Course Specification

Institution	Siam University

Section 1 Course characteristics and general information

1. Course Code and Title

117-602 Design Thinking for Creating Innovation and Startup Based on Sustainability

2. Total Credits

3 Credits 3(2-2-5)

3. Program and Type of Course

General Education (Module 3: Entrepreneurship, Innovation and Sustainable)

Module Learning Outcome

Learners will have a growth mindset, knowledge, and skills to create and manage projects that have a positive and sustainable impact on the economy, society, and the environment, with a focus on SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), and SDG 17 (Partnerships for the Goals). This will lead to an entrepreneurial mindset, incorporating the principles of the Sufficiency Economy Philosophy into their approach.

4. Faculty Member Responsible for the Course (Coordinator)

4.1 Lecturers

Aegapop Maneenart

Bundit Limsakul, Ph.D.

Srisuda Chongsithiphol, Ph.D.

Asst. Prof. Yuttana Srisavat, Ph.D.

Asst. Prof. Trithos Kamsuwan, Ph.D.

Poohridate Arpasat, Ph.D.

Jirawat wongthongchai, Ph.D.

Oranuch Intawongs

Chachatna Chansema

Ladapa Napasiri

Varunya Suksawang

4.2 Course Coordinator

Aegapop Maneenart

5. Semester and Year of Study

Semester 2, Academic Year 2025

6. Pre-requisite(s) (If any) No

7. Co-requisite (If any) No

8. Venue Siam University

9. Latest Date of Course Specification (TQF 3) Development or Modification

December, 2025

Section 2 Objectives

1. The aim of the course

The course aims to equip participants with the skills and knowledge to develop innovative, sustainable solutions and startups. It introduces design thinking principles and emphasizes user-centered design, creative problem-solving, and sustainability integration. Participants will learn to generate and manage innovative ideas, develop viable startups, and apply sustainability frameworks such as SEP, SDGs, and ESG. The course includes hands-on projects, real-world case studies, and collaboration opportunities, enhancing critical thinking, problem-solving, and entrepreneurial skills while connecting participants with Startup and mentors.

2. The objective in developing the course

1. Introduce processes and tools for design thinking with an emphasis on sustainability, user-centered design and creative problem-solving.
2. Engage students in hands-on projects and real-world case studies to apply design thinking and sustainability concepts in creating environmentally friendly, socially responsible, and economically viable innovations, with a focus on SDGs 3, 8, and 11.
3. Provide practical knowledge and tools for developing startups from innovative ideas.
4. Foster collaboration and teamwork to simulate the startup environment and enhance entrepreneurial skills.
5. Connect students with startups, mentors, and peers to build a supportive community and provide access to valuable insights and resources for partnerships in sustainable development.

Section 3 Course Description and Implementation

1. Course Description

Inspiring learners to become innovators and entrepreneurs by focusing on the concepts, processes, and skills needed for designing innovation, including understanding creative processes through various tools and techniques, enhancing brainstorming techniques and collaboration, focusing on design thinking to understand problems, analyze and synthesize information, create new ideas, and develop prototypes, ESG principles and sustainability, emphasizing practical training and knowledge transfer from entrepreneurs, engaging with entrepreneurs to practice new business creation, and presenting work to persuade investors to join ventures.

2. Number of Hours per Semester

Interactive lecture	Tutorial	Practice/Field Experience/Internship	Self-directed Learning
60	none	none	75

3. Number of hours provided for academic advice and guidance to students

3 hours per week

Section 4: Development of Student Learning Outcomes

Course Learning Outcomes

Sub-Module 5 Innovation and Intellectual Property

1. Define and explain the concept of innovation and its significance in various industries and contexts
2. Explain the basic principles of intellectual property (IP), including patents, trademarks, copyrights, and trade secrets and understand the role of IP in protecting and commercializing innovative ideas.

Sub-Module 6 Innovation Process

3. Demonstrate a thorough understanding of the concepts and processes involved in designing innovation, including creative processes, brainstorming techniques, and collaboration methods.
4. Demonstrate a thorough understanding of the design thinking process, including its stages: empathize, define, ideate, prototype, and test.
5. Use design thinking to analyze and understand problems, pain points, synthesize information, generate new ideas, new solutions and develop effective prototypes for innovative solutions and evaluate project for startups that align with SDGs 3, 8, and 11.

Sub-Module 7 Pitching Deck and Story Telling

6. Communicate innovative business idea and prototypes to persuade potential investors and stakeholders to support and join new ventures, using appropriate presentation skills and tools such as Startup Pitching Deck and Story Telling.

National qualifications framework

Course		Knowledge		Skills			Ethics			Character		
Course Code	Course Title	1.1	1.2	2.1	2.2	2.3	3.1	3.2	3.3	4.1	4.2	4.3
117-602	Design Thinking for Creating Innovation and Startup Based on Sustainability	●					O		●	●		●

Sign: ● Major Responsibility O Minor Responsibility

Knowledge

Knowledge to be Acquired	Teaching Methods	Evaluation Methods
– Be able to summarize fundamental concepts, theories and general knowledge in daily life (1.1)	– Direct instruction – Discussion – Group work activities – Cooperative learning – Group project	– Evaluate from exams based on standardized assessment criteria – Evaluate the quality of reports/ projects / class discussion / cooperative learning

Skill

Skill to be Acquired	Teaching Methods	Evaluation Methods
- Empathy and User-Centricity - Creative Problem-Solving - Prototyping and Iteration - Idea Validation and Pitching - Market-Minded Thinking	- Design Thinking Workshops - Structured Brainstorming Sessions - Case Study Analysis - Low-Fidelity Prototyping	- Prototyping Process Documentation - Design Briefs and Concept Pitches - Pitch Deck and Presentation

- Collaborative Teamwork - Sustainable Business Integration - Responsible Innovation	- Peer Feedback Sessions - Pitching Competitions - Surveys and A/B Testing - For Market-Minded Thinking - Lean Canvas - Guest Lectures - Ethical Dilemma Discussions:	- Lean Canvas - Peer- and Self-Assessment Forms - Mid-term Examination

Moral and Ethic

Morals and Ethics to be Developed	Teaching Methods	Evaluation Methods
– Have an understanding of ethical principles and their application in real life. (3.1) – Demonstrate honesty, discipline, and good values (3.3) – Be able to demonstrate on-time performance – Be able to do the right thing according to the values, beliefs, and principles they claim to hold – Be able to make decisions according to moral concepts and judgments	– Direct instruction – Discussion – Group work activity – Group project	– Observe and evaluate students' ethical behavior and morality – Academic misconduct, if proven, will result in punishment according to university regulations, as determined by the faculty committee and considered as the final decision. – Observe and evaluate the participation behavior in classroom discussions

Character

Interpersonal Skills and Responsibilities to be Developed	Teaching Methods	Evaluation Methods
- Demonstrate personal responsibility for their actions (4.1) - Demonstrate empathy toward society and respect people from different social and cultural backgrounds (4.3)d	- Group work activities - Cooperative learning	- Observe and evaluate the behaviors of participation and responsibility in discussions and group activities - Evaluate the quality of group work, including reports/ projects that demonstrate entrepreneurial thinking, work planning, and problem-solving skills

Section 5 Teaching and Evaluation Plans

1. Teaching Plan						
	Topics	**No. of Hours**	**Teaching & Learning Activities**	**Instructional Media (If any)**	**Evaluation**	**Lecturer(s)**
1 15 Jan 26	Introduction to the cours	1	– Explain about class in general and grading system	– Presentation media	– Attendance	**Aegapop Maneenart**
	Creating innovation for entrepreneurs	3	**-** Presentation and discussion **-** Workshop "Innovation Dissection"	- Presentation media **-** Workshop **- E-learning : The First Step of Innovation ก้าวแรกสู่นวัตกรรม**	– Participation in class – Case study analysis report – Presentation – Certification	**Varunya Suksawang (09:00-12:00)** **Jirawat Wongthongchai (13:00-16:00)**

1. Teaching Plan						
	Topics	**No. of Hours**	**Teaching & Learning Activities**	**Instructional Media (If any)**	**Evaluation**	**Lecturer(s)**
2 22 Jan 26	Sustainable Development Business	4	- Business Case Study - Group Discussion	- Presentation media - Workshop - **E-learning : Sustainable Development Trends and ESG**	- Business Case Study Presentation & Report - Class Participation	**Varunya Suksawang (09:00-12:00)** **Jirawat Wongthongchai (13:00-16:00)**
3 29 Jan 26	Customer Discover	4	- Review of knowledge - Practice interviewing and questioning skills - Fieldwork	- Presentation media - Workshop - **E-learning : Customer Insight**	- Customer Discovery - Presentation - Certification	**Varunya Suksawang (09:00-12:00)** **Ladapa Napasiri (13:00-16:00)** Aegapop Maneenart Srisuda Chongsithiphol Yuttana Srisavat Trithos Kamsuwan Poohridate Arpasat Jirawat wongthongchai

1. Teaching Plan						
	Topics	**No. of Hours**	**Teaching & Learning Activities**	**Instructional Media (If any)**	**Evaluation**	**Lecturer(s)**
						Oranuch Intawongs Chachatna Chansema
4 05 Feb 26	Design Thinking (Problem – Solution Fit)	4	– Review of knowledge – Brainstorming and problem identification – Creating a solution – Presentation and exchange	– Presentation media – Workshop **- E-learning :** **AGTECH101** **Art Technology**	– Group evaluation – Individual evaluation – Certification	**Yuttana Srisavat** **(09:00-12:00)** **(13:00-16:00)** Ladapa Napasiri Aegapop Maneenart Srisuda Chongsithiphol Trithos Kamsuwan Poohridate Arpasat Jirawat wongthongchai Oranuch Intawongs Chachatna Chansema Varunya Suksawang
5&6 12 Feb 26 19 Feb 26	- Innovation Management in the era of tech disruption	8	- Interactive Lecture - Case Study Analysis - Role-Playing	– Presentation media **-** Workshop	– Group Presentation & Report – Quiz – Class Participation	**Bundit Limsakul** **(09:00-12:00)** **(13:00-16:00)**

1. Teaching Plan						
	Topics	**No. of Hours**	**Teaching & Learning Activities**	**Instructional Media (If any)**	**Evaluation**	**Lecturer(s)**
	- Intellectual Capital & Intellectual Property Management - Intellectual Property Research		- Basic theory and examples of intellectual property research - Search operations - - Summary and discussion	– **E-learning : IP Practical Guide for Entrepreneur** 	– Certification	
7 26 Feb 26	Hackathon to brainstorm and develop ideas	4	– Preparation – Concept Development – Presentation	– Presentation media – Workshop	– Team Collaboration – Prototype & Idea Quality – Presentation	**Varunya Suksawang (09:00-12:00)** **Ladapa Napasiri (13:00-16:00)** Aegapop Maneenart Srisuda Chongsithiphol Yuttana Srisavat Trithos Kamsuwan Poohridate Arpasat Jirawat wongthongchai Oranuch Intawongs Chachatna Chansema

1. Teaching Plan						
	Topics	**No. of Hours**	**Teaching & Learning Activities**	**Instructional Media (If any)**	**Evaluation**	**Lecturer(s)**
8	**Mid – term Examination Week**					
9 12 Mar 26	Design Thinking (Customer – Design Fit)	4	- Prototype presentation and test plans - Simulating testing with customers - Analysis of results and summary of feedback	- Presentation software - Prototyping tools - Survey or feedback platforms - Spreadsheet software - Word processing software – **E-learning : Value Proposition & Segmentation**	- Classroom Assessment - Evaluation of the report - Certification	**Poohridate Arpasat** **(09:00-12:00)** **(13:00-16:00)** Ladapa Napasiri Aegapop Maneenart Srisuda Chongsithiphol Yuttana Srisavat Trithos Kamsuwan Jirawat wongthongchai Oranuch Intawongs Chachatna Chansema Varunya Suksawang
10-11 19 Mar 26 26 Mar 26	Prototype Maker	4	- Summarize and give examples	– Presentation media - Workshop - Figma	- Personal score - Group score	**Trithos Kamsuwan** **(09:00-12:00)** **(13:00-16:00)**

1. Teaching Plan						
	Topics	**No. of Hours**	**Teaching & Learning Activities**	**Instructional Media (If any)**	**Evaluation**	**Lecturer(s)**
			- Group Workshop: Prototype Creation - Clickable Prototype - Present and receive feedback			Poohridate Arpasat Ladapa Napasiri Aegapop Maneenart Srisuda Chongsithiphol Yuttana Srisavat Jirawat wongthongchai Oranuch Intawongs Chachatna Chansema Varunya Suksawang
12-13 02 Apr 26 09 Ape 26	- Lean Canvas - Go-to-market strategy	8	- Review the concepts and principles of the Lean Canvas - Explain each box on the Lean Canvas with examples. - Workshop: Practice creating a Lean Canvas	- Slide Presentation - Case Studies – **E-learning : Lean Canvas**	- Completeness and validity of the Lean Canvas - Participation in groups - Presentation and answering questions - Certification	**Varunya Suksawang (09:00-12:00)** **Ladapa Napasiri (13:00-16:00)** **Jirawat wongthongchai (13:00-16:00)** Oranuch Intawongs Trithos Kamsuwan Poohridate Arpasat Aegapop Maneenart

1. Teaching Plan						
	Topics	**No. of Hours**	**Teaching & Learning Activities**	**Instructional Media (If any)**	**Evaluation**	**Lecturer(s)**
			- Present and exchange ideas			Srisuda Chongsithiphol Yuttana Srisavat Chachatna Chansema
14 16 Apr 26	Get ready for Demo Day & Pitching #01	4	- Review and discussion - Workshop & Group Activity - Summary and presentation	- PowerPoint slides - Laptops or tablets with collaborative software – **E-learning : Pricing Strategy**	- Evaluated from the Workshop results - Presentation evaluation - Individual assessment - Certification	Ladapa Napasiri Varunya Suksawang Jirawat wongthongchai Oranuch Intawongs Trithos Kamsuwan Poohridate Arpasat Aegapop Maneenart Srisuda Chongsithiphol Yuttana Srisavat Chachatna Chansema
15 23 Apr 26	Get ready for Demo Day & Pitching #02	4	- Summary of presentation structure - Mock-up presentation	- Slide Deck/PowerPoint Presentation - Feedback Forms/Rubrics	- Formative Assessment - Pitching Performance - Peer Feedback & Self-reflection - Participation - Certification	Ladapa Napasiri Varunya Suksawang Jirawat wongthongchai Oranuch Intawongs Trithos Kamsuwan Poohridate Arpasat

1. Teaching Plan						
	Topics	**No. of Hours**	**Teaching & Learning Activities**	**Instructional Media (If any)**	**Evaluation**	**Lecturer(s)**
			- Providing Feedback & Q&A	– **E-learning : Pitching Technique** 		Aegapop Maneenart Srisuda Chongsithiphol Yuttana Srisavat Chachatna Chansema
16 30 Apr	Practical Exam: Prototype Demo Day and Pitching Contest	4	- Preparation - Presentation - Provide team feedback (after presentation)	- Slide Decks or Presentations - Grading Rubric - Feedback Forms	- Presentation quality - Prototype product	Ladapa Napasiri Varunya Suksawang Jirawat wongthongchai Oranuch Intawongs Trithos Kamsuwan Poohridate Arpasat Aegapop Maneenart Srisuda Chongsithiphol Yuttana Srisavat Chachatna Chansema
17-18	**Final Examination Week**					

2. Evaluation Plan	
Learning Outcomes	**Evaluation Methods**
Formative assessment **Ethics and moral**	➢ Observe and record students' behaviors and provide feedback to students. ➢ Individual assessment ➢ Group work evaluations ➢ Cooperative learning evaluations
Knowledge and cognitive skills By the end of this course, students will be able to: ➢ *Demonstrate a thorough understanding of the concepts and processes involved in designing innovation, including creative processes, brainstorming techniques, and collaboration methods.* ➢ *Demonstrate a thorough understanding of the design thinking process, including its stages: empathize, define, ideate, prototype, and test.* ➢ *Use design thinking to analyze and understand problems, pain points, synthesize information, generate new ideas, new solutions and develop effective prototypes for innovative solutions and evaluate project for startups that align with principles of BCG models and sustainability.* ➢ *Communicate innovative business idea and prototypes to persuade potential investors and stakeholders to support and join new ventures, using appropriate presentation skills and tools such as Startup Pitching Deck and Story Telling.*	➢ Observe student's responses to teacher/group's questions during the class activities and provide feedback to students. ➢ Observe how students use the knowledge gained in the classroom and during discussion in their problem-based and assignments. ➢ Final test ➢ Group work evaluations ➢ Individual assessment ➢ Group assessment

Interpersonal skills and responsibilities / Character	➢ Observe and record student's behavior and performance during working in a group setting. ➢ If they behave inappropriately, some advice should be given. ➢ Group work evaluations ➢ Cooperative learning evaluations

Learning Outcomes	**Evaluation Methods**	**Class**	**Proportion of Evaluation (%)**
- Ethics and moral - Interpersonal skills and responsibilities / Character	Class Participation	1-16	10
– Ethics and moral – Interpersonal skills and responsibilities / Character – Knowledge and cognitive skills	- Individual Assignment ● Certification 20% - Group Assignment ● Prototype 20%	1-16	40
– Knowledge and cognitive skills	**-** Practical Examination (Demo Day and Pitching Contest) ● Content 10% ● Pitch Deck 10% ● Oral Presentation 10%	16	30
– Knowledge and cognitive skills	Final Examination	17 or 18	20
Total			100

This course will follow the following grading structure:

Score (%)	Grade
80-100	A
75-79	B+
70-74	B
65-69	C+
60-64	C
55-59	D+
50-55	D
0-49	F

Section 6 Teaching & Learning Resources

1. Main Texts and Teaching Materials

Teaching materials by instructor.

2. Recommended Teaching Resources (books, journals, websites, and other documents recommended for additional reading)

Book Chapter

1. Bootcamp Bootleg, D. School. (2010). Bootcamp Bootleg, Hassno Platner & Institute of Design at Stanford University (online), 4.
2. Dieffenbacher, S. F., Hüttinger, C., Zaninelli, S. M., Lines, D., & Rein, A. (2024). How to Create Innovation: The Ultimate Guide to Proven Strategies and Business Models to Drive Innovation and Digital Transformation. Wiley.
3. Grayson, C. J., & O'dell, C. (2011). If Only We Knew What We Know: The Transfer of Internal Knowledge and Best Practice. Simon and Schuster. (In part four)
4. Knaflic, C. N. (2015). Storytelling with data: A data visualization guide for business professionals. John Wiley & Sons.
5. Srinivasan, S. K. The Innovator's DNA: Mastering the Five Skills of Disruptive Innovators. Editorial Team, 102.
6. Tidd, J., & Bessant, J. R. (2020). Managing innovation: integrating technological, market and organizational change. John Wiley & Sons. (Business Model Canvas + Design Thinking for Innovation + Mind Map for Creativity)

E-learning

1. https://elearning.set.or.th/SETGroup
2. https://www.coursera.org/
3. https://moocs.nia.or.th/

Section 7: Course Evaluation and Improvement

1. Evaluation Strategies for Course Effectiveness by Students

- The students must do class evaluation sheet that includes teaching method, teaching activity in and out classroom, supportive items which effect learning process and learning outcome and make any advice submitted to Faculty for development by university network.

2. Teaching Evaluation Strategies

- Students must evaluate and send questionnaire at the end of each lesson and class.
- Observe the student from discussion during class, class activity and outside classroom.
- Result of examination and student's study outcome.
- Colleague observes teaching by evaluation form.

3. Teaching Improvement

- Teacher re-evaluates and improves his/her teaching model from efficiency outcome of each course, collects summative file, and reports progress of class (course experience report) in each semester
- Setup workshop for improving teaching proficiency.
- Analyzed examination topic to improve education proficiency.

4. Verification of Students Achievements in the Course

(1) Students must evaluate teaching activities of each course.

(2) Course Committee combine lesson plan/ lesson module, congregates plan /class planning for teaching, examination, grade point, and evaluation method and submit to Curriculum Committee: Faculty Committee, and Committee of Development and Standard of General Education.

(3) Committee of Development and Education Standard of General Education would evaluate the course before class begins and at the end of semester e.g.

- Harmony of course planning, lesson plan, and teaching model.
- Suitability of examination and method for measurement.
- Relation between question and standard of knowledge.
- Form using in measurement and outcome evaluation.
- Inspect cumulative lesson report file.
- Result of grade report, examination, and project reports.
- Inspect evaluation form and process of evaluation in practical class.
- Inspect medical procedure skills and all students' reports.
- Inspect student grading system.

In case that Committee of Development has any suggestions or comments before class planning, Course Committee must accept and follow those advice appropriately.

If Committee of Development has any suggestions or comments at the end of semester, Course Committee must accept those advice or suggestions as information in annual meeting and process / develop for the next year semester plan.

5. Course Review and Improvement Plan for Course Effectiveness

After the evaluation and re-audit efficacy of the course, planning for Curriculum Development and detail course planning are supposed to be revised for the improving educational quality every 1 year.

Course Coordinator	Chair, General Education Program Committee
.....	.....
(Mr. Aegapop Maneenart)	(Mr. Thanarak Pongpetra)
Date 25 Dec 2025	Date 16/1/2026
Module Manager	
.....	
(Asst. Prof. Dr. Somruedee Thaiphanit)	
Date 25 Dec 2025	