Course 15: Customer Experience-Driven Design

Module 1: Pain Point-Free Customer Experience Journey

Topic 4: Customer Oriented-Failure Prevention [2/2]

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Universidade do Minho

Curriculum Development

of Master's Degree Program in

Industrial Engineering for Thailand Sustainable Smart Industry

Module I

Pain Point-Free Customer Experience Journey

- Introduction to Experience Economy
- Customer Journey
- Experience Clues
- Customer Oriented-Failure Prevention
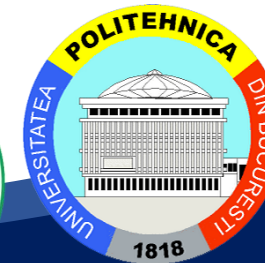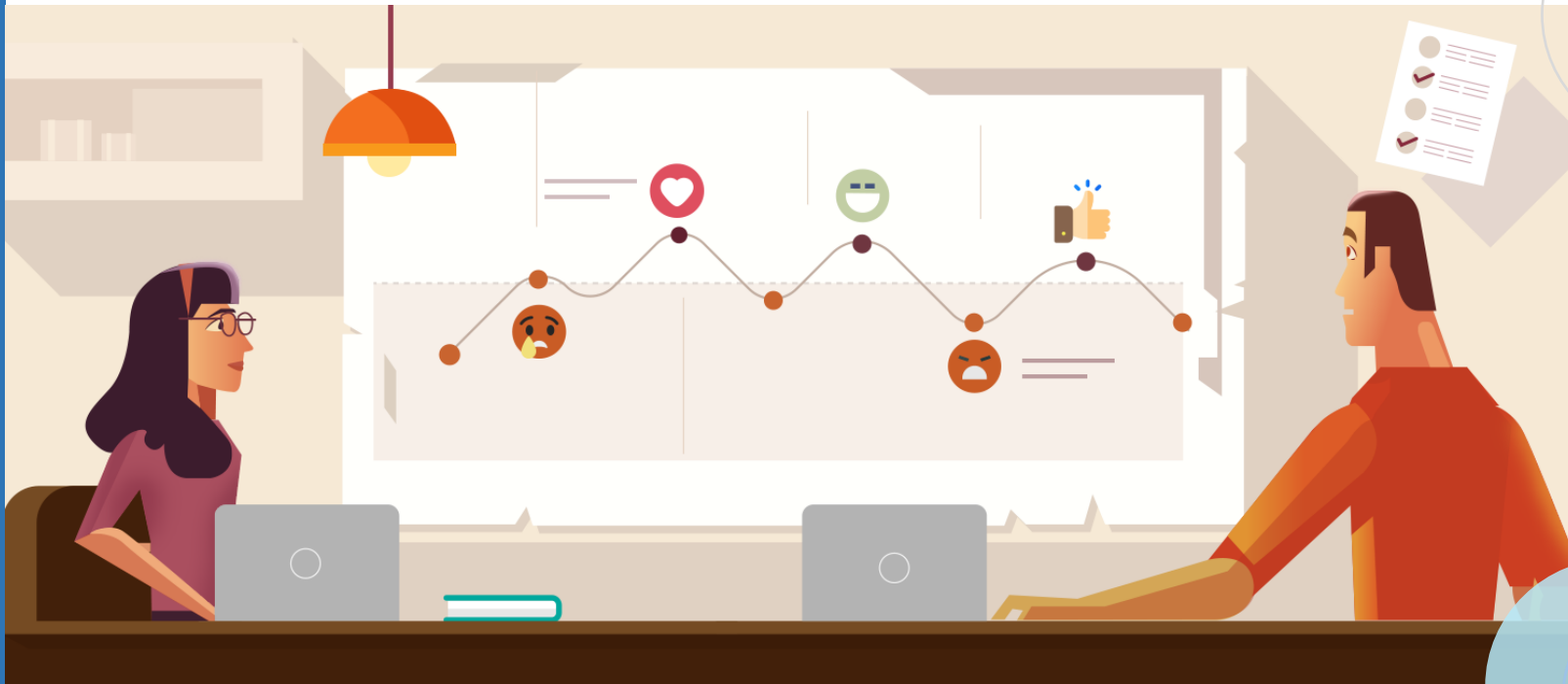
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Customer Oriented-Failure Prevention

Content based on:
Labajan, R. A. A., & Koomsap, P. (2019).
Customer Journey Clue-based Service Failure Prevention.
Production Engineering Archives, *25*(25), 21-34.

Customer Journey Clue-based Service Failure Prevention Framework

1 **Understand Customer Journey**

Inventory of customer activities, expected outcomes and touchpoints

2 **Identify potential failures according to the following service components**

Functional

Humanic

Mechanic

3 **Screening and evaluation of potential failures**

Likelihood of occurrence

Dissatisfaction: severity and perception

Likelihood of detection

4 **Prioritization**

Potential failures are ranked according to its criticality

$$RPN = DOS^k$$

5 **Corrective Actions**

Critical failures are addressed by applying corrective actions to stop them from occurring

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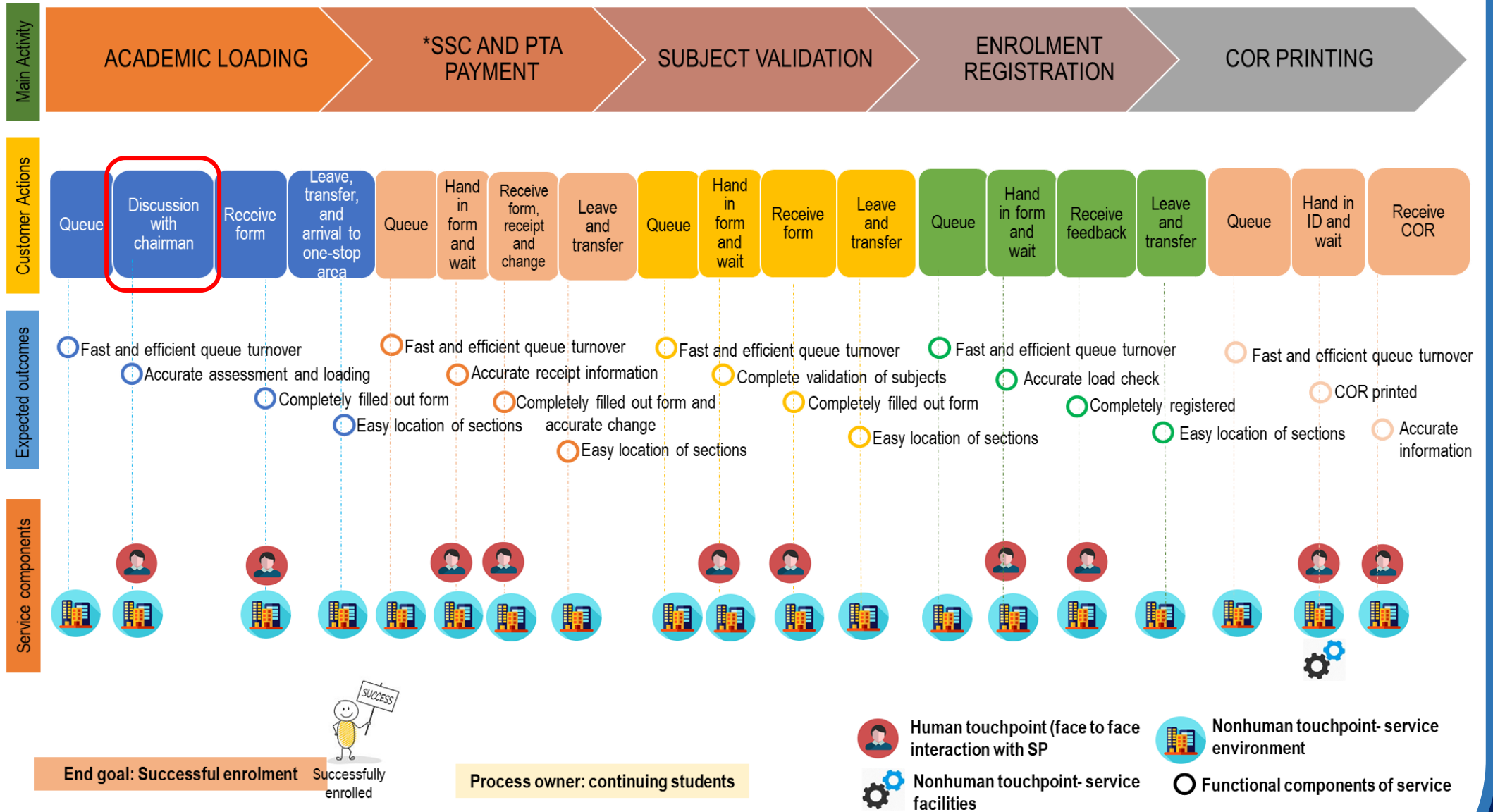
Sample Implementation on
Customer Oriented-Failure Prevention

USTP Enrollment Process

USTP: University of Science and Technology of Southern Philippines

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Customer Journey Clue-based Service Failure Prevention.
Production Engineering Archives, 25(25), 21-34.

Main Activity: ACADEMIC LOADING → *SSC AND PTA PAYMENT → SUBJECT VALIDATION → ENROLMENT REGISTRATION → COR PRINTING

Customer Actions:
- Queue
- Discussion with chairman
- Receive form
- Leave, transfer, and arrival to one-stop area
- Queue
- Hand in form and wait
- Receive form, receipt and change
- Leave and transfer
- Queue
- Hand in form and wait
- Receive form
- Leave and transfer
- Queue
- Hand in form and wait
- Receive feedback
- Leave and transfer
- Queue
- Hand in ID and wait
- Receive COR

Expected outcomes:
- Fast and efficient queue turnover
- Accurate assessment and loading
- Completely filled out form
- Easy location of sections
- Fast and efficient queue turnover
- Accurate receipt information
- Completely filled out form and accurate change
- Easy location of sections
- Fast and efficient queue turnover
- Complete validation of subjects
- Completely filled out form
- Easy location of sections
- Fast and efficient queue turnover
- Accurate load check
- Completely registered
- Easy location of sections
- Fast and efficient queue turnover
- COR printed
- Accurate information

End goal: Successful enrolment — Successfully enrolled

Process owner: continuing students

Legend:
- Human touchpoint (face to face interaction with SP
- Nonhuman touchpoint- service environment
- Nonhuman touchpoint- service facilities
- Functional components of service

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Identify main activity:

Academic Loading

Identify sub-activities (customer actions):

Discuss with the chairman the subjects

Stage 1 Understand Customer journey.

Identify Expected outcomes

- The chairman accurately assessed the academic status and eligibility for enrolment of the student

Identify human touchpoints

- Student face to face talk with chairman

Identify nonhuman touchpoints

- Office environment

Stage 2. Identify Potential Failures.

Inaccurate assessment of academic status

Potential failures according to **functional clues**

The chairman is impolite; Inattentive; unapproachable

Potential failures according to humanic clues

Office area is hot; noisy and crowded

Potential failures according to mechanic clues

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Customer Journey Clue-based Service Failure Prevention.
Production Engineering Archives, *25*(25), 21-34.

Main Activity: Academic Loading

Activities/ sub-activities	Expected Outcomes	Potential failures according to functional	Human Touchpoints	Potential failures according to Humanic	Non-human Touchpoints	Potential failures according to Mechanic
• Discuss with the chairman the subjects	• The chairman accurately assessed the academic status and eligibility for enrolment of the student	• Inaccurate assessment of status	• Student face to face talk with chairman	• Chairman is impolite, inattentive, unapproachable, dirty and unkempt	• Office environment and facilities	• Hot and uncomfortable office

Labajan, R. A. A., & Koomsap, P. (2019).
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Production Engineering Archives, 25(25), 21-34.

Identify main activity:

COR PRINTING

Identify sub-activities (customer actions):

Hand-in student ID and wait while COR is printed

Stage 1
Understand
Customer
journey.

Identify Expected outcomes
- COR is printed successfully

Identify human touchpoints
- Student-staff

Identify nonhuman touchpoints
- Service environment
- Printing facilities

Stage 2.
Identify
Potential
Failures.

Cannot print COR

Potential failures according to **functional clues**

Impolite, inattentive, unapproachable, unfriendly

Potential failures according to humanic clues

Service area is hot and crowded
Printer / computer is broken
System breakdown

Potential failures according to mechanic clues

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Main Activity: COR PRINTING

Activities/ sub-activities	Expected Outcomes	Potential failures according to functional	Human Touchpoints	Potential failures according to Humanic	Non-human Touchpoints	Potential failures according to Mechanic
• Hand-in student ID and wait while COR is printed	• COR is printed successfully	• cannot print	• Student-staff	• impolite, inattentive, unapproachable, unfriendly	• equipment and facilities • Service environment	• Printer is broken or out of ink • System breakdown • Hot and uncomfortable environment

Labajan, R. A. A., & Koomsap, P. (2019).
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List of Potential Failures

	Functional
1	The staff failed to update the registration status of the student in the system therefore the student cannot print COR and has to go back to registrar again to verify
2	The change given by cashier/staff is inaccurate
3	It is difficult to spot the correct line/section
4	The queue is long and unorganized
5	The receipt shows wrong amount
6	No receipt is given
7	The chairman allowed the student to enroll subjects with prerequisites which are not yet complied thus resulting to invalidation of enrolment
8	The chairman failed to enroll the student within the allowable number of units resulting to invalidation of enrolment
9	The chairman inaccurately assessed the academic status of student and allowed to enrol even if not eligible to enroll; thus resulting to invalidation of enrolment

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List of Potential Failures

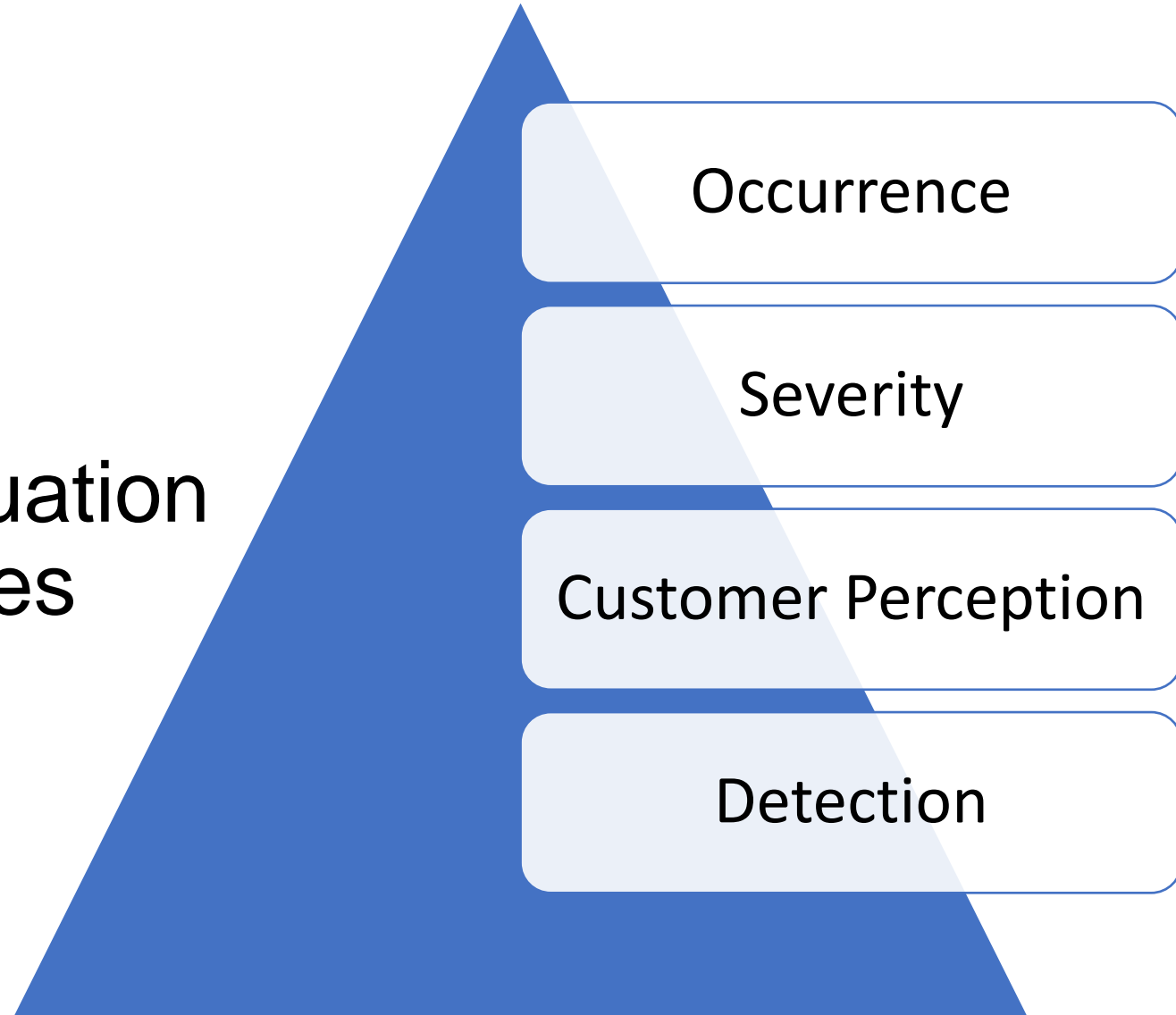|	Functional
10	The chairman inaccurately assessed the academic status and prevent from enrolling even if student is eligible to enroll giving student unnecessary worry
11	The form is inaccurately and incompletely filled out so student have to go back again to have it completed
12	The registrar staff inaccurately checked the student load giving unnecessary worry to students
13	The subjects and schedule reflected in the COR are different from the preferred one as discussed with the chairman
14	The subjects are not created in the system (transaction did not complete); hence student need to go back to the chairman to start the process again
15	The assessment staff failed to update validation status of student so student has to go back again to verify

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Production Engineering Archives, *25*(25), 21-34.

List of Potential Failures

	Humanic
16	The chairman/staff treats student impolitely (shouts or raise voice; demonstrate rough actions)
17	The chairman/staff is inattentive (performs other tasks not related to the transaction)
18	The chairman/staff is unfriendly and unapproachable (does not smile (keeps frowning)
19	The chairman/staff is unkempt and dirty

	Mechanic
20	The queuing area / service area/ office area is hot and uncomfortable
21	The student cannot print because printer and computer is not working
22	The system breaks down preventing successfully registered student to print

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Stage 3 –
Screening & Evaluation of Potential Failures

Occurrence

Severity

Customer Perception

Detection

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Assessment of Occurrence

No.	Potential Failures — When you provide enrolment services, have you ever met the following situation?	FREQUENCY OF OCCURRENCE								
		1 unlikely	2 rare	3 very few	4 few	5 occasional	6 medium	7 moderately high	8 high	9 very high
1	The registrar staff failed to update the registration status of the student in the system therefore the student cannot print COR and has to go back to registrar again to verify		4							
2	The amount of change given by cashier/staff is inaccurate	2	1							
3	It is difficult to spot/find the correct line/section in the gym	3	3	2	2	2	2			
4	The queue is long and unorganized	6	7	1	2	3	2	1	2	1
			3							
		1	2							
	...not yet complied thus resulting to non-	5	2	3	3	1				1
8	The chairman failed to enroll the student within the allowable number of units resulting to non-registration of enrolment	5	7	1	1		1			
									1	3

Occurrence — • Service Provider (11 chairmen, 4 registrar and assessment staff, 3 ICT and PTA/SSC staff)

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Potential Failures		Likelihood of detection								
No.	HOW LIKELY THE FOLLOWING SITUATIONS CAN BE DETECTED BEFORE IT CAN HAPPEN?	1	2	3	4	5	6	7	8	9
		almost certain	very high	high	moderate	low	very low	remote	very remote	absolutely uncertain
1	The registrar staff failed to update the registration status of the student in the system therefore the student cannot print COR and has to go back to registrar again to verify						1		3	
2	The amount of change given by cashier/staff is inaccurate							1		2
3	It is difficult to spot/find the correct line/section in the gym	2			5	1	2	2	1	1
		1	3	4	6	6	2	1	1	1
					1	2				
						1			2
7	The chairman mistakenly allowed the student to enrol subjects with prerequisites which are not yet complied thus resulting to non-registration of enrolment	2	1	1		5	1	1		
										2
										1
										1
										8
										5
										6
										7
										3
22	The student cannot print because printer and computer is not working		1	1						1

Assessment of Detection

Detection

- Service Provider (11 chairmen, 4 registrar and assessment staff, 3 ICT and PTA/SSC staff)

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Assessment of **Severity**

Severity — • Customer (122 continuing student response)

Potential Failures	Severity effect								
No. If the following situation happens to you, how much effect will it have to your dissatisfaction?	1 no effect	2 not annoyed	3 slightly annoyed	4 minor nuisance	5 some dissatisfaction	6 discomfort	7 dissatisfied	8 very dissatisfied	9 hazardous effect
1 The registrar staff failed to update the registration status of the student in the system therefore the student cannot print COR and has to go back to registrar again to verify	7	2	26	14	28	17	17	2	7
2 The amount of change given by cashier/staff is inaccurate	25	8	17	19	18	14	10	7	4
	16	16	28	18	16	13	8	4	2
	11	3	20	20	23	22	7	10	5
	22	5	12	13	29	13	15	8	4
6 No receipt is given	21	5	11	8	22	22	16	5	11
7 The chairman mistakenly allowed the student to enrol subjects with prerequisites which are not yet complied thus resulting to									5
									7
									7
									8
									5
									4
									5
									7
									8
									13
									10
									7
19 The chairman/staff is unfriendly and unapproachable (does not smile (keeps frowning)	13	11	9	7	11	21	21	18	9
20 The chairman/staff is unkempt and dirty	22	10	10	13	18	15	14	12	5
21 The queuing area / service area/ office area is hot and uncomfortable	7	6	17	9	21	19	13	18	9
22 The student cannot print because printer and computer is not working	9	8	17	10	9	30	20	4	14

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Assessment of Customer Perception (Kano)

Customer Requirements		positive: 12) The student CAN print COR because printer and compu...				
		Delighted	Satisfied		...fied	Frustrated
negative: 5) The student cannot print COR because printer and computer is not working	Delighted	1				
	Satisfied	4				
	Neutral	27				
	Dissatisfied	21	1...			
	Frustrated	13	3	2		

> **Kano score = reverse attractive = -1**

Customer Requirements		Positive				
		Delighted	Satisfied	Neutral	Dissatisfied	Frustrated
negative	Delighted					
	Satisfied					
	Neutral	$R_A = -1$	$I = 0$	$I = 0$		
	Dissatisfied	$R_A = -1$	$I = 0$	$I = 0$		
	Frustrated	$R_O = +1$	$R_M = +2$	$R_M = +2$	$R_M = +2$	

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Production Engineering Archives, *25*(25), 21-34.

Shahin, A. (2004). Integration of FMEA and the Kano model. *International Journal of Quality & Reliability Management*.

Perception of customer to failure (Kano)

- Customer (128 continuing student response)

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Stage 4 – Prioritization

Severity, S

Occurrence, O

Detection, D

Customer perception to failure, k

$$RPN = DOS^k$$
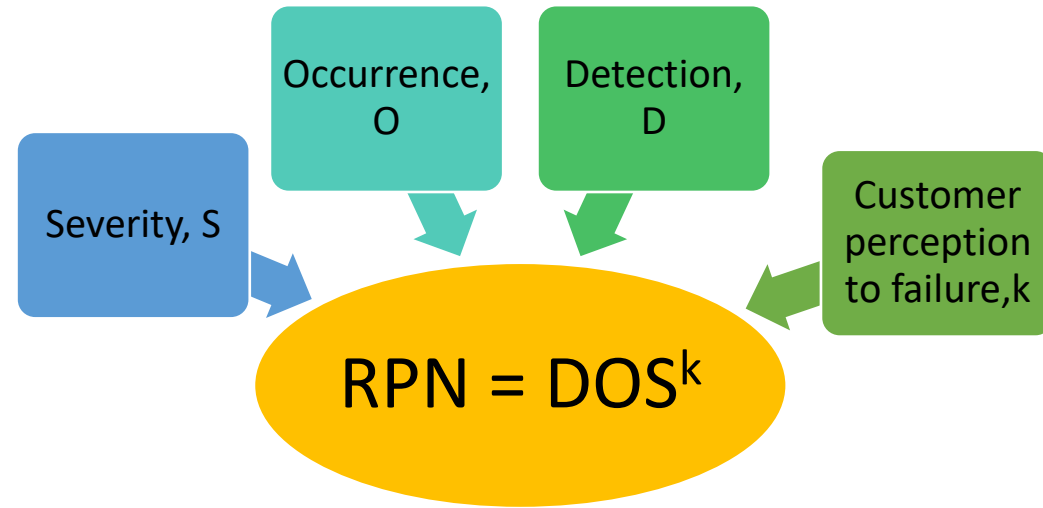
Potential Failure	Reverse kano score, k	Severity score, s	Occurrence Score	Detection Score	RPNc
The chairman/ staff treats student impolitely	1	8	1	9	72

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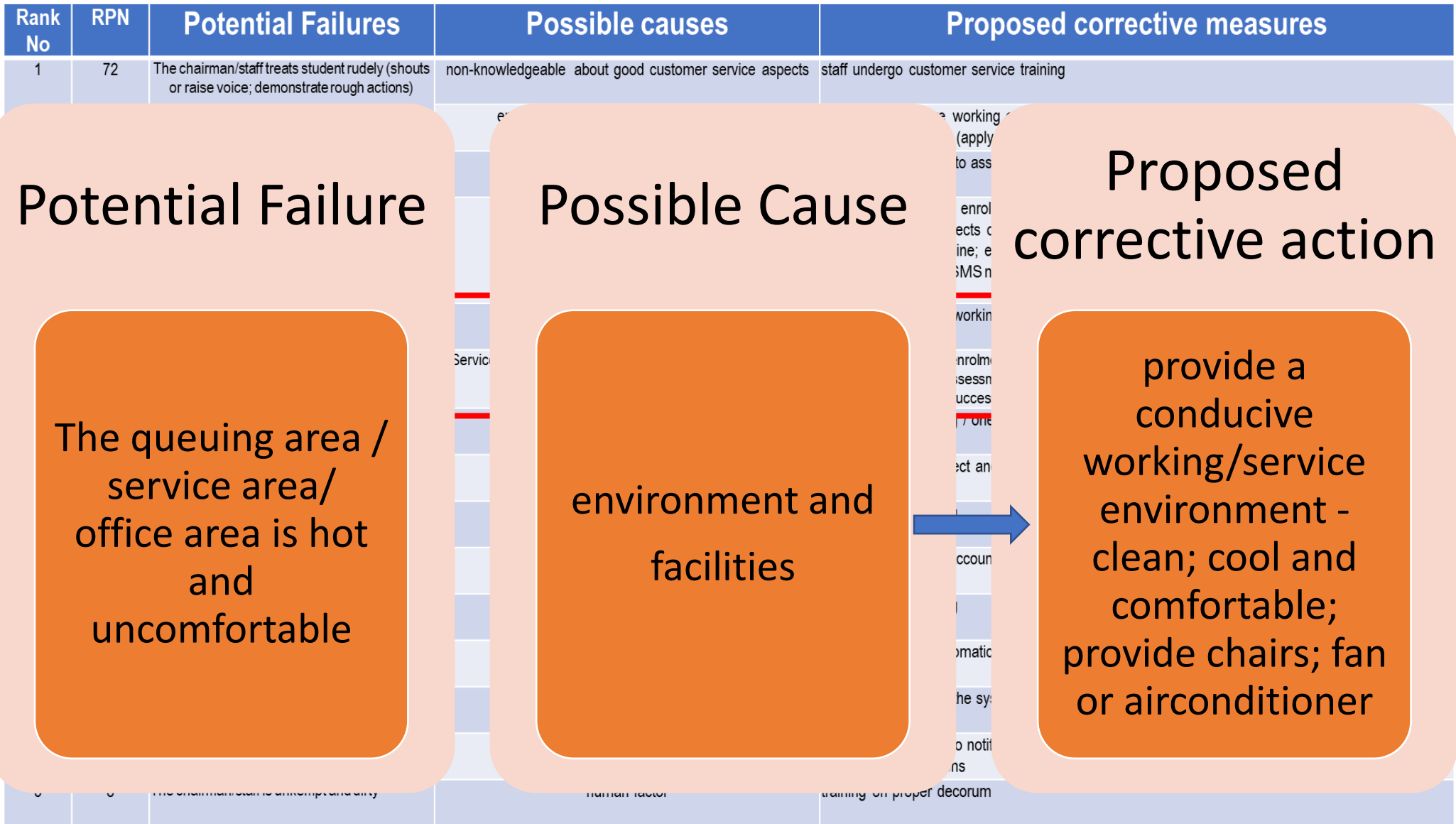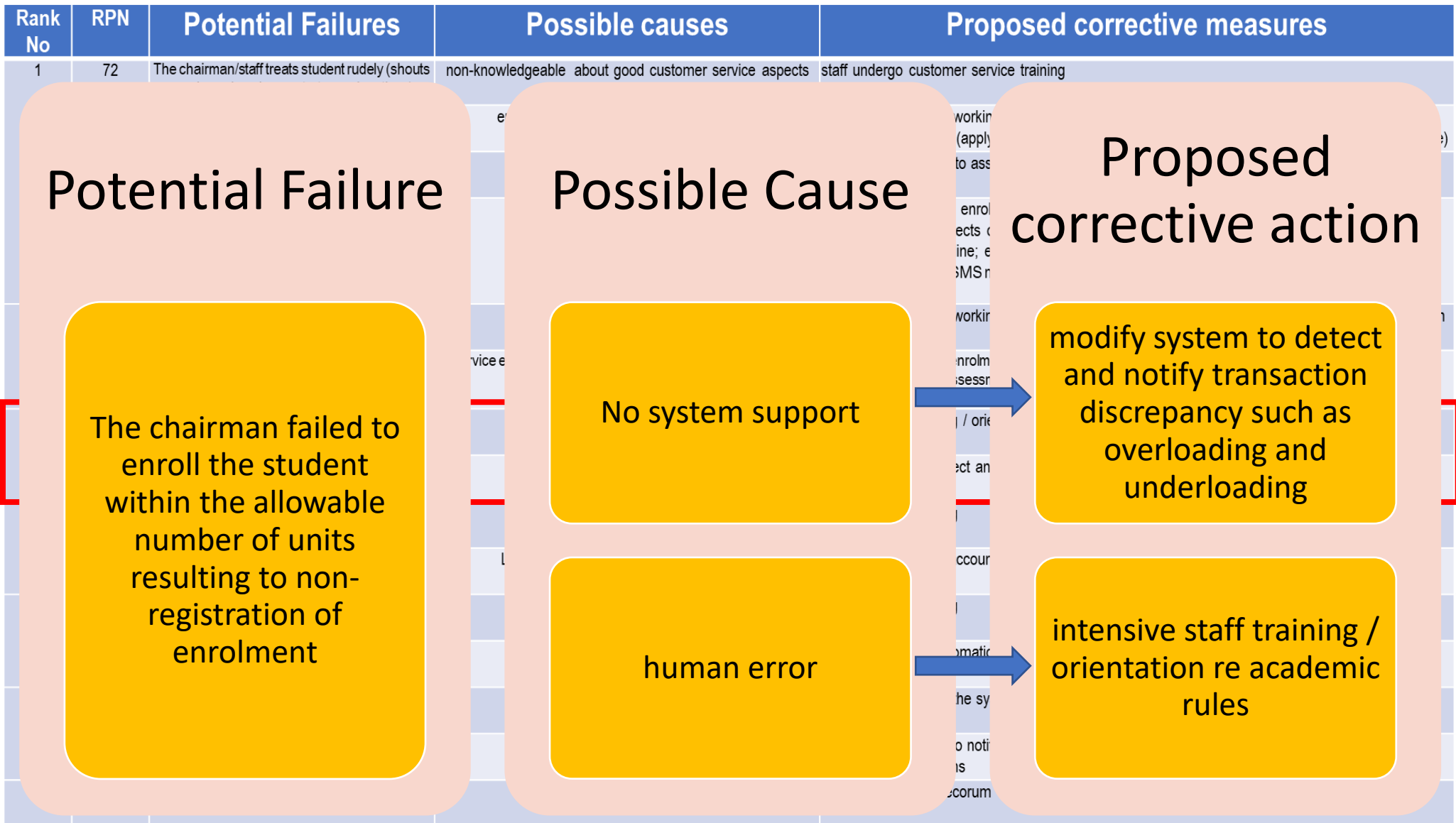| Potential Failures	Reverse Kano score , k	Severity Score	Occurrence Score	Detection Score	RPN = DOS^k
The chairman/staff treats student impolitely (shouts or raise voice; demonstrate rough actions)	1	8	1	9	72
The queuing area / service area/ office area is hot and uncomfortable	1	5	1	8	40
The chairman failed to enroll the student within the allowable number of units resulting to non-registration of enrolment	0	8	2	6	12

The chairman/staff treats student impolitely (shouts or raise voice; demonstrate rough actions)	1	8	1	9	72
The queuing area / service area/ office area is hot and uncomfortable	1	5	1	8	40
The chairman failed to enroll the student within the allowable number of units resulting to non-registration of enrolment	0	8	2	6	12

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Stage 4 – Corrective Actions

Study potential failure	→	Identify possible causes	→	Recommend corrective actions

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Rank No	RPN	Potential Failures	Possible causes	Proposed corrective measures
1	72	The chairman/staff treats student rudely (shouts or raise voice; demonstrate rough actions)	non-knowledgeable about good customer service aspects	staff undergo customer service training
			environment triggers: noisy; crowded; hot	provide a conducive working environment - pleasant both for workers and customers to promote

Potential Failure

The chairman/staff treats student impolitely

Possible Cause

non-knowledgeable about good customer service aspects

environment triggers: noisy; crowded; hot working conditions

overworked / tired

Proposed corrective action

customer service training

provide a conducive working environment - pleasant both for workers and customers to promote peace and calmness

provide support staff to assist in the work; or Minimize face-to-face enrolment transaction by making some of the processes online

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Rank No	RPN	Potential Failures	Possible causes	Proposed corrective measures
1	72	The chairman/staff treats student rudely (shouts or raise voice; demonstrate rough actions)	non-knowledgeable about good customer service aspects	staff undergo customer service training

Potential Failure

The queuing area / service area/ office area is hot and uncomfortable

Possible Cause

environment and facilities

Proposed corrective action

provide a conducive working/service environment - clean; cool and comfortable; provide chairs; fan or airconditioner

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Production Engineering Archives, *25*(25), 21-34.

Rank No	RPN	Potential Failures	Possible causes	Proposed corrective measures
1	72	The chairman/staff treats student rudely (shouts	non-knowledgeable about good customer service aspects	staff undergo customer service training

Potential Failure

The chairman failed to enroll the student within the allowable number of units resulting to non-registration of enrolment

Possible Cause

No system support

human error

Proposed corrective action

modify system to detect and notify transaction discrepancy such as overloading and underloading

intensive staff training / orientation re academic rules

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Stage 1 & 2 of the framework provides an easy approach of assessing service and identifying potential failures according to customer perspective

It is possible that without the two stages, some potential failures may not be considered

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Enrolment flow depicted by the service provider

It is possible that failures according to mechanic and humanic aspects of the service will be missed

- Negative behavior of service providers and poor state and condition of the service environment

Some latent needs and expectations of students may be missed

- Example, inaccurate loading of desired subjects of students

Some failures arising from activities of students not illustrated in the flow may be missed

- Example, long queue and difficult to find sections in the enrolment area

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Prioritization without Customer Perception

Potential Failures	Severity Score	Occurrence Score	Detection Score	RPN = DOS
The system (SIS) breaks down preventing successfully registered student to print	5	4	9	180
The subjects and schedule reflected in the COR are different from the preferred one as discussed with the chairman	5	5	7	175
No receipt is given	6	2	9	108

	Severity Score	Occurrence Score	Detection Score	RPN = DOS
The system (SIS) breaks down preventing successfully registered student to print	5	4	9	180
The subjects and schedule reflected in the COR are different from the preferred one as discussed with the chairman	5	5	7	175
No receipt is given	6	2	9	108

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Comparison with and without Customer Perception

- With customer perception

Rank	Failure
1	The chairman/staff treats student impolitely (shouts or raise voice; demonstrate rough actions)
2	The queuing area / service area/ office area is hot and uncomfortable
3	The chairman failed to enroll the student within the allowable number of units resulting to non-registration of enrolment

- Without customer perception

Rank	Failure
1	The system (SIS) breaks down preventing successfully registered student to print
2	The subjects and schedule reflected in the COR are different from the preferred one as discussed with the chairman
3	No receipt is given

Different prioritization results with and without customer perception

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