

**COURSE OUTLINE FOR ET5211**

<b>Academic Year</b>	2023	<b>Semester</b>	1
<b>Course Coordinator</b>			
<b>Course Code</b>	ET 5211		
<b>Course Title</b>	Entrepreneurial Mindset and Technology Innovation		
<b>Pre-requisites</b>			
<b>No of AUs</b>	3		
<b>Contact Hours</b>	Lectures: 26 Business Case Studies: 4 Business Case Presentations: 7 External Speaker: 2		
<b>Proposal Date</b>			

**Course Aims**

This course will provide the fundamental knowledge in entrepreneurship and innovation, with the special focus in training the students to develop the entrepreneurial mindset and exposing them to various technology innovation. Specific technology expertise will be brought to the classes to share their knowledge, real life experience, and industry insights.

Students will be trained to ask: what are the applications of the new technology, how to use it, who will find it useful, where are the main users, who will pay for it, how to commercialize it?

**Intended Learning Outcomes (ILO)**

By the end of the course, you should be able to:

Outcome OT1: Develop an understanding of the mindset of entrepreneurs

Outcome OT2: Demonstrate broad knowledge in technology innovation

Outcome OT3: Discuss, analyse and present the core values, inherent characteristics, and behavioural mindset often associated with an entrepreneur

Outcome OT4: Conduct Interview / Conceptualised Business Idea / Develop Minimum Viable Product with conviction

## Course Content

1. The Entrepreneurs: Nature or Nurture
2. What is Entrepreneurship Mindset and Technology Innovation?
3. The Next Big Innovation: How Entrepreneurs can Grow?
4. Entrepreneurs: Ecosystem, Community and Network
5. Megatrends, Technology Trends and Creative Opportunities
6. The Value Creation of Technology Entrepreneurship
7. The Building Blocks of Business
8. The Entrepreneurial Method
9. The Entrepreneur's Raison d'être To be the One
10. Startup Accelerators
11. Entrepreneurial Essential Skillsets - Pitch Anything
12. Playing to Win In The Blue Ocean
13. Recode Yourself – Create A Better Tomorrow

## Assessment (includes both continuous and summative assessment)

Component	Related Programme LO or Graduate Attributes	Weighting	Team/ Individual	Assessment Rubrics
1. Individual Class Participation	Competence, Communication,	10%	Individual	Appendix 1
2. Individual Write-Up On Entrepreneur Mindset	Analysis, Lateral thinking, Research	30%	Individual	Appendix 1
3. Developing A Business Idea	Written Communication	30%	Team / Individual	Appendix 2 & 2.1 (Peer assessment)
4. Pitching A Business Idea	Presentation	30%	Team / Individual	Appendix 2 & 2.1 (Peer assessment)

### Submission related issues:

- i. Written Report Format: Times New Roman (min. 12 pts), Spacing 1.5, Margin 1-inch
- ii. Soft-copy in PDF or MS Word format to be uploaded into NTULearn in the course link found under 'Assignments' – maximum size 9.9 MB. Combine your entire Written Report into one PDF document which includes your cover page, declaration page (digital signature is acceptable), contents page, report as well as appendices
- iii. Name of file for Written Report
- iv. Name of file for Presentation Slides
- v. Note that there will be individual assessment during presentation and students are encouraged to participate

### Additional Submission Requirement – Declaration Form

Self-appointed team leaders from each team are required to fill-in the NTC Declaration Form. The declaration form is to be included as the front cover page of the assignment. Any submission without the declaration form will be deemed as late and grades will be deducted accordingly.

### Formative feedback

Feedback will be provided in writing in response to their written submission. Ideas will be adjudged on its merit, impact, and feasibility. The presentation will depend on the layout, the logic and overall ease of access.

Students will be encouraged to “find his voice” during the team and individual presentations. At the same time, sufficient time will be provided to promote discourse and clarification, and to collectively derive a higher level of abstraction and deeper level of conviction so as to persuade. It is envisaged that the classroom environment should be more accommodating to encourage confidence building.

### Learning and Teaching approach

Approach	How does this approach support students in achieving the learning outcomes?
Reading	Intensive study is required to break into the field of managing growth. Students needs to read deeply to formulate a broad view of what makes a company tick, and with that grasp of on-going challenges, deciding which direction to grow becomes more informed, disciplined and intuitive
Picking a specific topic of interest to write	We want to promote independent thinking and development of business judgment and linking to an area of direct interest to the student.
Team Case study	Students explore entrepreneurial ideas through peer-to-peer learning. Promotes intensive and authentic conversations about direction as well as gaps in understanding. The returns may not be immediate, but through group problem solving, students can become more effective in work groups in future.

### Reading and References

#### Textbook:

Innovation and Entrepreneurship, 3rd Edition by John R. Bessant, Joe Tidd

ISBN: 978-1-118-99309-5 May 2015 542 Pages

#### Reference

1. Technology Entrepreneurship: Taking Innovation to the Marketplace - Thomas N. Duening, Robert A. Hisrich, Michael A. Lechter
2. The Lean Startup: How Today’s Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses by Eric Ries

3. Asian Founders at Work: Stories From The Region's Top Technopreneurs – Ezra Ferraz, Gracy Fernandez
4. Business Recoded: Have The Courage To Create A Better Future For Yourself and Your Business – Peter FISK
5. Startup Accelerators: A Field Guide – Richard Busulwa, Naomi Birdthistle, Steve Dunn
6. The Customer – Funded Business – John Mullins, PhD
7. Hardball: Are You Playing To Play Or Playing To Win? -George Stalk, Rob Lachenauer
8. Blue Ocean Strategy: How to Create Uncontested Market Space and Make The Competition Irrelevant – W. Chan Kim, Renée Mauborgne
9. An Innovative Method for PRESENTING, PERSUADING, AND WINNING THE DEAL: PITCH ANYTHING – Oren Klaff
10. <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/innovation-in-a-crisis-why-it-is-more-critical-than-ever>
11. <https://www.kauffman.org/ecosystem-playbook-draft-3/ecosystems/>
12. [http://www.journalcbi.com/uploads/3/1/8/7/31878681/creative\\_entrepreneurship\\_integrating\\_entrepreneurial\\_method\\_and\\_experience\\_of\\_learning\\_by\\_doing\\_by\\_sangeeta\\_karmokar.pdf](http://www.journalcbi.com/uploads/3/1/8/7/31878681/creative_entrepreneurship_integrating_entrepreneurial_method_and_experience_of_learning_by_doing_by_sangeeta_karmokar.pdf)

### **Course Policies and Student Responsibilities**

#### **(1) General**

Students are expected to complete all assigned pre-class readings and activities, attend all seminar classes punctually and take all scheduled assignments and tests by due dates. Students are expected to take responsibility to follow up with course notes, assignments and course related announcements for seminar sessions they have missed. Students are expected to participate in all seminar discussions and activities.

#### **(2) Absenteeism**

Absence from class without a valid reason will affect your overall course grade. Valid reasons include falling sick supported by a medical certificate and participation in NTU's approved activities supported by an excuse letter from the relevant bodies.

If you miss a lecture, you must inform the course instructor via email prior to the start of the class.

#### **(3) Absence Due to Medical or Other Reasons**

If you are sick and not able to attend a quiz or midterm, you must submit the original Medical Certificate (or another relevant document) to the administration to obtain official leave. In this case, the missed assessment component will not be counted towards the final grade. There are no make-up quizzes or make-up midterm.

## Academic Integrity

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, and collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the [academic integrity website](#) for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

## Course Instructor

Andrew TAN | atomi consultancy | [andrew@atomi-jp.com](mailto:andrew@atomi-jp.com)

## Planned Schedule

Session	Outcome Alignment	Description
1	OT 3	The Entrepreneurs: Nature or Nurture <ul style="list-style-type: none"><li>• Overview of the course</li><li>• The Entrepreneur Mindset</li><li>• Are Entrepreneurs Born or Nutured</li><li>• Choice of Individual Topic</li><li>• Team Formation</li><li>• Preparation of Business Plan</li></ul>
2	OT 3	What is Entrepreneurship Mindset and Technology Innovation? <ul style="list-style-type: none"><li>• Characteristics of an entrepreneur mindset</li><li>• The Past, Present and Future of Technology Innovation</li></ul>
3	OT 2	The Next Big Innovation: How Entrepreneurs can Grow? <ul style="list-style-type: none"><li>• Identifying opportunities in the disruptive environment</li><li>• Deciphering changing consumers behaviours</li><li>• Essentials of Innovation</li></ul>
4	OT 1 & 3	Entrepreneurs: Ecosystem, Community and Network <ul style="list-style-type: none"><li>• The elements of the entrepreneurs' ecosystem</li><li>• Explore the market matrix</li><li>• Identify the various stakeholders in the network</li></ul>
5	OT 1, 2, 3	Megatrends, Technology Trends and Creative Opportunities <ul style="list-style-type: none"><li>• Megatrends beyond 2021</li><li>• Technology Trends that define the next Decade</li><li>• How to make creativity happen?</li></ul>
6	OT 1, 2, 3	The Value Creation of Technology Entrepreneurship <ul style="list-style-type: none"><li>• Value Creation</li><li>• Technology Trends that define the next Decade</li></ul>
7	OT 3	The Building Blocks of Business <ul style="list-style-type: none"><li>• Business Model Canvas Explained</li><li>• Key Business Activities</li></ul>

8	OT 3	The Entrepreneurial Method <ul style="list-style-type: none"> <li>• Create, Actuate, Observe</li> <li>• Learning through exploration and experimentation</li> </ul>
9	OT 1 & 4	The Entrepreneur's Raison d'être To be the One <ul style="list-style-type: none"> <li>• Identify a problem that keeps you going</li> <li>• Determine the Total Addressable Market Size</li> <li>• Jump Out and Enjoy the Ride Down</li> </ul>
10	OT 4	Startup Accelerators <ul style="list-style-type: none"> <li>• What happens in an Accelerator</li> <li>• Accelerated Learning &amp; Skills Development</li> <li>• How to Get The Most out of an Accelerator</li> </ul>
11	OT 4	Entrepreneurial Essential Skillsets - Pitch Anything <ul style="list-style-type: none"> <li>• How To Pitch The Business Ideas</li> <li>• Elevator Pitch</li> <li>• Handling Questions, Overcoming Objections and Close The Deal</li> </ul>
12	OT 1 & 2	Playing to Win In The Blue Ocean <ul style="list-style-type: none"> <li>• The Winning Mentality</li> <li>• Relentless Drive to Be The Best</li> <li>• Formulating the Strategy to Be Unique</li> <li>• Create New Market Spaces</li> </ul>
13	OT 4	Recode Yourself – Create A Better Tomorrow <ul style="list-style-type: none"> <li>• Emerge From Disruptions, Pandemic and Recode The New Future</li> <li>• Future Proof By Aligning to Global Causes</li> <li>• Develop a Team, Lead With Passion and Charm The World</li> </ul>

## Appendix 1: Assessment Criteria for INDIVIDUAL (40%)

Classroom discussion is vital to the learning process in this course. Each student is expected to contribute to class discussions and appropriate marks will be awarded continuously throughout the course on the basis of the quality of one's contribution. Assessment criteria will include demonstration of analytical capability, integrative thinking, and interpersonal and communication skills. Merely showing up for class does not constitute a contribution.

Excellent quality comments, remarks, and questions are those that move the discussion forward by:

- (1) revealing important issues;
- (2) making decisions and offering opinions that are well thought out and logical; and
- (3) debating or challenging your classmates without personal attack

<b>INDIVIDUAL: 10% "Class Participation"</b>			
<b>Criteria</b>	<b>7% - 10%</b>	<b>4% - 6%</b>	<b>0% - 3%</b>
Level of Engagement, Contributions to Class	Proactively contributes to class by offering ideas and/or asks questions frequently and/or works consistently on group project the entire time.  Comments are highly relevant and reflect understanding in course materials; stimulating idea creations.	Contributes to class by offering ideas and asking questions at times.  Comments are sufficiently engaging when prompted.	Rarely or never contributes to class by offering ideas.  Seldom take part by asking questions.

<b>INDIVIDUAL: 30% "Individual Write-Up On Entrepreneur Mindset"</b>			
<b>Criteria</b>	<b>Exceed Expectations (11%-15%)</b>	<b>Meet Expectations (10%-6%)</b>	<b>Below Expectations (0%-5%)</b>
<b>Logic and clarity in documenting the subject – entrepreneur mindset (15%)</b>	There is clear evidence of the author's understanding and documentation of the selected entrepreneur's mindset.  There is a clear and consistent articulation of the theme – the entrepreneur mindset, with ability to identify two or more characteristics of the entrepreneurs.  1. Innovative Thinking – be it a novel or unique idea, characteristic, mindset; or product / services developed by	There is some evidence of the author's understanding and documentation of the selected entrepreneur's mindset.  The articulation of the theme – the entrepreneur mindset – is missing some elements but capture the essence in most parts of the write-up – and identify only one of the following in details.  1. Innovative Thinking – able to identify a novel or unique idea, characteristic, or	The write-up lacks evidence of author's understanding and documentation of the selected entrepreneur's mindset.  The articulation of the theme – the entrepreneur mindset – is missing key elements and unable to articulate what makes the entrepreneur unique or successful.  Did not mention any of the following - the innovative thinking, risk taking profile or embrace technology in

	<p>the entrepreneur that successful create new businesses</p> <p>2. Risk Appetite – Identify, analyse and synthesize the characteristic of the entrepreneur that explore, execute untested and potentially risky approaches in the entrepreneurship journey</p> <p>3. Incorporate technology during solutioning – Clearly identify the entrepreneur logical framework developing solution, with deep understanding and application of technology during implementation.</p> <p>4. Any other unique and relevant characteristics of the entrepreneur</p>	<p>product developed by the entrepreneur and successful create new businesses</p> <p>2. Risk Appetite – Identify correctly the characteristic of the entrepreneur that explore, execute untested and potentially risky approaches in the entrepreneurship journey but did not go into details.</p> <p>3. Incorporate technology during solutioning – mentioned briefly the entrepreneur logical framework in developing solutions.</p> <p>4. Any other unique and relevant characteristics of the entrepreneur</p>	<p>creating solutions - in details.</p>
<p><b>Interpretation &amp; reflection of the subject matter (15%)</b></p>	<p>The write-up offers strong critical reflection on the evolution of both the theme and the personality around the following areas: entrepreneur’s vision and vision; management philosophy, ethos &amp; talent management.</p> <p>Adapts and applies a deep understanding of multiple perspectives of entrepreneurship (including their own), showcasing different examples, in different</p>	<p>The write-up offers some reflection on the evolution of both the theme and the personality around the following areas: entrepreneur’s vision and vision; management philosophy, ethos &amp; talent management.</p> <p>Adapts and applies basic understanding of entrepreneurship, showcasing at least one example in another industry /</p>	<p>The write-up offers very little or no reflection on the evolution of both the theme and the personality around the following areas: entrepreneur’s vision and vision; management philosophy, ethos &amp; talent management.</p> <p>The author do not highlight any other example to showcase meaningful comparison.</p> <p>The author did not synthesize the current</p>



	<p>industries and nationalities while delving into meaningful comparison &amp; analysis, demonstrating openness to the subject matter.</p> <p>The author synthesizes current experience into future potential.</p>	<p>country to create comparison &amp; analysis.</p> <p>The author synthesizes some of their current experience into future potential.</p>	<p>experience into future potential.</p>
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**Appendix 2: Assessment Criteria for CASE PRESENTATION – TEAM (60%)**

Developing A Business Idea : (30%)  
 Pitching A Business Idea: (30%)

Students will form groups (*each group consists of no more than 3 students, with 2 being the minimum*) to create a business idea to research, develop and analyze and write a business case on. Guidance and mentorship are provided that will serve as a framework for a thorough analysis, evaluation and finally a presentation of their fact-finding and recommendations with the objective of convincing fund managers to raise funds. Active contributions and individual responsibility for assigned tasks are crucial to the team’s performance. **Each student must contribute a minimum 1/3 of the written assignment, and present at least 1/3 of the presentation.**

As the team component is more than 20% for each of the group assessment task, peer evaluation will be used to account for individual contribution to the group work. *Details are documented in Appendix 2.1*

<b>TEAM: 60% Written Business Case &amp; Group Pitch - Team</b>			
<b>Criteria</b>	<b>Exceed Expectations (11%-15%)</b>	<b>Meet Expectations (10%-6%)</b>	<b>Below Expectations (0%-5%)</b>
<b>(1) Written Submission (30%)</b>			
Business Acumen (15%) demonstrate business acumen by being able to articulate the functions of the business and able to identify the potential opportunities in the industry and showcase the viability of the proposal.	<p>The written submission is able to demonstrate beyond the established links between the concept of business acumen and its application in the real world.</p> <p>Define clearly 2-3 substantial problems that would be solved by the company’s proposed solution.</p> <p>Submission of a clear defined concept with minimum viable products for at least two different market segments.</p> <p>Develop alternative implementation route maps, bundling alternative scenarios to bring together into novel solutions, to create comprehensive proposal.</p>	<p>The written submission is able to demonstrate the concept of business acumen and its application in the real world.</p> <p>Define 1 problem that would be solved by the company’s proposed solution.</p> <p>Submission of a clear defined concept for the market segment.</p> <p>Develop one alternative implementation route map, or highlight alternative scenario to develop alternative solution.</p>	<p>The written submission is able to identify only some of the concept of business acumen in the proposal and offer very little or no application in the real world.</p> <p>Did not define correct the concept and identify any market segment.</p> <p>Do not have plan B.</p>

<p>Innovative &amp; Design Thinking (15%) – Possessed a holistic view of the business and understand the various aspects of the business and able to demonstrate unique value proposition in innovation and design thinking.</p>	<p>The business case is refreshing, strongly differentiated and unique, and provides a holistic &amp; comprehensive view of the proposed business model.</p> <p>Proposed fresh concepts &amp; innovative solutions, based on design thinking to address the challenges.</p> <p>The proposal has the ability to articulate and justify the team’s analysis and recommendations with strong evidences and rigorous financial analysis.</p> <p>There is a comprehensive course of action, with substantiated feasibility that is likely to solve the listed problems and lead to above average returns.</p> <p>Integrates business concept, embracing leading edge technology, outstanding leadership and team resumes to showcase a winning business case.</p>	<p>The business case provides a good overall view of the industry and business model.</p> <p>Proposed solutions are able to address the market needs.</p> <p>The team has the ability to articulate and justify their analysis and recommendations.</p> <p>There is a course of action developed to address the listed problem.</p> <p>The overall business case covers one of the following – integrated business concept, embracing technology and impressive resumes in the team.</p>	<p>The business case provides a view of the business.</p> <p>Proposed solutions are incomplete and do not provide a good view of the business.</p> <p>The team is unable to articulate the analysis and recommendation.</p> <p>There is no course of action to address any problem.</p> <p>The overall business case do not have an integrated business concept or proper technology solution.</p>
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Criteria	Exceed Expectations (8% - 10%)	Meet Expectations (5%-7%)	Below Expectations (1%-4%)
<p><b>(2a) Overall Presentation (10%)</b></p> <p>The business case level of attractiveness is assessed holistically. Enthusiasm and team work. Able to convince the investor take a position with the company and invest in the idea.</p>	<p>The team demonstrates excellent teamwork and possess the ability to articulate the business case in a complete, comprehensive and confident manner.</p> <p>Creative and effective use of visual aids with impactful insights</p> <p>All the presenters speak clearly, make eye contact and avoid excessive use of jargon and professionally dressed &amp; groomed.</p> <p>All the three presenters have made outstanding contributions to the presentation.</p>	<p>The team demonstrates good teamwork and possess the ability to articulate the business case in an adequate manner.</p> <p>Good use of visual aids with insights</p> <p>Most of the presenters speak clearly, make eye contact and avoid excessive use of jargon and professionally dressed &amp; groomed.</p> <p>Two of the presenters have contributed significantly to the presentation.</p>	<p>The team demonstrates little or no teamwork and address some parts of the business case.</p> <p>Weak use of visual aids and content.</p> <p>Weak to fair demonstration of members speaking clearly, with some in inappropriate attire and unprofessional demeanour.</p> <p>The presentation is done by an individual without contribution from other two members of the team.</p>
<p><b>(2b) Content – 10% (Breadth of Discussion)</b></p> <p>All issues related to the assigned case have been fully identified and explained. Points raised are relevant, clear, coherently linked and display thorough research and understanding.</p>	<p>The team has identified the targeted market, competitors, marketing strategies and operational plans in a comprehensive and throughout manner.</p> <p>Indepth and relevant knowledge about the market, competition and industry.</p> <p>Realistic articulation of the market, with creative, persuasive, and evidence based content.</p>	<p>The team has identified most of the following - targeted market, competitors, marketing strategies and operational plans – in a clear and adequate manner.</p> <p>Mostly realistic explanation of marketing plan.</p> <p>Somewhat creative, persuasive, and evidence based content.</p>	<p>The team has identified some of the following - targeted market, competitors, marketing strategies and operational plans – in a brief manner. Missing gaps and lack of depth in most areas.</p> <p>Unrealistic explanation of marketing plan.</p> <p>Lack creative and persuasive in the content.</p>

	Includes sales strategies and implementation road map and more.		
<p><b>(2c) Analysis – 10% (Depth of Discussion)</b></p> <p>All the various issues raised are well analyzed and evaluated. Analysis presented is logical, well supported, evidenced and integrated with the company's strategy, business model, core competencies, regulatory setting, and competitive environment.</p>	<p>Throughout, in-depth analysis, with clear proposed solutioning, taking into considerations the company's strategy, business model, core competencies, regulatory setting, and competitive environment.</p> <p>Displays uniqueness / novelty in proposed technology solutioning and demonstrates convincing ability to deliver.</p> <p>Demonstrates deep understanding of the ecosystem, current local and global situation and how they affect the business.</p>	<p>Clear analysis, with proposed solutioning, with mentions in most of the following areas - company's strategy, business model, core competencies, regulatory setting, and competitive environment.</p> <p>Able to highlight some potential solutions.</p> <p>Demonstrates some understanding of the ecosystem, current local and global situation and how they affect the business.</p>	<p>Standard analysis with mentions in some of the following areas - company's strategy, business model, core competencies, regulatory setting, and competitive environment.</p> <p>Unable to highlight potential solutions.</p> <p>Demonstrates little understanding of the ecosystem, current local and global situation and how they affect the business.</p>