

**\*Required**

## Syllabus:

Division*:	Innovation and Economic Development
Course Number:	IED 210
Course Title (Limited to 40 characters)*:	New Venture and Product Innovation
Expected Starting Academic Semester*:	Spring 2019
Expected Starting Academic Year*:	2018
Course proposer(s)*:	
Name(s) *:	Bulent Erbilgin, instructor; Hattan Ahmed, lecturer
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Instructor(s) information*:	
Name(s) *:	Bulent Erbilgin, instructor; Hattan Ahmed, lecturer
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Prerequisite Course Number*:	
	None
Comprehensive Course Description*:	<p>This module is a three-credit elective course during the spring internship period for students with strong academic standing. It is designed to give students the opportunity to develop and refine a business model and value proposition for a new venture or a corporation innovation project based around the commercialization of an existing technology. This would be based on an existing piece of intellectual property pre-selected by I&amp;ED which could be from KAUST or a corporate partner. The program will provide students with an overview of key subjects that will aid the new product development process, such as intra/entrepreneurship, innovation management &amp; new product development, positioning and customer analysis - all leading to a strong commercialization planning and Go-to-Market strategy as a deliverable.</p> <p>The program will also allow students to develop a number of ‘soft’ skills such as leadership and team development in an intensive, experiential learning environment that includes regular pitches and feedback from mentors. Mixed interdisciplinary teams will be created and mandated, as the aim is not to work on the ‘science’ of the technology but on the value proposition and business model. This would include a strong understanding of the resources, milestones and timelines necessary for launching a new product or service through a new or existing venture in the Kingdom of Saudi Arabia. Knowledge is acquired through the process of doing, including understanding a technology’s potential competitive advantage, business sustainability, revenue and cost streams deriving from commercialization, and knowledge of the industry value chain.</p> <p>Adopting a technology from the KAUST intellectual property portfolio will be coordinated with KAUST Technology Transfer Office by the Entrepreneurship Center, while there is also the potential to adopt an ‘intrapreneurship’ project from industry partners would be coordinated with the KAUST Industry Engagement Office</p>

	(IEO). The art of successfully communicating the idea is critical (initial elevator pitch, business summary for investment, business plan, full pitch) throughout the program and in particular during the final pitches in the final week.
Course Description for Program Guide*:	<p>Through a mentor-led experiential program, this course will enable students to learn-by-doing leading to the development a fully formed business proposition for a real piece of intellectual property that has been developed in the Kingdom. The objective is to create a plan for commercialization and launch of a new product, and the process will include students learning:</p> <p><b>The Creative Process:</b> Ideation, management of innovation, design thinking based on a particular technology.</p> <p><b>Opportunity Identification and Research</b>– opportunity seeking and identification, feasibility analysis, business model development, and understanding the needs of the customer and the market.</p> <p><b>Strategy, Planning &amp; Team Building</b> – forming a venture or project team, introduction to creating business plans, legal and financial issues of starting and maintaining a new venture, strategic planning for a new product, issues around the commercialization of intellectual property and new technology transfer models.</p> <p><b>Structuring and Packaging a Commercial idea</b> – The value propositions, sustainable positioning, competitive advantage, presenting the idea in multiple formats, formulating new product development timelines and analyzing strategic options.</p> <p><b>Integrating Continuous Feedback and Communicating Concepts to Different Audiences</b> – Obtaining and integrating key feedback from multiple mentors, constantly adjusting the relevant information into a variety of communications options and to ability to identify relevant gaps.</p>
Goals and Objectives*:	<ul style="list-style-type: none"> <li>• The creation of a working knowledge in students of the process of taking a technology to market including the following areas: <ul style="list-style-type: none"> <li><b>New Business Understanding</b> <ul style="list-style-type: none"> <li>- Within the context of new venture development, critically evaluate the role of the entrepreneur and his/her team in new venture creation either as a startup or as a new product development within a corporate setting</li> <li>- Critically examine the components of a new project or venture plan and aspects of the planning process.</li> <li>- Critically examine the role of creativity and innovation in opportunity identification and the challenges of protecting new ideas.</li> </ul> </li> <li><b>Intellectual Qualities</b> <ul style="list-style-type: none"> <li>- Gain significant experiential learning from developing a real world technology from a new venture perspective.</li> <li>- Experiment with creative thinking techniques in seeking market validation outcomes from a particular new technology, including new product/service development and/or the development of new processes/systems.</li> <li>- Acquire an understanding of the importance of acting, thinking and behaving in an entrepreneurial manner through the development of a new venture on a daily basis.</li> </ul> </li> <li><b>Professional/Practical Skills</b> <ul style="list-style-type: none"> <li>- Integrate entrepreneurship theory and practice through the development of an effective, plan either to progress a new venture or to develop an existing organization, through an organizational change opportunity based around the commercialization of a new technology.</li> <li>- Demonstrate the ability to communicate effectively through regular class and mentor pitch sessions.</li> <li>- Understand how new ventures fit into the wider value chain of society</li> </ul> </li> <li><b>Transferable/Key Skills</b> <ul style="list-style-type: none"> <li>- Critically examine and appreciate the importance of the resources needed to effectively exploit the potential of an entrepreneurial opportunity, including financial, human and physical resources.</li> </ul> </li> </ul> </li> </ul>

Required Knowledge*:	Students with an interest in the commercialization and technology transfer aspect of the university, a strong work ethic, ability to work in a new team and the ability to leave their comfort zone.
Reference Texts*:	<p><b>Essential Reading List</b></p> <ul style="list-style-type: none"> <li>• Osterwalder, A. and Pigneur, Y. Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers</li> <li>• Thiel, P. Zero to One: Notes on Startups, or How to Build the Future</li> <li>• Christenson, Clayton, The Innovator's Dilemma</li> </ul> <p>Additional readings will be emailed or posted to the students at no extra cost.</p> <p><b>Recommended Reading List</b></p> <ul style="list-style-type: none"> <li>• Ries, E. The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses</li> <li>• Drucker, P. F. Innovation and Entrepreneurship: Principles and Practice</li> </ul>
Method of evaluation (Percentages & Graded content such as Assignments, Oral quizzes, Projects, Midterm exam, Final Exam, Attendance and participation, etc.):	<ul style="list-style-type: none"> <li>• 10% Active participation/engagement and attendance</li> <li>• 20% Initial Pitch presentation and Deck (Mid-Program)</li> <li>• 30% Detailed Go-to-Market Business Summary (Final)</li> <li>• 40% Final Pitch presentation and workable slide deck (Final)</li> </ul> <p>This program is based on a team – the experiential learning is partly due to the team-development nature of the workload, so the marking will be by team. Evaluation will be done on the basis of a specific grading for each team in totality, A-F grades as per KAUST system.</p>
Nature of the assignments (assigned reading, case study, paper presentation, group project, written assignment, etc.):	<p>This program is a largely experiential activity centered on creating and validating a business model, commercialization plan and new product development process for a technology-based new venture. Due to the experiential nature, there is no examination and marking will occur during a number of times across the 16 weeks of the program.</p> <p>Mixed interdisciplinary teams will be created and mandated, as the aim is not to work on the 'science' but on the value proposition and business model of the technology, including understanding the resources, milestones and timeline necessary for developing a new product, service new venture in the Kingdom of Saudi Arabia.</p> <p>Students will be based in teams at the KAUST Entrepreneurship Center and will be selected (or self-selected with agreement from faculty) in interdisciplinary teams of 2-4. The assignments are all related to creating a full business case for the technology assigned, as a team, and presenting that during various pitches and a final Executive Summary Business plan at the end of the course.</p>
Course Policies (Absences, Assignments, late work policy, etc.):	<p>Standard KAUST policies. As this is seen as an elite program, a replacement for an internship, it is mostly aimed at non-thesis Masters students and therefore each student must get their supervisor to recommend them and to sign a simple agreement form. Although this is a high-level program it must be noted that in terms of getting "the best students" for this course, the ability to be creative, innovative or entrepreneurial does not necessarily follow a 'highest grade point average' style traditionally. Therefore we are seeking students that are interested in a career that involves technology transfer and in particular commercialization strategies. They must be enthusiastic about the subject matter and are willing to commit to the full period of the program on a work day basis.</p>
Additional Information:	<p>The course requires students to spend time preparing and completing weekly progress assignments including at least once weekly feedback sessions with mentor. Students will be based in teams at the KAUST Entrepreneurship Center over the eight weeks of the program, and will receive mentoring from the EC team as well as visiting mentors (international) and selected visiting faculty.</p>

This is designed as a replacement for a spring internship for Masters students and is therefore open to students across all three divisions where applicable. It is open to PhD students only with written confirmation from the student's supervisor.

- The Entrepreneurship Center is relatively flexible on the teaching time structure over a period of 16 weeks over the Spring Semester. We recommend these classes are delivered in the early part of the week (Sunday/Monday) but as this is a full time course, there should be no timing issues.

Dr. Erbilgin also has extensive academic experience teaching entrepreneurship courses at Northeastern University and University of California, Berkeley and leadership positions at different corporates and startups successfully releasing products in the market. Most recently Dr. Erbilgin lead the Security Software Development effort at Workday. These security products are used by the Workday ERP suite and span from encryption, Key Management System, Certificate Authority, Authentication, to IAM (Identity and Access Management)

Dr. Bulent Erbilgin has over two decades of industry experience in technology and executive roles

ranging from Cyber-security, Network Security, Web applications, SaaS, Complex high-availability software, highly distributed systems, Analytics, Big data, IOT, Machine Learning to Network Intelligence products.

Dr. Erbilgin holds a M.S. in Computer Engineering and a Ph.D. in Electrical Engineering from Stanford University.

- Hattan Ahmed, the Head of the Entrepreneurship Center, is co-instructor and lecturer in the course. He has taught a variety of similar courses over the years in universities and colleges. Hattan runs national entrepreneurship programs in partnership with local and international institutions as well as lecturing in corporate innovation programs.

This form of experiential learning in entrepreneurship and innovation is very much based on a mentor-led process. Therefore the Entrepreneurship Center will use its existing mentor pool (from inside and outside of KAUST) for this process

This would also include mentors from across the Innovation & Economic Development, in areas directly related to building this kind of business case including:

- Entrepreneurship Center including the International mentor group where applicable
- Industry Engagement Office (IEO) mentors for understanding the business value chains of different industries and connecting with relevant corporate connections during the 'customer discovery' work.
- Technology Transfer Office mentors on matters related to patents, technology transfer, positioning and defensibility.
- Innovation Fund mentors where applicable including feedback on the investment needs, valuation and financials
- Any academic staff or non-academic staff who would like to participate where their backgrounds are relevant.

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Tentative Course Schedule: (Time,  
topic/emphasis & resources)

Week/Lecture	Topic
1	<p>Jan 27th from 5pm to 8pm Classes: Creative Problem Solving; Introduction to Technology New Ventures Experiential Actions: Set Expectations, overview of class learning objectives and methodologies. The students get to know each others through a series of team building exercises that lead to the teams creation. Instructors: Bulent and Hattan Mentor: Roberto Ciamaria from EC team</p>
2	<p>Feb 3<sup>rd</sup> from 5pm to 8pm Classes: The concept of entrepreneurship; Experiential Action: Project Mapping processes started. KAUST Technology Portfolio Managers will present a list of KAUST IPs available for the students to be used in the class to develop their business ideas. In the afternoon they'll be introduced to the TechNav, a tool developed by the KAUST Entrepreneurship Center, to asses the stage at which a technology is and the actions to be taken to bring it to the market. Instructors: Bulent, Hattan and Jessica Eid from TTO Office</p>
3	<p>Feb 10<sup>th</sup> from 5pm to 8pm Classes: The innovator DNA Experiential learning: Entrepreneurial mindset iDNA: identifying opportunities. Students will learn in this class about the innovator DNA model, developed by Clayton Christensen, to master the 5 skills that differentiate any disruptive innovator (Associating, Questioning, Observing, Experimenting and Networking). The students are asked to use those methodologies to explore KAUST technologies for different applications. Instructors: Bulent and Hattan</p>
4	<p>Feb 17<sup>th</sup> from 5pm to 8pm Classes: Creativity and innovation; Experiential Actions: Introducing Design Thinking Proce: how to find the sweet spot between what's feasible, desirable and viable using the golden circles model (Why, How and What) by Simon Sinek. Learning to reiterate the process (Empathize, Define, Ideate, Prototype and Test). Instructors: Bulent and Hattan</p>
5	<p>Feb 24<sup>th</sup> from 5pm to 8pm Classes: Customer Discovery Experiential Action: Learning the human centered approach to discover customers and identify the problem. Guidelines on how to conduct customers interview and testing the initial hypotheis. Actual demonstration of good and bad examples of customers interview are simulated in the class. Practical example delivered by Wayak, a KAUST EC startup, on their experience with customer interviews. Instructors: Bulent and Hattan; Mentor: Abdulrahman Aljiffery, EC team</p>
6	<p>Mar 3<sup>rd</sup> from 5pm to 8pm Classes: Opportunity and the value proposition; Experiential Action: Teams will learn about the Product Market Fit as essential concept to the success of their technology development. The teams will be introduced to the Value Proposition canvas as a useful tool to help them identify the customer segment and its fit with their value proposition, proven by actual data gathered from their customer interviews. Instructors: Bulent and Hattan Mentor: Abdulrahman Aljiffery from EC team</p>
7	<p>Mar 10<sup>th</sup> from 5pm to 8pm Classes: Business Model Generation; Experiential Actions: Teams will learn about the nine building blocks of the Business Model Canvas as a key tool to build their business. Those building blocks build on the value proposition created in the previous workshop. Instructors: Bulent and Hattan; visiting industry practitioners from the Industry Partnership Program</p>
8	<p>Mar 17<sup>th</sup> from 5pm to 8pm Classes: The Art of Storytelling Experiential Actions: build the initial pitch, Teams will learn how to build effective stories to better deliver their message. Students will be given the tips and tools to build their pitches in an appealing and professional way. The student will learn how to design their messages throughout their presentations based on the targeted audiance. Practical example delivered by Sadeem, an awards winning KAUST EC startup, on their experience with presenting. Instructors: Bulent and Hattan Mentor: Roberto Ciamaria from EC team</p>

9	<p>Mar 31<sup>st</sup> from 5pm to 8pm</p> <p><b>Midterm</b> pitching value prop and submitting executive summary</p> <p>Instructors: Bulent and Hattan</p>
10	<p>Apr 7<sup>th</sup> from 5pm to 8pm</p> <p>Classes: Markets &amp; Segmentation;</p> <p>Experiential Actions: Assess your market potential, Teams will be introduced to the concept of identifying different markets and the importance of slicing down the markets to subsectors in order to validate the value proposition. Market segmentation concept is essential in the validation process to collect sample interviews for different segments and customize the value proposition to the need of the targeted segment. The students learns as well about the different data sources available at KAUST library to collect market data.</p> <p>Instructors: Bulent and Hattan Visiting member from the library</p>
11	<p>Apr 14<sup>th</sup> from 5pm to 8pm</p> <p>Classes: Financial Planning (Costs and Revenue);</p> <p>Experiential Actions: Build your financials; Teams will learn the fundamentals of financial feasibility understanding the basic concepts to measure the viability of the business. Those concepts include revenue models, cost structure, customer acquisition cost, customer lifetime value and pricing.</p> <p>Instructors: Bulent and Hattan</p>
12	<p>Apr 21<sup>st</sup> from 5pm to 8pm</p> <p>Classes: Competitive Analysis;</p> <p>Experiential Action: Students will be introduce to fundamental concepts on how companies protect themselves from competition as long-term survival mechanism. The students will learn about Michael Porter's five forces and Clay Christinson Disruptive Innovation.</p> <p>Instructors: Bulent and Hattan</p>
13	<p>Apr 28<sup>th</sup> from 5pm to 8pm</p> <p>Classes: Raising money, types of capital and negotiating the deal;</p> <p>Experiential Action: build your investment pitch; The students will learn about what investors look for to make the decision and raise the capital required to achieve their next milestone. Tamer Osman, Acting Head of the Innovation Fund, will explain the students the different type of investments, the most important metrics for investors and KAUST Innovation Fund invest in technology-based startups. Practical example delivered by FalconViz, a KAUST EC startup, on their experience in dealing with investors.</p> <p>Instructors: Bulent and Hattan Visiting Practitioner: KAUST Innovation Fund Manager</p>
14	<p>May 5<sup>th</sup> from 5pm to 8pm</p> <p>Classes: Legal Aspects of New Ventures;</p> <p>Experiential Action: Students will learn the fundemntal of the different legal structures for building a new venture and understanding its pros and cons. Students will learn about what does it take to incorporate a company in Saudi. Hourani legal firm delivered the workshop in collaboration with KAUST Legal.</p> <p>Instructors: Bulent and Hattan; visiting practitioner from external legal firm, Hourani &amp; Associates in collaboration with KAUST legal office</p>
15	<p>May 12<sup>th</sup> from 10am to 12pm</p> <p>Classes: <b>Final</b> Pitch and preparation;</p> <p>Instructors: Bulent and Hattan</p>

NOTE: The instructor reserves the right to make changes to this syllabus as necessary.