15.366: Energy Ventures
Fall, Thursdays: 5:00-8:00pm, Room 32-124
Recitation: 10:30am-12:00pm, Room E40-160

Instructors: Bill Aulet, Tod Hynes, Francis O’Sullivan
Office: Martin Trust Center for MIT Entrepreneurship (E40-160)
Office Hours: Email Ana Cuellar (cuellara@mit.edu) to make an appointment but generally Friday mornings
TA: Kevin Berkemeyer (kjberk@mit.edu)
For administrative issues, please email 15366-ta@mit.edu

Class Description
Energy Ventures is an opportunity for teams of business students, policy students, and technologists to build up skills, capabilities and contacts to create a new venture in the clean energy sector. This is an advanced entrepreneurship class that is sector focused to go beyond general entrepreneurship concepts and do a deeper dive on the special challenges in the clean energy industry and how to best address them. Student will learn through a mix of lectures, cases, guest speakers and exercises but primarily through their team project. Teams will form during the first three weeks of the class. Throughout the remainder of the semester, each team will work together to create a new business plan for a new venture. Lectures will focus both on the how-to’s of starting a new venture and the unique challenges faced by energy startups.

Dozens of highly successful entrepreneurs have learned their foundational skills in this course and secondarily many successful companies out of the class include SolidEnergy, FastCAP Systems, Altaeros Energies, KWhOURS, Covalent Solar, and Oscomp Systems. Energy Ventures teams have performed exceptionally well in business plan competitions after the class has been completed. In the last couple of years multiple teams were category winners and made the finals of the MIT Clean Energy Prize, the DOE National Energy Prize, won the Berkeley-Stanford Cleantech Launchpad, and were selected “Best Energy Team” at the Rice Business Plan Competition.

The class is application-only, and all students should come ready to actively engage. Entrepreneurship is not a spectator sport.

Grading
Grades will be based on three elements: class participation, homework assignments and the final presentation. The final presentation is the most important and weighted the most heavily in calculating a final grade. You will be evaluated on your contribution to the final project as well based on input from your teammates.
Attendance
With the exception of Sloan students during SIP week, please contact the TA’s if you need to miss class. Missing classes, especially with avoidable excuses, will adversely affect your grade but even more so the value you and your teammates get out of the class. This is a serious class for people who are very serious about energy innovation and we require high levels of commitment.

Assignments
Assignments should be submitted both in hard copy during class and electronically by one team member on Stellar. All of the interim deliverables should be submitted as if they were final versions given the work to date, but teams should flag gaps in their current understanding and include action plans to address them. Sections will be graded on a check, check-plus, check-minus basis based on the team’s progress, current content, and action plan.

Class 1: Introduction & Project Pitches 
September 5
Assignment:
• Read Xconomy articles by Bill Aulet
• Read the articles from Boston Globe and NY Times as well as the follow up comments on Switchboard
  o Response to the NY Times article on Switchboard: [http://switchboard.nrdc.org/blogs/cpaine/nrdc_response_to_coming_full_c.html](http://switchboard.nrdc.org/blogs/cpaine/nrdc_response_to_coming_full_c.html)
• Read “Introduction,” “Six Themes of the 24 Steps,” and “Step 0: Getting Started” from Disciplined Entrepreneurship book
• Upload resume to Stellar by 11:59pm on Friday, September 6

Agenda:
• Welcome, Course Overview and Getting Started (Bill Aulet)
  • 5:05 – 5:40 pm
  • Course logistics
  • Purpose of course & what makes it unique
  • Role of business planning
  • Importance & Interrelationship of Team, Vision & Idea
• What makes the energy sector unique & framework for success

• Break
  • 5:45-6:00

• State of Energy (Tod Hynes)
  • 6:00-6:40

• Introduction to classmates (Bill Aulet)
  • 6:40-7:10

• Presentation of Ideas
  • 7:10-7:45

• Q&A
  • 7:45-7:55

Class 2: Prioritizing and Brainstorming Ideas; Project Pitches  
**September 12**

Assignment:
• Comment on the class idea forum on Stellar, either by (quality of comments will impact your grade)
  1. Inputting at least one idea and commenting on at least two other, or
  2. Commenting on at least four ideas.
• Register for class [LinkedIn group](#)

Agenda (Subject to Change):
• Filtering & Prioritizing Ideas (Bill Aulet)
  • 5:05-5:15
• Brainstorming Techniques for Teams
  • 5:15-5:45
• Presentation of Ideas I (with some brainstorming)
  • 5:45-6:15
• Break
  • 6:15-6:30
• Presentation of Ideas II (without brainstorming)
  • 6:30-7:30
• Idea Fair in class to discuss ideas in fluid fashion
  • 7:30-7:55

Class 3: Understanding Your Customer; Starting Energy Company Realities  
**September 19**

Readings:
• Steps 1-7 in *Disciplined Entrepreneurship* book

Assignments:
• Comment on the class idea forum, either by:
• updating your idea and commenting on at least three others (quality of comments matters!), or
• commenting on at least five ideas (again, quality matters).
• Submit idea preferences (top 3) by 11:59pm on Sept. 15
• Submit final team selection, due by 12:00pm (noon) on Sept. 17.
• Meet with your team at least once before Sept. 19.

Agenda:
• Energy System: Energy Arithmetic
  • 5:05-5:40
• Energy Entrepreneurial Process: Orienting Your New Venture: Understanding Your Customer (Bill Aulet)
  • 5:40-6:10
• Break
  • 6:10-6:20
• Teamwork
  • 6:20-7:10
• Class Synthesis: Unfiltered View of Starting an Energy Company (Guest Speakers – need to be invited: Vanessa Green & Tony Sagneri, Pedro Santos, Shobin Uralil)
  • 7:10-7:55

Class 4: Value Proposition; Market Segmentation & Research September 26
Reading:
• Step 8: Quantifying the Value Proposition from Disciplined Entrepreneurship book.
• EnerNOC case (posted on Stellar)

Assignment:
• Write up a 60 second elevator pitch about your current project idea

Agenda:
• Energy System: Electricity Value Chain (Francis O'Sullivan)
  • 5:05 – 5:45
• Energy Entrepreneurial Process: Market Segmentation, Market Research & Determining and Communicating Your Value Proposition (Bill Aulet)
  • 5:45-6:15
• How to Give an Elevator Pitch
  • 6:15-6:35
• Start EnerNoc Case Study
  • 6:35-6:40
• Break
Class 5: Competitive Advantage and Innovation  
**October 3**

**Readings:**
- Steps 9-11 from *Disciplined Entrepreneurship* book

**Assignments:**
- Transcripts from at least four customer interviews due
- Executive summary due

**Agenda:**
- Energy System: Hydrocarbon Value Chain (Francis O’Sullivan)
  - 5:05-6:00
- Entrepreneurial Process: New Venture Strategy: Primary Market Research, Types of Innovation, Identifying & Gaining Competitive Advantage (Bill Aulet)
  - 6:00-6:30
- Break
  - 6:30-6:40
- Teamwork – Working on Projects
  - 6:40-7:30
- Class Synthesis: Guest Speaker on Competitive Advantage in the Energy Industry (or have Tod Hynes how he wrestles with competitive advantage at XLHybrids)
  - 7:15-7:55

Class 6: COCA/LTV; Policy & Pitch Practice*  
**October 10**

**Readings:**
- Read steps 12-19 of *Disciplined Entrepreneurship* book.

**Assignment:**
- Turn in a 60 second video elevator pitch (note: first round of Pitch Contest is October 15th-16th)

**Agenda:**
- Energy Systems I: The Transportation Value Chain (Tod Hynes)
  - 5:05-5:45
- Entrepreneurial Process: The Economic Equation of Startups (COCA/LTV) (Bill Aulet)
  - 5:45-6:30
Break
  • 5:55-6:10

Energy System II: Energy Policy Past, Present and Future … And the Relevance to Startups (Tod Hynes will be the point person but is he doing this too or who is doing this?)
  • 6:10-7:10

Teamwork: What Role Will Policy Play in your Startup?
  • 7:10-7:45

Teamwork: Practice Elevator pitches on each other
  • 7:45-7:55

*PLEASE NOTE: Recitation will not be held on Friday, October 11.

Class 7: Round Robin Presentations, Part I

Logistics:
  • Need one energy room for the entire class

Assignments:
  • Product and Competition Sections Due
  • Read steps 20-24 from Disciplined Entrepreneurship book
  • Apply steps 20 to 24 to project and make a first draft of how you think it might look.

Agenda:
  • Entrepreneurial Process: How Do We Efficiently and Effectively Build the Business and Scale It (Bill Aulet, Tod Hynes and Francis O’Sullivan)
    o 5:05-5:55
  • Break
    o 5:55-6:10
  • Presentations by the Teams with Feedback from Whole Class
    o 6:10-7:55

Class 8 (SIP): Perspectives on Starting Companies

Assignments:
  • Market and Go-to-Market Slides Due

Agenda:
  • Class Synthesis: Engineer’s View of Starting a Company (Invite: Riccardo Signorelli – FastCap Systems, Tony Sagneri - FinSIX, Qichao Hu-- SolidEnergy, Willie Sanchez – CoolChip)
  • Team Time
Class 9: Fundraising & Exits

Readings:
• Read “Venture Capital Investment in the Clean Energy Sector” by Ramana Nanda
• Optional: read “A Quiet Revolution in Clean Energy” by Nanda and Rothenberg
• Read Rand Fishkin’s blog post: http://randfishkin.com/blog/128/misadventures-venture-capital-funding
• Read Matt Nordan’s blog posts on the subject

Assignment:
• Go-to-market section due (sales, marketing, pricing strategy)
• Note: ACCELERATE applications due November 28th

Agenda:
• Entrepreneurial Process: Financing Your New Venture (Bill Aulet)
  o 5:05-5:30
• Building Your Financial Statements (Charlie Tillet)
  o 5:30-6:15
• Break
  o 6:15-6:30
• Exit Strategy (Ramana Nanda)
  o 6:30-7:25
• IP War Stories (Christopher Noble)
  o 7:25-7:55

Class 10: Round Robin

Assignment:
• Prepare a 10 minute presentation of your project touching on all the key points – understanding that it is not final but good enough to show the direction and a lot of work so you can get meaningful feedback

Readings:
• None

Agenda (Meet in E40-160): <<make sure you book all the rooms in the center for this time slot>>
• Round Robin Presentations
  • 5:05-7:55

Class 11: Building a Great Team; Behavioral Economics & Energy

Readings:
• Read Difficult Conversations, Chapters 4, 9, 10, 11
• Fill out survey (1 for geeks and 1 for hustlers)
Assignment:
• Revise business plans slides in teams based on the feedback from the round robin

Agenda:
• Team Dynamics
  • 5:05-6:15
• Break
  • 6:15-6:30
• Behavioral Economics & Energy with Chris Knittel <<let’s make sure to line him up, he is a star>>
  • 6:30-7:05
• Conversation about energy start-ups with Ray Rothrock
  • 7:05-7:55

Class 12: Intellectual Property; Examples of a Great Biz Plan  November 21
Assignment:
• Team and financial sections due
• Investor slide deck due

Agenda:
• Entrepreneurial Process: IP Overview (Bill Aulet)
  • 5:05-5:30
• Class Synthesis: IP War Stories
  • 5:30-6:30
• Break
  • 6:30-6:45
• Class Synthesis: Examples of a Great Plan
  • 6:45-7:55

Class 13: Presenting Your Business Plan; Corporates  December 5
Assignment:
• Submit investor slide deck & full business plan for submission next week

Agenda:
• Entrepreneurial Process: Presenting Your Business Plan (Bill Aulet)
  • 5:05-5:50
• Break
  • 5:50-6:00 Break
• Class Synthesis/Speaker: Corporates as Partners <<let’s line up Chevron, Shell, 3M, Bilfinger, GDF SUEZ, others???>
• 6:00-7:30
• Go to Market Strategy
  • 7:30 – 7:55

**Week of December 9-13**
Deliver final presentations to teaching team and submit final business plans. Submit final investor deck and business plans by December 13th.