance, and upon returning to class, bring documentation of the illness, signed by a health care professional.

For inclement weather, the course will adhere to the university schedule. Official closures and delays are announced on the campus website and snow phone line (301-405-SNOW) as well as local radio and TV stations.

The University of Maryland policy on religious observance states that students should not be penalized in any way for participation in religious observances and that, whenever feasible, they should be allowed to makeup academic assignments that are missed due to such absences. However, the student must personally hand the instructor a written notification of the projected absence within two weeks of the start of the semester. The request should not include travel time. It is the student's responsibility to inform the instructor of any intended absences for religious observances in advance and that prior notification is especially important in connection with final examinations, since failure to reschedule a final examination before the conclusion of the final examination period may result in loss of credits during the semester.
TEACHING AND LEARNING STYLE

The course comprises lectures, videos and some case studies and is highly interactive. Class participation is required. The teaching style will include class discussions on academic concepts with practical examples and applications. Students will be challenged to grasp concepts and relate them to other concepts presented.

COURSE EVALUATIONS

Your participation in the evaluation of courses through CourseEvalUM is a responsibility you hold as a student member of our academic community. Your feedback is confidential and important to the improvement of teaching and learning at the University as well as to the tenure and promotion process. CourseEvalUM will be open for you to complete your evaluations in the final weeks of the semester. Please go directly to the website (www.courseevalum.umd.edu) to complete your evaluations. By completing all of your evaluations each semester, you will have the privilege of accessing online, at Testudo, the evaluation reports for the thousands of courses for which 70% or more students submitted their evaluations.

SCHEDULE

1. Student and Instructor Introductions, Orientation and Course Overview (1/27)

MODULE 1 - PEOPLE DILEMMAS

Part 1: Pre-Founding
2. Introduction to People and Career Dilemmas (1/29)
   Read Wasserman, Chapters 1 and 2.
   Group Case Study: Apple’s Core (Graphic Novel Edition) - Introduction

Part 2: Founding Team Dilemmas
3. The Solo-Versus-Team Dilemma (2/3)
   Relationship Dilemmas: Flocking Together and Playing With Fire
   Read Wasserman, pages 69-71, and Chapters 3 and 4
4. Group Case Study: Apple’s Core (Graphic Novel Edition) - Class Discussion and Papers Due by February 9, 11:59 p.m. (2/5)
5. Guest Speaker
6. Role Dilemmas: Positions and Decision-Making (2/12)
   Read Wasserman, Chapter 5
7. Reward Dilemmas: Equity Splits and Cash Compensation (2/19)
   Read Wasserman, Chapter 6
   Group Case Study: Slicing Pie With A Razor: Ockham Technologies’ Founding Agreement
8. The Three “R’s” System: Alignment & Equilibrium (2/24)
   Read Wasserman, Chapter 7

Part 3: Beyond the Founding Team: Hires and Investors
9. Hiring Dilemmas: The Right Hires at the Right Time (2/26)
   Investor Dilemmas: Adding Value, Adding Risks
   Read Wasserman, Chapters 8 and 9
10. Failure, Success and Founder-CEO dilemmas (3/3)
    Read Wasserman, Chapter 10
11. Group Case Study: Slicing Pie With A Razor: Ockham Technologies’ Founding Agreement - Class Discussion and Papers Due by March 2, 11:59 p.m. (3/5)

Part 4: Final Dilemmas
12. Wealth-Versus-Control Dilemmas (3/10)
    Read Wasserman, Chapter 11
13. Curated Content/Guest Speaker (3/12)
14. The Early Stage Investment Landscape - Introduction (3/24)

Read Sherman, Preface to the Third Edition, Chapter 1, Chapter 9 pages 178-180
Additional Readings:
- E&Y Global Venture Capital Insights, 2014


15. Do You Speak The Language Of Venture Capital? (3/26)
Why Do You Start With A Business Plan?
Read Sherman, Chapter 3
Readings:
- 10 Terms You Must Know Before Raising Startup Capital, October 2013,
http://www.forbes.com/sites/jjcolao/2013/10/14/10-terms-you-must-know-before-raising-startup-capital/
- Glossary: Startup and Venture Capital Terms You Should Know, February 2014,
http://www.techrepublic.com/article/glossary-startup-and-venture-capital-terms-you-should-know/
- Financing Terms (PDF), October 2014, Courtesy of the Washington, DC Archangels
- How To Build A Billion Dollar Business Plan: 10 Top Points, August 2012,

Read Sherman, Chapter 2
- How to Choose the Best Legal Structure for Your Startup, Entrepreneur, November 2012,
http://www.entrepreneur.com/article/224976
- Deciding the best business structure for your startup, Launchhouse, February 2014,
Watch: Video interview with Michael Labriola, Partner, Wilson, Sonsini, Goodrich & Rosati

17. What Investors Are Looking For? (4/2)
Read Sherman, Chapter 1, pages 4-6
Additional Readings:
**Part 2: Sources of Capital for Early-Stage Technology Companies**

18. Sources Of Capital (4/7)
   (Friends and Family, Bootstrapping, Angels, Incubators, Accelerators)
   Read: Sherman, Chapters 4 and 5
   Watch: Video interview with Rick Gordon, President, Mach37.


20. Early-Stage Versus Late-Stage Capital - Timing and Requirements (4/14)
    Read/Review Sherman Chapter 9
    Additional Readings:
    GROUP ASSIGNMENT: Create a high-level funding schedule for a new venture concept and a pitch deck to
    present to prospective investors (which will be presented in the last two class sessions)

**Part 3: Getting Funded: Steps in the Funding Process**

21. Company Valuations, Term Sheets, Convertible Notes (4/16)
    Read/Review Sherman, Chapter 1 page 16, Chapter 10 pages 197-202, Chapter 12 pages 258-259, Chapter 14,
    pages 313-314.
    Additional Readings/Resources:
    - Thoughts on Convertible Notes, http://www.k9ventures.com/blog/2011/03/22/thoughts-on-convertible-notes/
    - Why Series Seed is better than capped convertible notes, http://www.seriesseed.com/posts/2010/09/version-
    20-and-why-series-seed-documents-are-better-than-capped-convertible-notes.html
    - Form of Convertible Promissory Note (PDF - draft of convertible promissory note)

22. The Due Diligence Process (4/21)
    Read/Review Sherman, Chapter 1, pages 16-20, Chapter 14 page 310-312.

23. Common and Preferred Stock (4/23)
    Read/Review Sherman, Chapter 1 page 15, Chapter 10 pages 198-204

    Read Sherman, Chapter 8
    Additional Readings
    - Evaluating the effectiveness of corporate venture capital investment in Tech,
    http://www.cbinsights.com/blog/top-corporate-venture-investors-tech/

**Watch Video:** Interview With Jonathan Aberman, Managing Director of Amplifier Ventures and Founder of
TandemNSI, the unique public-private partnership between Arlington Economic Development and Amplifier
Ventures.

Individual Assignment on Company Valuation Due April 28, 11:59 p.m.

**Part 4: Pitching Investors and Closing the Round**

25. Pitching Investors (4/30)
    Readings:
    - The Ultimate Pitch Deck to Raise Money For Startups,
    - The best startup pitch decks, http://bestpitchdecks.com/
    - How to tell your company’s story, http://www.inc.com/magazine/201402/adam-bluestein/sara-blakely-how-i-
got-started.html
    - Pitches Gone Wild: What NOT to do When You Pitch Your Startup to Investors,
    http://www.kcsourcelink.com/blog/blog/2014/09/15/pitches-gone-wild-what-not-to-do-when-you-pitch-your-
startup-to-investors

26. Closing The Round (5/5)
Reading
- Closing a startup financing deal, http://www.entrepreneur.com/article/167390
GROUP ASSIGNMENT - Create a high-level funding schedule for a new venture concept and a pitch deck to present to prospective investors - Funding schedule and PowerPoint pitch deck due May 6, 11:59 p.m.

27. Students Presentations (5/7)
28. Student Presentations (5/12)

Other Readings/Resources Of Interest:
b) Startup Equity for Employees, http://www.payne.org/index.php/Startup_Equity_For_Employees
c) Series Seed (full set of deal documents), www.seriesseed.com