

GROUP PROJECT DESCRIPTIONS & REQUIREMENTS

1. General description and requirements:

- This is a group project that is aimed to provide students with opportunities to apply simulation into modelling and improving and solving real-world systems.
- Each group of students is free to choose a case study (preferly in a realist environment) in which it is required to apply ARENA Simulation Model into modelling and solving the problem.
- Each group should have a maximum of 5 students and a minimum of 4 students. Each group should have a leader, who is repositible and has potential to lead the project successuffly.
- Students are required to register their group and group topics (the group topics should be unique) in the following link [Group Registration Link](#).
- Registration should be done before 25/02/2023. Registration should receive the lecturer's approval.
- Those without a group after the deadline will be randomized into one.
- Here are some references for your group project [References for Group Project](#).
- The dataset used in the project can be real data (highly recommended) or assumed by your group.
- Your group submission should include all the followings:
 - Group report in PDF format (The group report should cover a description of the simulated system, objectives, conceptual model, data collection, result analysis and improvement suggestion)
 - Presentation file in PDF format
 - Data files (if necessary and highly recommended)
 - ARENA files of your simulation model.

2. Timeline:

ACADEMIC CALENDAR 2022 - 2023

Month	Sep/2022	Oct/2022	Nov/2022	Dec/2022	Jan/2023	Feb/2023	Mar/2023	Apr/2023	May/2023	Jun/2023	Jul/2023	Aug/2023
Weeks	1-5	6-10	11-15	16-20	21-25	26-30	31-5	6-10	11-15	16-20	21-25	26-30
Monday	29	5	12	19	26	3	10	17	24	1	8	15
Saturday	3	10	17	24	1	8	15	22	29	6	13	20
Class Weeks	Semester 1						Semester 2				Summer Semester	
K.2018	←29/8	C(8)	SS	M	gc	24/12	→R	→F	→	→	→	→
K.2019	←29/8	C(7)/C(6)	SS	M	gc	24/12	→R	→F	→	→	→	→
K.2020	←29/8	C(5)/C(4)	SS	M	gc	24/12	→R	→F	→	→	→	→
K.2021	←29/8	C(3)/C(2)	SS	M	gc	24/12	→R	→F	→	→	→	→
K.2022 (IE0/1/23)	O	ME-K2022	OC	Break	21/11	K1	7/1	f	→	→	→	→
K.2022 (AE1)	O	ME-K2022	OC	Break	21/11	C(1)	→	→	→	→	→	→
K.2023	Promotion Campaign for New Batch											

Milestone	Deadline	Week No.
Group registration	25/02	End of week 04
Topic registration	04/03	End of week 05
Project development:	06/03 – 13/05	Week 06-15
- Problem formulation and setting objective and overall design	06/03 – 13/03	Week 06-07
- Modeling building and data collection	13/03 – 01/04	Week 07-09
- Running of the model	03/04 – 06/05	Week 10-14
- Implementation	24/04 – 13/05	Week 13-15
Submission of project deliveries	13/05	End of week 15
Group presentation	15/05 – 27/05	Week 16-17

3. Assessment Rubrik:

Project deliveries	Max points	Weight
Group report	100	50%
Group presentation	100	50%
Total	100	100%

Criteria for group report and group presentation grading	Max points
<p>1. <u>System and Problem Formulation & Description</u></p> <ul style="list-style-type: none"> ▪ Define the problem being experimented (What’s wrong with the current system?) ▪ Describe the process (include system sketch or flow diagram (i.e conceptual model)) ▪ Define the objectives of the experiment (What do you hope to find out? The outputs? Who may benefit from the findings? Why using simulation?) 	15
<p>2. <u>Input data</u></p> <ul style="list-style-type: none"> ▪ Describe the data sources (How were data collected or generated?) ▪ List major assumptions ▪ Show fitted distributions including p values 	25
<p>3. <u>Arena Model</u></p> <ul style="list-style-type: none"> ▪ Explain the logic and use the correct modules ▪ Design logical layout and good use of animation ▪ Originality and Creativity ▪ Verification and validation 	25

4. <u>Experimentation and Output Analysis</u> <ul style="list-style-type: none">▪ Define response variables & their meaning to the problem. Define factors affecting the chosen response variables▪ What's the original scenario and what are the what-if scenarios▪ How many replicates, what is run length▪ Organize and summarize the output using graphs and tables	25
5. <u>Conclusion and Recommendation</u> <ul style="list-style-type: none">▪ Conclude your findings about the system▪ Suggest suitable recommendations based on different scenarios run▪ Restate model limitation and suggest improvements	10
Total	100

Penalty:

- Late submission 1 day: -10%

- Late submission 2 days: -20%

- Late submission > 2 days: Submission is not accepted!

- Absent from presentation without permission: -50%