MSIE 4.0

Course No. 16

Communications and

People Skills Development

for Engineering Leaders

Instructor: Pisut Koomsap, Ph.D.

Asian Institute of Technology

Course Objective

Technical excellence is always a trademark for engineering graduates, but their lack of collaborative communication skills, people skills and understanding holistic picture, which are essential characteristics of a leader, often hinder their career success. This course aims to build engineering student competence in leadership communication skills and people skills. This course will train the engineering students on how to be a leader who can communicate effectively to facilitate the achievement of organizational goals and to motivate other members along the way.

Learning Outcomes

The students on the completion of this course would be able to:

CLO1   Explain their works, thoughts, and ideas effectively *(Create),*

CLO2   Do both technical and non-technical written communication that ease understanding of audiences *(Create),*

CLO3   Make presentation professionally *(Create),*

CLO4   Develop emotional intelligence domains and competencies in different professional situations *(Create),*

CLO5   Work in a team environment in a complex workplace *(Apply),*

CLO6   Apply people skills to support, lead, persuade, motivate and inspire others to achieve goals *(Apply).*

Assessment

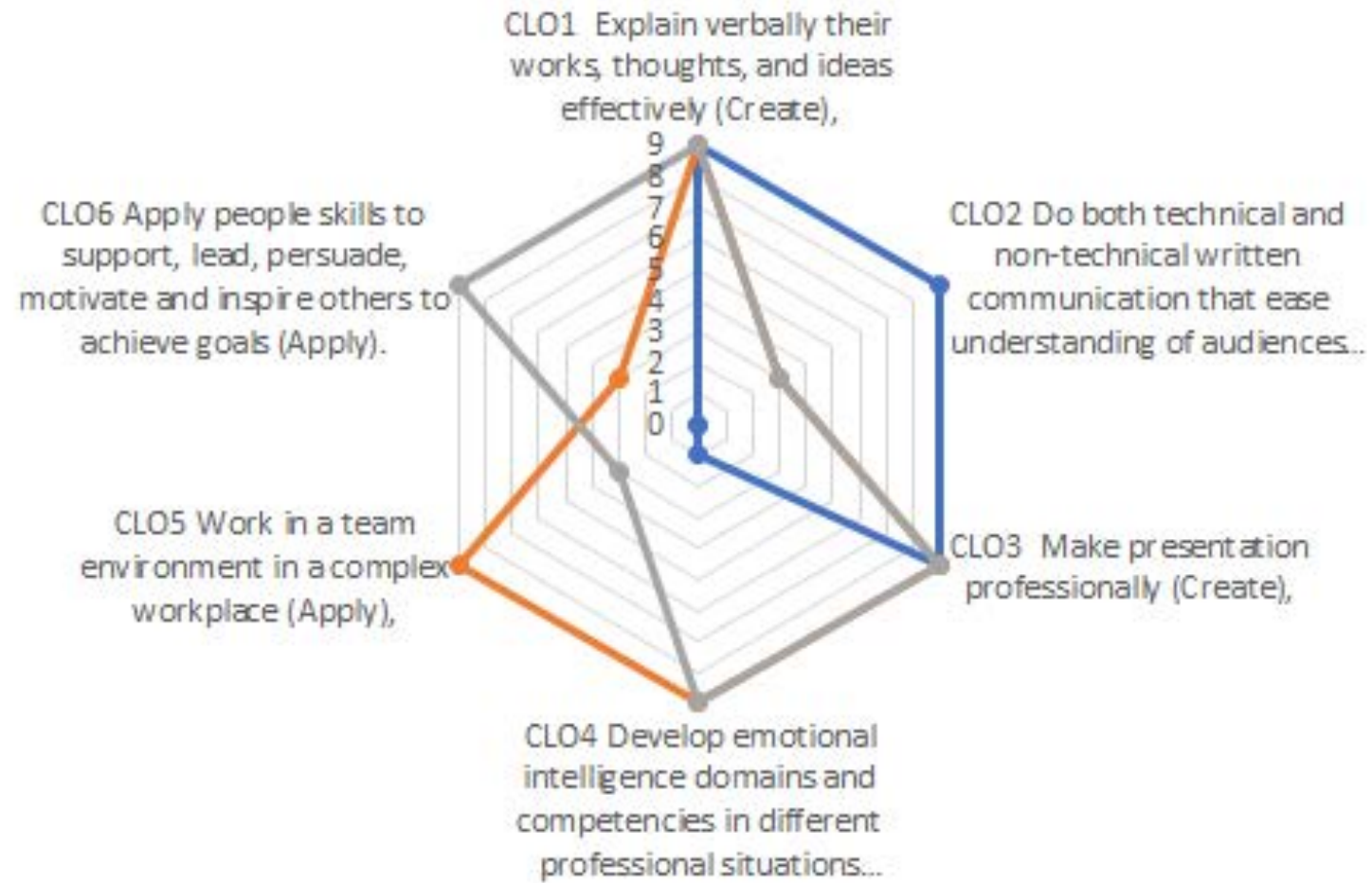|	CLO1	CLO2	CLO3	CLO4	CLO5	CLO6
Formative Assessment Methods						
Class discussions and participation (15%)	9	1	3	3	9	9
Oral communication (15%)	9		9	3	9	9
Written communication (10%)		9	3	1		3
Presentation (10%)	9	9	9	3	3	1
Simulation/Scenario (10%)	9	3		9	9	9
Peer Assessment (10%)	9	3	3	3	9	3
Summative Assessment Methods						
Powerful Public Speaking (10%)	9	3	3	9	1	9
Personal Development (20%)	9	9	9	9	9	9

Assessment Model:
9: Strong; 3: Moderate, 1: weak

Modules' Contribution to Course Learning Outcomes

Module1　　Module2　　Module3

CLO1 Explain verbally their works, thoughts, and ideas effectively (Create),

CLO2 Do both technical and non-technical written communication that ease understanding of audiences...

CLO3 Make presentation professionally (Create),

CLO4 Develop emotional intelligence domains and competencies in different professional situations...

CLO5 Work in a team environment in a complex workplace (Apply),

CLO6 Apply people skills to support, lead, persuade, motivate and inspire others to achieve goals (Apply).

Module I
Essential Communication Skills Development for Self Expression

Effective oral communications
- Knowing your intention and audience
- Get your audience attention
- Deliver your presentation professionally

Effective written communications
- Plotting your idea
- Filling up your story
- Polishing your story

Learning Cycle 1

Interactive lecture

Effective oral communications
-Knowing your intention and audience

Video taping self introduction

Comment & Feedback

Listening to their classmates' speech

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Learning Cycle 2

Watching a VDO clip from TEDTalk

Effective oral communications
-Knowing your intention and audience

Analyzing the clip in team

Preparing their upcoming speech

Forming their own understanding

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Idea Worth Sharing:
Capstone Project

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Experimental investigation on process parameters of near-field deposition of electrospinning-based rapid prototyping

Deepak Parajuli[a], Pisut Koomsap[a], Alok A. Parkhi[a] and Pitt Supaphol[b]

[a]Industrial and Manufacturing Engineering, School of Engineering and Technology, Asian Institute of Technology, Pathumthani, Thailand; [b]Petroleum and Petrochemical College, Chulalongkorn University, Bangkok, Thailand

ABSTRACT

Near-field electrospinning (NFES) with its capability to produce a straight fine fibre has been integrated into additive manufacturing for the fabrication of scaffolds with controllable pattern structures. However, building the third dimension with NFES is not easy due to the unsolidified fibre while being deposited. Presented in this paper is an investigation on the influence of process parameters on achieving a small cylindrical fibre from the near-field fibre deposition of ... been conducted on ... meters of interest are ... on and needle size. ... ition and needle size ... eld deposition, the ... mperature should be

Development of an electrospinning-based rapid prototyping for scaffold fabrication

Apinya Chanthakulchan, Pisut Koomsap and Kampanat Auyson
Department of Industrial and Manufacturing Engineering, Asian Institute of Technology, Pathumthani, Thailand, and
Pitt Supaphol
Petroleum and Petrochemical College, Chulalongkorn University, Bangkok, Thailand

Abstract

Purpose – This paper aims to present the development of an electrospinning-based rapid prototyping (ESRP) technique for the fabrication of patterned scaffolds from fine fiber.

Design/methodology/approach – This ESRP technique unifies rapid prototyping (RP) and electrospinning to obtain the ability of RP to create a controllable pattern and of electrospinning to create a continuous fine fiber. The technique follows RP process of fused deposition modeling, but instead of using extrusion process for fiber creation, electrospinning is applied to generate a continuous fiber from a liquid solution. A machine prototype has been constructed and used in the experiments to evaluate the technique.

Findings – Three different lay-down patterns: 0°/90°, 45°/135° and 45° twists were used in the experiments. According to the experimental results, stacks of patterned layers could be created with the ESRP technique, and the fabrication process was repeatable and reproducible. However, the existing machine vibration influenced the fiber size and the ability to control straightness and gap size. Also, incomplete solidification of the fibers prior to being deposited obstructed the control of layer thickness. Improvement on vibration suppression and fiber solidification will strengthen the capability of this ESRP technique.

Research limitations/implications – This research is currently limited ... machine prototype, to the demonstration of its capability and to the eva ... Further studies are required for better control of the patterned scaffolds

Originality/value – This unification of the two processes allows not only ... of both woven and non-woven layers of fibers to be done on one mach ...

Keywords Layered manufacturing, Medical, Rapid prototyping, Scaffol ...

Paper type Research paper

Development of tiling automation for custom mosaic design

Nuntaporn Phooripoom, Pisut Koomsap *

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ABSTRACT

Mosaic is the art of design creation from tesserae, and for custom mosaic design the individual tesserae are assigned to certain positions unlike forming a random pattern. The variety of designs makes it difficult for automatic tile assembly; consequently, manual assembly is typically found in practice. This paper presents the development of a tiling automation to support custom mosaic design from uniform size square tiles. The system follows a product flow concept that the tesserae are sorted first to form a row prior to be assembled to a mosaic moving slowly on a conveyor. It allows a simple point-to-point movement for assembly. The complexity shifting from toolpath generation to tile sorting is handled in two steps: acquiring tiles needed for a row and rearranging the tiles according to the order. A shortest distance criterion has been applied for determining dispensing sequence. Hardware and software have been developed to illustrate the proposed tiling automation.

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Improving risk assessment for customer-oriented FMEA

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Since its introduction in the aerospace industry, failure mode and effects analysis (FMEA) has been proven to be an effective risk management tool and has gained popularity in various industries. All along, FMEA has been conducted according to manufacturers' perspective. As a matter of fact, customers are also a key stakeholder group who will be affected directly if any failure modes occur. Therefore, their involvement should be considered in FMEA, but has not received much attention. Presented in this paper is an attempt to improve a customer-oriented FMEA. Customer dissatisfaction has been integrated directly into a new approach for risk assessment. Kano model has been applied to identify how customers perceive failure mode effects. A new customer-oriented risk priority number (RPN) calculation has been developed and compared with the previous customer-oriented approach as well as the traditional one. The results from a case study show that this new approach represents the customers' perspective better than the previous one, and the factors influencing the prioritisation of the failure modes are different among the three approaches. In this new approach, how the customers perceive the effects of the failure modes has the most influence.

Keywords: FMEA; Kano model; customer involvement; customer dissatisfaction; risk assessment

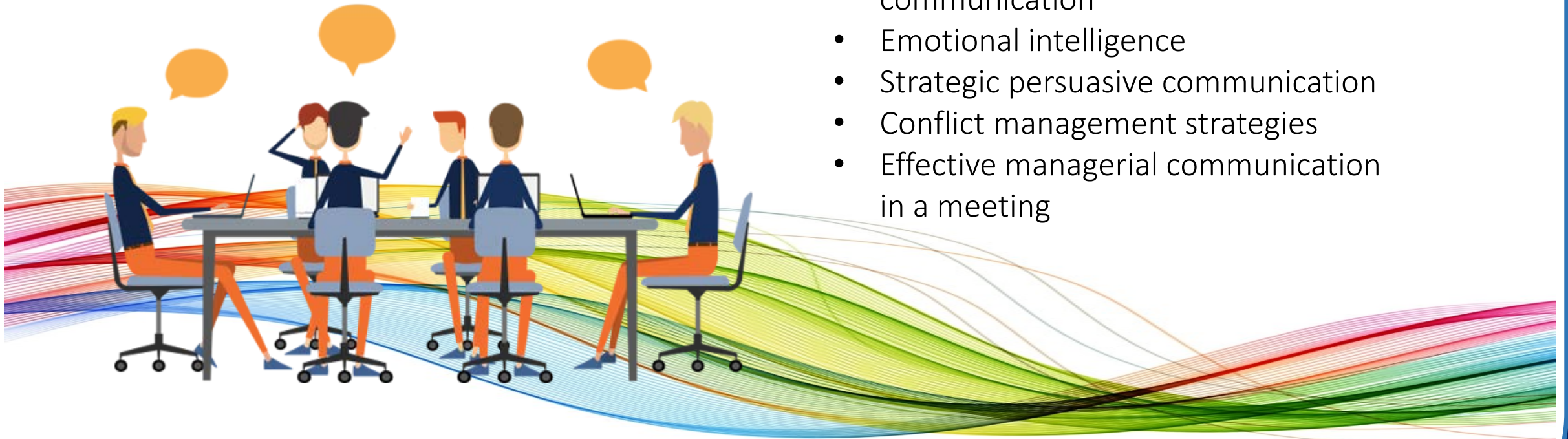Co-funded by the
Erasmus+ Programme
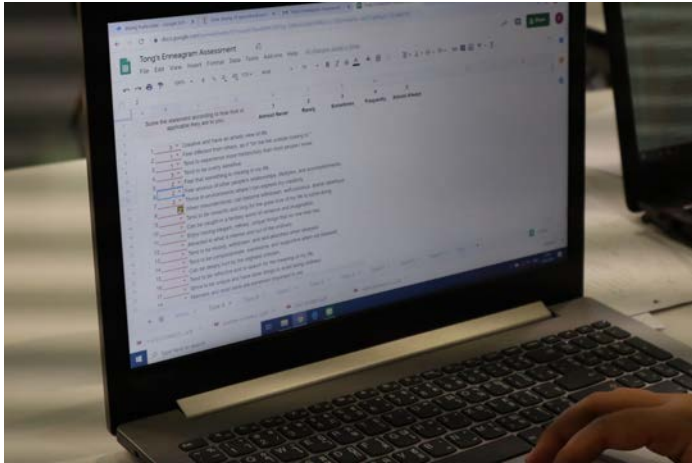of the European Union

One-page Writing Assignment

Module II

Collaborative Communication Skills Development

- Personality, character, and Cultural barrier in communication
- Emotional intelligence
- Strategic persuasive communication
- Conflict management strategies
- Effective managerial communication in a meeting

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Movie: Green Book

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9: [Module II] Strategic persuasive communication

Activity 4. Goodwill Hunting

Activity 3. The Day TED Might Have Died

Activity 2. Telephone Game

Activity 1.
Understand Someone Better Than You Do Your Friends
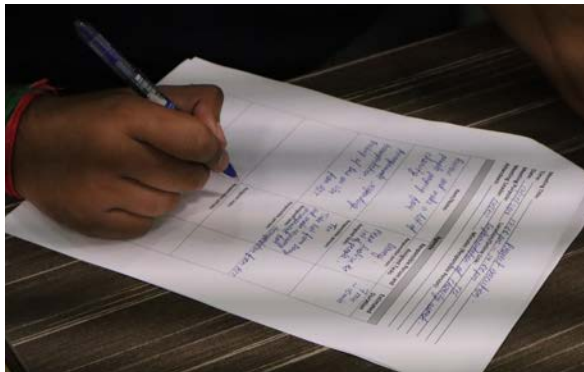
Goodwill Hunting
Project
Presentation

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Module III

Leadership Communication Skills Development

- Knowing your leadership style
- Cultivating your leadership and communication style
- Nonverbal communication
- Adapting your communication to different situations and audiences
- Making your message powerful, motivating and inspiring

Self-Assessment

Movie: The Men Who Built America

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Movie: Invictus

Class Meeting:
Theme of the powerful speech

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The Power of "Because"

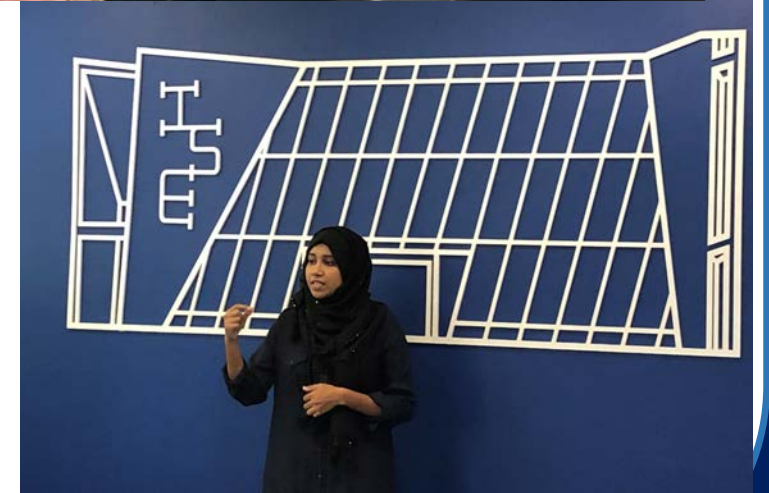|	Statement	Success Rate
1.	"Excuse me, I have **five pages**. May I use the Xerox machine?"	60 %
2.	"Excuse me, I have **five pages**. May I use the Xerox machine **because** I am in a rush?"	94 %
3.	"Excuse me, I have **five pages**. May I use the Xerox machine **because** I have to make copies?"	93 %
4.	"Excuse me, I have **twenty pages**. May I use the Xerox machine?"	24 %
5.	"Excuse me, I have **twenty pages**. May I use the Xerox machine **because** I am in a rush?"	42 %

Shell, G. R., & Moussa, M. (2007). *The art of woo: using strategic persuasion to sell your ideas*. Penguin.

The experiment of Ellen Lange a Harvard psychologi

Confront the **5 Barriers**

1. Relationships

The first potential barrier is often the one that colors all the rest: How will the other pe view your relationship to him or her? Will they know you? Like you? Best of all, trust yo

2. Credibility

Next, you need to think about whether the other person will see you as a credible advocate for your idea. Will they view you as competent? Reliable? Someone with special expertise? This factor explains why trying to manipulate other people does not work when you are selling important ideas.

Shell, G. R., & Moussa, M. (2007).
The art of woo: using strategic persuasion to sell your ideas. Penguin.

5 minutes presentation of
Steve Jobs to Jon Steel Team

P	Problem:	Apple was in deep financial trouble.
C	Cause:	14 projects with millions in sunk costs were bleeding the firm dry.
A	Answer:	Jobs was betting the company on the 4G and the iMac, and needed advertising help to reconnect with his customer base to set the stage for these 2 products.
N	Net Benefits:	Jobs's focused, two-product strategy was, by implication, the best of the many alternatives the Apple leadership team had considered as ways to save the company.

Shell, G. R., & Moussa, M. (2007). *The art of woo: using strategic persuasion to sell your ideas*. Penguin.

Your Powerful Speech

Mark Zuckerberg's
Commencement Address
at Harvard University, 2017

Courses Offered in semester: August, 2019

Course Name: Selected Topic: Communications and People Skills Development for Engineering Leaders (AT73.9009)

Credits : 3

Lecture - Lab Hrs. : 15 - 60

Section: A

Instructors: Dr. Pisut Koomsap

No.	Student ID	Student Name	Remark	Mid-term Grade	Final Grade
1.			Credit	C	B
2.			Credit	C+	B
3.			Credit	C+	B
4.			Credit	C+	B
5.			Credit	B	B+
6.			Credit	B	B+
7.			Credit	A	A
8.			Credit	C+	B
9.			Credit	C+	B+
10.			Credit	B+	B+
11.			Credit	B+	A
12.			Credit	C+	B

Course Evaluation: Summary

Course Title:	Communications and People Skills Development for Engineering Leaders				
Course Duration:	From	August 2019	To	November 2019	
Instructor:	Pisut Koomsap, Ph.D.				
avg. score in all directions:		*4.40*			

Part I							AVG.
		1	**2**	**3**	**4**	**5**	
Course Characteristics:		**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
1	The course objectives were explained.				2	8	4.8
2	The course outline provided accurate description of the course.				4	6	4.6
3	Course topics were dealt in sufficient depth for each course objectives.			1	8	1	4
4	The course fulfilled my expectations.			2	3	5	4.3
5	The requirements of the course (projects, assignments, exams) were adequately explained.			1	8	1	4	4.18
6	The level of difficulty in this course was appropriate.			2	8		3.8
7	The student workload was appropriate.				7	3	4.3
8	The grading policy was clearly explained.		1	4	4	1	3.5
9	Assessment methods were appropriate and effective.			1	5	4	4.3

Other Comments:

Some course topics is very hard to understand at the first time.

It might be better if we study the topics in a more depth way. Some of the topics fly pass really fast.

The course beyond over my expectation.

	Part II						AVG.	
	Course Delivery/Teaching Methods/Resource Materials:	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree		
1	The teaching methods were effective for each course learning outcomes.				6	4	4.4	
2	Tutorial sessions were well conducted and effective.			1	4	5	4.4	
3	The course materials were up-to-date, well prepared and useful for each topic.				3	7	4.7	
4	The course materials were presented in an organized manner.				4	6	4.6	4.45
5	The use of information technology teaching resources helped the delivery of course material.				1	9	4.9	
6	The assignments were relevant and useful for each course learning outcome.				9	1	4.1	
7	Each learning assessment appropriate for teaching methods.				8	2	4.2	
8	The course materials were adequate for learning the subject metter.				7	3	4.3	
Other Comments:	Slide presentation is easily accessible.							
	Should provide more feedback about some assignment such as writing.							
	I like this teaching method.							

Part III						AVG.	
Laboratory/Workshop Sessions: (if applicable)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**		
1 The laboratory/workshop sessions were well integrated into the course.				6	4	4.4	
2 Help is available.				9	1	4.1	
3 Allocated time is adequate.			1	7	2	4.1	
4 Condition of equipment is acceptable.			1	3	6	4.5	4.32
5 Laboratory experiment instructions are available.			1	4	5	4.4	
6 The assignments were relevant and useful for each course learning outcome.				6	4	4.4	
Other Comments:	Some workshops are too hard to understand the main point of them. Moreover, times for workshop is quite long.						
	Workshop sessions are interesting and effective.						

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Overall Assessment							
Overall Assessment:	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**AVG.**	
1 I learned a lot from this course.				3	7	4.7	
2 You would recommend the course to other students.				3	7	4.7	4.67
3 Overall, I am satisfied with the course.				4	6	4.6	

Other Comments:	Is it possible or not? --> 1.If we use online software for lecture, 2.It will be better if we can watch repeatly, 3.Take time in classroom for pactice and apply theory from online lectures.
	I think lecture class and workshop class should separate the day of class because I want the time for review the lesson.
	In the very first time of this course, I think I am tried, but after that, this course becomes interesting and effective for our future. I am sure that I would recommend this course to my friends.
	More practice time of students in classroom.
	More in-depth study on topics like writing.

Personalize Your Course

Workshop on Learning experience design

Materials

Flashback

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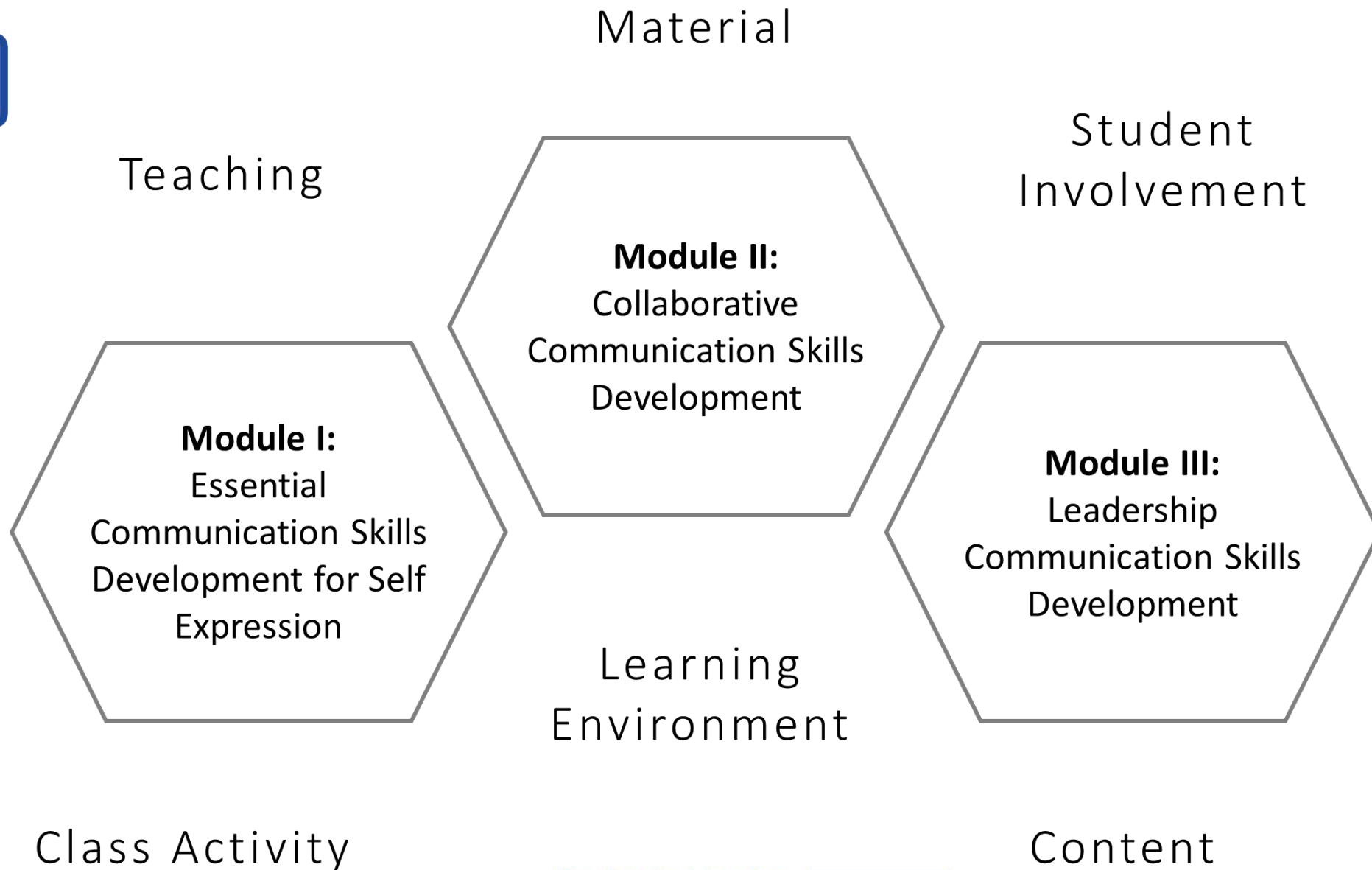
Design Session

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Personalized Your Course

Group A	Ben, Gon, Oppa	
Module1:	**Teaching & Learning Method**	**Material**
	Role play (act as different)	More videos to study (TED talks, discussions)
	Debate	
	Presentation on case study	
	Improving a bad presentation (use a bad presentation as a case study for improvement)	
Module2:	**Teaching & Learning Method**	**Material**
	More games	
	Debate	
	Role-play	
	Field trips to companies (for meeting, to realize how professionals run the meetings)	
Module3:	**Teaching & Learning Method**	**Material**
	Field trips to companies	
	Talk about leadership	
	Learn from leaders	

Personalized Your Course

Group B	Gift, Nukky, Tong					
Module	Teaching	Material	Student Involvement	Class Activity	Learning Environment	Content
1	Problem-based learning	Don't need any material	Everyone brainstrom to know the main problem and help others to solve prpblem	Group discussion	-	-
2	Game-based learning	Paper sheet	Showing their role in each situation	Simulation each situation, Debate	-	-
3	Case study (Famous people who everyone know)	Video, Movie	Each student should fine someone who have leadership skill in their opinion	Group discussion	-	-
More games but the duration of workshop session should be within 3 hours and should separate the lecture and workshop session on different day as students need time to realize the lessons						

Personalized Your Course

Group C	Nyan, Danny, Sandra	
Module 1	**Module 2**	**Module 3**
Integreated or interdisciplinary teaching	Discussion	Brainstorming
Showing video material	Showing video material	Showing video material
Discussion	Class debate	Meeting
Group work	Group assignment	Conference
Activities	Workshop	Meeting and planning for trip
	Seminars	
	Games	

More games but the duration of workshop session should be within 3 hours and should separate the lecture and workshop session on different day as students need time to realize the lessons