FAR EASTERN UNIVERSITY
General Education Department

SCIENCE, TECHNOLOGY, AND SOCIETY

Module Facilitation Guide

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MODULE FACILITATION GUIDE

Course Code	GED0104	Course Title	Science Technology and Society

Module 1 Title	The Scientific Revolution
Modular Learning Outcomes	- Identify the achievements and discoveries of the Scientific Revolution and determine how they influence modern society's perspectives in philosophy, religion, and their relationship with nature by using a graphic organizer; - Analyze the implications of scientific revolution to the advancement of science and technology; and - Critically reflect on the "superiority" of science from other bodies of knowledge and the advantages and disadvantages it has brought to our lives through an argumentative oral presentation.
Resource materials	Harari, Y. (2014). Part Four: The Scientific Revolution – The Discovery of Ignorance. In Sapiens: A Brief History of Humankind. Signal Books. (read Chapter 14 only) *Resource material to be provided by the facilitator.
Reminders	1. Ask the students to read the resource material and annotate at home. 2. Make sure to prepare a sample template (for the ungraded & graded assessments) for the students to utilize. 3. Decide if you would want this to be an individual, paired work or a group activity. Prepare this in advance. 4. Ensure that the students will write/include their complete names, section, and dates on their paper/activity. 5. You may ask them to take pictures of the activity. 6. Provide working time/time allotment for the activity. Ask the students if they need extension to accomplish the work. 7. Make sure to facilitate learning by going around every groups/pair to check for learning and understanding or ask questions to ensure participation and learning.

1. *Classroom engagement*

A. Preliminary Activities These are initial activities that learners will do to exhaust the content of the resource material.	Categorizing Grid As a group, the students will be given 15 minutes to create a one-slide presentation that evaluates one (1) specific scientific/technological advancement on how it influences the nexus of science, technology, and society based on the assigned reading material. Each group will be given 5 minutes to present.

Scientific/technological advancement		
Field to which it is conceptualized/applied		
How did the scientific/technological advancement influence nexus of STS?		
SCIENCE	TECHNOLOGY	SOCIETY

B. Deepening of understanding These are activities that learners will do to analyze, evaluate, and/or synthesize the content of the resource material.	Question Circle 1. Divide the class into 4 or 5 groups. 2. Each group will compose two questions that they would like to ask the author about the reading material. The questions should be about the concepts they were not able to fully grasp or understand and/or concepts they would like to know more about. 3. Each group will read their questions aloud to the class and the other group (the group next to them) will try to give their best answers. 4. The activity will end when all the questions are answered.
C. Ungraded formative assessment This would refer to ungraded activities that will assess students'	The students will be asked to submit their preliminary activity output as their ungraded formative assessment.

demonstration of understanding and skills, using the resource material as a vehicle to build learning base.	
D. Closure and synthesis These are activities that learners will do to reflect on what transpired in the whole teaching-learning episode.	Answer one of the questions in class: 1. Between science and society, which had more influence over the other? 2. Will the further advancement of science and technology lead to development or more inequalities? 3. How did the Scientific Revolution change the way people think?

2. Asynchronous online engagement

A. Work-along activities This would refer to ungraded activities that will allow students to explore the resource material and further their ideas.	The students will be asked to annotate the assigned reading material.

3. Graded formative assessment

A. Assessment task This refers to what output or performance students are	In this assessment, students will be tasked to prepare an argumentative oral presentation that would allow them to analyze the implications of scientific revolution to the advancement of science and technology and critically reflect on the "superiority" of science from other bodies of knowledge and the advantages and disadvantages it has brought to our life.

expected to accomplish as evidence of demonstrating the learning outcomes.	
B. Instructions This refers to specific instructions in accomplishing the tasks and would be communicated to the students.	The presentation must provide answers to the following questions: **Question #1 (Q1):** What is the major implication of scientific revolution in the advancement of science and technology? **Question #2 (Q2):** Can scientific knowledge alone be sufficient in developing the Philippines? **Question #3 (Q3):** Did the application of scientific knowledge enhance the welfare of everybody? Students must follow the below format: - The presentation must include an introductory statement, body paragraphs and a conclusion for each answer. - You may refer to this document guide on how to create and organize your argumentative oral presentation: "Organizing Your Argument Presentation" - Your last slide must include the "References" (use 7th ed. APA format) - Record your presentation with a voice over. Duration of the recorded presentation must be limited to 7 minutes. - You may submit your work using the following file formats (choose one): - MS PowerPoint with embedded audio record - URL link to a recorded Canva presentation - YouTube URL link to a recorded presentation - MP4 file of your recorded presentation - File name or video title must follow this format: <Surname of Group Members>_GED0104_<Section#>_FA1-STS (e.g., CRUZ-DELACRUZ-SANTOS_GED0104_Section1_FA1-STS).
C. Reminders	1. This is an individual, paired, or group assessment (maximum of 3). 2. Let the students submit this assessment in Canvas. Instruct your students that if they will work as a group, only one member will submit the file to avoid duplicate submissions. 3. Tell your students to cite their sources, especially if the ideas are not their own.

	4. Publish the assessment early in Canvas. *Note:* The assigned deadline of submitting the file is on **August 31 – September 2 (Thursday - Saturday, 11:59 PM)**. To be fair, if a particular member of the group did not contribute to the conduct of the assessment, then you have the right to exclude them in the submission. **You may set the deadline anytime between the stipulated dates.*

D. Rubric

This refers to the criteria for grading the assessment task.

	Excellent	Very Good	Good	Needs Improvement
Argumentation 10-9 - Excellent 8-6 - Good 5-3 - Fair 2-1 - Needs Improvement	Main argument is stated clearly and developed with evidence over the course of the presentation. Details are relevant, original, and convincingly interpreted. The presentation contained main points that are well developed with supporting details. There are statements which refute and acknowledge opposing views and summarize their main points.	Argument is present but vague and only somewhat developed over the course of the presentation. Details are relevant but some are unconvincingly interpreted. Presentation contained some main points but lacks in detail and development. There are some statements which refute and acknowledge the opposing view but do not summarize points.	Argument is somewhat present but vague and undeveloped in the presentation. Some details are present, but most are too general and are unconvincingly interpreted. There were attempts to elucidate the main points but all lack development. Refutation statements are missing and/or vague.	The argument is unclear or not present in the presentation. Little to no details are present and are unconvincingly interpreted. Offers simplistic reasoning. There is poor development of ideas. Refutation is missing or vague.
Evidence 6 - Excellent 5-4 - Good 3-2 - Fair 1-0 - Needs Improvement	Source material is smoothly integrated in the presentation. There is compelling evidence which supports the thesis statement and develops a cohesive analysis. Citation is accurate and in the desired format.	Source material is used. There is sufficient evidence which links to the thesis statement. Citation is in the desired format.	Some source material is used but integration may be awkward. Sources are documented but many are not in the desired format or lack credibility.	Sources may be missing or lacking. There is overuse of quotations and/or poor paraphrasing to substitute presenter's own ideas.

| Organization

4 - Excellent
3 - Very Good
2 - Good
1 - Needs Improvement	Logical progression of ideas with a clear structure that enhances the claim. Transitions are smooth and provide coherence between and among ideas.	Logical progression of ideas. Transitions are present throughout the narrative and provide adequate coherence between and among ideas.	Organization is clear. Transitions are present but may not lead to coherence between and among ideas.	No discernable organization. Transitions are not present.
Total = 20 / 20				

Module 2 Title	Science, Technology, and Nation Building
Modular Learning Outcomes	1. Discuss *current challenges* in society in relation to science and technology and possible critical innovations for National Industrialization. 2. Propose solutions that will address identified challenges pertaining to science and technology in the Philippines. 3. Draft an advocacy plan/project proposal that will support the *national development agenda* vis-à-vis the progress of science and technology and its impact to communities.
Resource materials	**PILS:** Critical Innovation for National Industrialization: Building Local Capacity for Local Development Part 1: https://youtu.be/oYzcdBPoJv8 Part 2: https://youtu.be/EKy5uvL3-HQ
Reminders	1. Ask the students to watch PILS and prepare a journal at home. 2. Make sure to prepare a sample (template) advocacy plan/project proposal for the students to utilize. 3. Decide if you would want this to be a paired work or a group activity. Prepare this in advance. 4. Ensure that the students will write/include their complete names, section and dates on their paper/activity. 5. You may ask them to take pictures of the activity.

| | 6. Provide working time/time allotment for the activity. Ask the students if they need extension to accomplish the work. |
| | 7. Make sure to facilitate learning by going around every groups/pair to check for learning and understanding or ask questions to ensure participation and learning. |

1. Classroom engagement

| **A. Preliminary Activities** These are initial activities that learners will do to exhaust the content of the resource material. | *Round Table Discussion* – Each group will discuss and answer the following questions:

1. How did Dr. Tapang describe the state of Science and Technology in the country? Why did he use such descriptions?
2. According to the resource material, what is the industry that keeps the Philippines economy alive despite low productivity in Science and Technology?
3. What is the percentage rate of Filipinos who work abroad? What does it imply?
4. What does Albert Einstein mean when he stated, *"Man can find meaning in life, short, and perilous as it is, only through devoting himself to society."?*
5. According to the video material, the weak manufacturing industry in the country results in a whole lot of outcomes. Discuss one of these outcomes.
6. Which of Dr. Tapang's proposed solution to Philippines' state of Science and Technology shortcomings do you think is the most feasible? Why?
7. Why did Dr. Giovanni Tapang mention that our economy is "not yet dead" despite low efficiency in economic-related S&T in the country?

15-30 mins |
| **B. Deepening of understanding** These are activities that learners will do to analyze, evaluate, and/or synthesize the content of the | *The Round Table* – Presentation:

• Each group will present 1/7 questions discussed.
• Ask the other groups to prepare questions and insights for the presenters.
• Critiquing

Instruct students to prepare for a class sharing by presenting a two slide PowerPoint. (30 minutes) |

resource material.	*Important Note:* Please make use of the concepts presented in the document titled 'Salient Points with Reflective Questions - Module 2 (Critical Innovation for National Industrialization)' to enhance and deepen the discussion.
C. Ungraded formative assessment This would refer to ungraded activities that will assess students' demonstration of understanding and skills, using the resource material as a vehicle to build learning base.	• As a class, complete the Problem Tree - Template A provided below. • Per group - propose how each of you can contribute and/or participate to the proposed solutions that will address identified challenges pertaining to science and technology in the Philippines.
D. Closure and synthesis These are activities that learners will do to reflect on what transpired in the whole teaching-learning episode.	Ask the following questions: 1. What are the *current challenges* in society in relation to science and technology and possible critical innovations for National Industrialization? 2. How can the *proposed solutions* address the identified challenges pertaining to science and technology in the Philippines? 3. What are the *specific actions* to be taken to ensure implementation of the proposed solutions?

2. Asynchronous online engagement

A. Work-along activities This would refer to ungraded activities that will allow students to explore the resource material	While watching the PILS create a *Jump Start Journal* – Ask students to collect and organize their thoughts about the PILS. They may use these guide questions: • What did it mean when Dr. Tapang said that the state of science and technology in the Philippines is bansot (*stunted*) and atrasado (*underdeveloped*)? • How is it apparent in the current situation of the Philippine society?

and further their ideas.	• What are the current critical innovations for national industrialization?

3. Graded formative assessment

| **A. Assessment task** This refers to what output or performance students are expected to accomplish as evidence of demonstrating the learning outcomes.	Draft an advocacy plan/project proposal that will concretize the proposed solutions by Dr. Tapang in addressing *national development agenda* vis-à-vis the progress of science and technology and its impact on communities. See sample template B for Advocacy/Project Proposal.
B. Instructions This refers to specific instructions in accomplishing the tasks and would be communicated to the students.	Students will develop an advocacy that forms the foundation of their project proposal, encompassing the concepts discussed in Module 2. Students should integrate their learnings in addressing national development agenda vis-à-vis the progress of science and technology and its impact on communities. The proposal should impact our local community and that will eventually lead to a change in relation to the current issues you want to address. Students must follow the format below: • Present your ideas using *Science and Technology in the Philippines* as the main concept. • Advocacy/Project Proposal must be SMART. • File name must follow this format: <Surname of Group Members>_GED0104_<Section#>_FA2-STS (e.g., CRUZ-DELACRUZ-SANTOS_GED0104_Section1_FA2-STS).
C. Reminders	1. This is an individual, paired, or group assessment (maximum of 3). 2. Let the students submit this assessment in Canvas. Instruct your students that if they will work as a group, only one member will submit the file to avoid duplicate submissions. 3. Tell your students to cite their sources, especially if the ideas are not their own. 4. Publish the assessment early in Canvas. *Note:*

	The assigned deadline of submitting the file is on **September 14 – 20 (Thursday - Wednesday, 11:59 PM)**. To be fair, if a particular member of the group did not contribute to the conduct of the assessment, then you have the right to exclude them in the submission. *You may set the deadline anytime between the stipulated dates.*

D. Rubric

This refers to the criteria for grading the assessment task.

Advocacy/Project Proposal Rubric

Criterion\Level	Reflective practitioner 8 – 10	Aware practitioner 5 – 7	Reflective novice 2 – 4	Unacceptable 0 – 1
Content	Shows a deep understanding of the subject matter and its greater implications. Proposal or plan shows integration of some advanced or researched concepts.	Shows an understanding of the subject matter and it is evident in the execution of the proposal or plan.	Shows some understanding of the subject matter but confusion is evident in some aspects of the proposal or plan.	Shows very little understanding of the subject matter and thoroughly misinterprets the requirements for the class.
Creativity/ Ambition	The project proposed is very original, creative and ambitious. The student is highly motivated, and the project has a good potential for success.	The project proposed is original, creative and somewhat ambitious. The student is motivated about the project, and the project has a good potential for success.	The project proposed is somewhat creative, original or ambitious the student is not very excited but not bored, project has some potential for success.	The project proposed is not creative, original or ambitious, the student is uninspired, project has a low potential for success.
Structure and Flow	Proposal or plan is clear, concise, and has a logical structure and flow. Work is SMART.	Proposal or plan is well organized and has a sensible flow and structure. Minor elements may need clarification in relation being	Proposal or plan makes general sense but requires some work to organize and structure in a logical and sensible manner.	Proposal or plan is vague, disjointed, and shows no sense, structure, or flow. The work needs to be SMART.

		Specific, Measurable, Attainable, Realistic and Time-bound.	Most elements may need clarification in relation being Specific, Measurable, Attainable, Realistic and Time-bound.	
Following of Instructions	Followed all instructions completely and correctly.	Missed to follow 1 out of all the instructions.	Missed to follow 2 out of all the instructions.	Missed to follow 3 or more instructions.

Adapted from: RCampus
Total: 40 points

Template A - Problem Tree
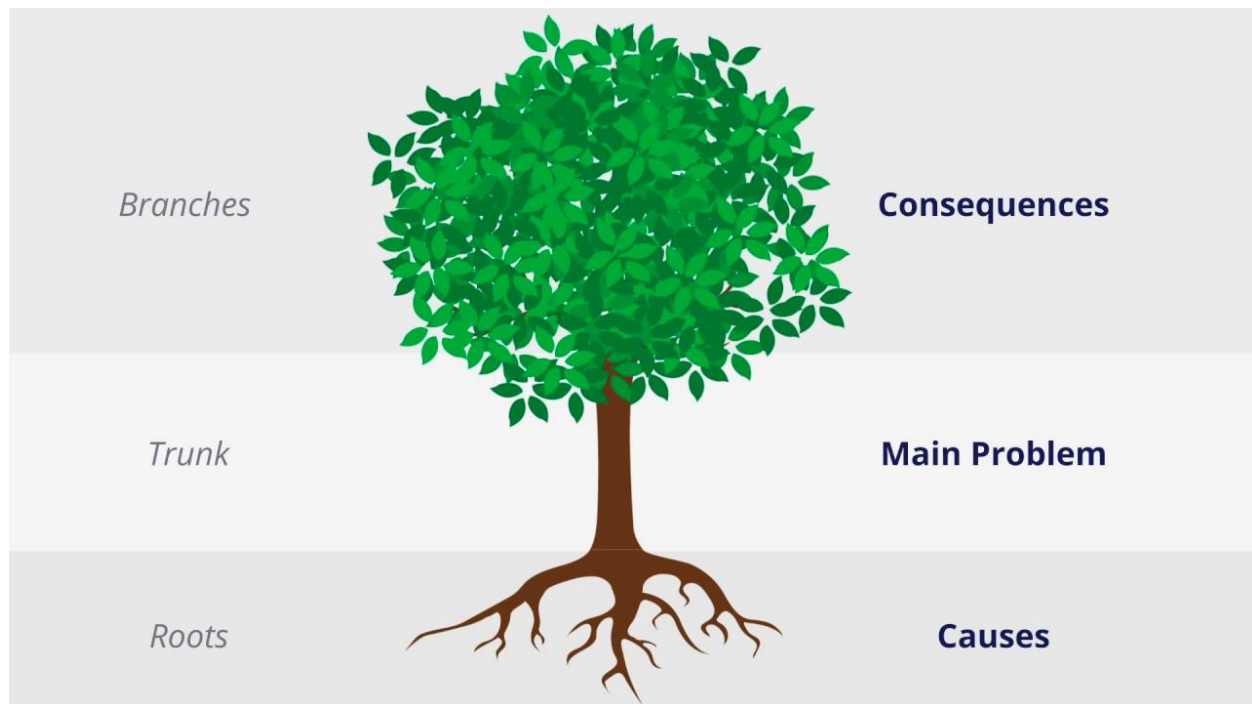
Source: **Step 1: Identifying the focal issue with 'Problem Tree Analysis' technique*

Template B – Advocacy/Project Proposal

Use this template to prepare a project proposal that is Specific, Measurable, Attainable, Realistic and Time-bound (SMART):

Project Name	
Partner Government Agency/NGO	
Start Date	
Target Completion Date	
Advocacy	

Project Description

Project Objectives

Project Costs

Project Benefits

Module 3 Title	Our Cyber Selves
Modular Learning Outcomes 1 to 3 expected learning outcomes form the student.	1. Analyze the pros and cons of how information is presented, digested, and spread in a cyber environment. 2. Explain the different promises of connectivity and its implications to our health and society. 3. Create a visualization of disinformation about a social issue that has disinformation and an ad that will counter or bust it in order to avoid fake news in social and academic settings.
Resource materials	PILS: Our Cyber Selves by Dr. Diosa Labiste Part 1: https://youtu.be/wSGf76EQm7g Part 2: https://youtu.be/v6ZAFh4dtUA
Reminders	1. Ask the students to watch the PILS at home. 2. Make sure to prepare a sample graphic organizer for the students to utilize. 3. Decide if you would want this to be a paired work or a group activity. Prepare this in advance. 4. Ensure that the students will write/include their complete names, section and dates on their paper/activity. 5. You may ask them to take pictures of the activity. 6. Provide working time/time allotment for the activity. Ask the students if they need extension to accomplish the work. 7. Make sure to facilitate learning by going around every groups/pair to check for learning and understanding or ask questions to ensure participation and learning. 8. Counter check if the chosen topic/post contains disinformation and not just misinformation.

1. Classroom engagement

A. Preliminary Activities These are initial activities that learners will do to exhaust the	Present a picture that will encourage the discussion of the question: Why do people go online? To help students understand the content of the PILS, they will be tasked to create a table of **WSNW** to organize the concepts and ideas presented in the video.

content of the resource material.	**W**hat? **S**o what? **N**ow **W**hat? - See Template A and B below. 10-15 mins
B. Deepening of understanding These are activities that learners will do to analyze, evaluate, and/or synthesize the content of the resource material.	Let the students highlight/take note of the parts of their WSNW that are similar with the groups currently presenting. Let the students pose questions and or agreement/disagreement in the presentations. Ensure that the class will be able to differentiate misinformation from disinformation. TAs are also expected to probe questions during the presentation. See list of prompt questions.
C. Ungraded formative assessment This would refer to ungraded activities that will assess students' demonstration of understanding and skills, using the resource material as a vehicle to build learning base.	Presentation of WSNW per group. (What? So What? Now What?) Each group may present at least 3 to maximum of 5 contents in their WSNW.
D. Closure and synthesis These are activities that learners will do to reflect on what transpired in the whole teaching-learning episode.	Ask the following questions: *Note: *You can also utilize the deepening questions included in the PPT.* 1.What is the difference between misinformation from disinformation? 2. What are the pros and cons of how information is presented, digested and spread in a cyber environment? 3. What are the different promises of connectivity and its implications to our health and society? 4. How can we discredit disinformation in a cyber environment?

	5. How can we ensure a healthy status of our cyber selves? 6. How can we detect and correct disinformation in the cyber environment in an academic way?

2. *Asynchronous online engagement*

A. Work-along activities This would refer to ungraded activities that will allow students to explore the resource material and further their ideas.	While watching the PILS fill out the first column (What) of the WSNW table– Ask students to collect and organize their thoughts about the PILS. They may use these guide questions: • What are the promises of connectivity? • How is technology being used in relation to self-discovery and or expression? • How much time does Filipinos spend online? What is the implication of this amount of time spent on social media? • What is empowerment of the self? • How do we deal with problematic and disempowering content? What does it do to an individual in a cyber environment? • What is the difference between misinformation and disinformation? • What are the seven types of misinformation and disinformation? What does it do? • How do we evaluate information online? • How will you define a responsible cyber citizen?

3. *Graded formative assessment*

A. Assessment task This refers to what output or performance students are expected to accomplish as evidence of demonstrating the learning outcomes.	**FA3 – Triple C: Scientific Diagram of Disinformation** Create a disinformation counter/buster ad that will correct/fact check a latest socio-political topic/post/content (poverty, education, drug use, vice, crime, unemployment, etc.) See template C below. Instructions: 1. Choose a local socio-political issue that has disinformation that you would like to counter/bust. 2. Complete the Scientific Diagram of Disinformation (See Template C) with your group. Be able to present your arguments justifying the reason why the chosen topic is spreading disinformation.

	3. Create a counter Ad that will bust the disinformation in the local socio-political issue you've chosen.
B. Instructions This refers to specific instructions in accomplishing the tasks and would be communicated to the students.	Students must follow this format: • Submit the Scientific Diagram and the Disinformation Counter/Buster Ad using the following file name format: <Surname of Group Members>_GED0104_<Section#>_FA3-STS (e.g., CRUZ-DELACRUZ-SANTOS_GED0104_Section1_FA3-STS). • Specify the source (channel/social media page) of the chosen disinformation. Include the link in the submission, date posted, number of views and the specific category. • The disinformation counter Ad or buster must be appropriate to the channel or source of disinformation. Example: If the source is from Tiktok, the Counter Disinformation Ad/Buster should be Tiktok ready/appropriate. • The disinformation counter Ad or buster must be appropriate to the target audience as well.
C. Reminders	1. This is an individual, paired, or group assessment (maximum of 3). 2. Let the students submit this assessment in Canvas. Instruct your students that if they will work as a group, only one member will submit the file to avoid duplicate submissions. 3. Tell your students to cite their sources, especially if the ideas are not their own. 4. Publish the assessment early in Canvas. *Note:* The assigned deadline of submitting the file is on **September 28 – October 4 (Thursday – Wednesday, 11:59 PM)**. To be fair, if a particular member of the group did not contribute to the conduct of the assessment, then you have the right to exclude them in the submission. **Suggested Timeline for Module 3:** *September 18 – September 23 (Preliminary Activity and Discussion, Presentation of WSNW Table per Group, Synthesis) *September 25 – 27* (Giving of FA3 Instructions, Brainstorming for FA3) *September 28 – October 4* (Submission and Presentation of FA3 per Group, Synthesis and Closure)

	You may set the deadline anytime between the stipulated dates.

D. Rubric
This refers to the criteria for grading the assessment task.

Criteria	Excellent 10 – 8	Good 7 – 5	Fair 4 – 2	Poor 1 – 0
Scientific Diagram of Disinformation	Completely and correctly stated all the 5 parts of the diagram.	Stated the 4/5 parts of the diagram correctly.	Stated the 3/5 parts of the diagram correctly.	Stated the 1-2 parts of the diagram correctly.
Counter Ad/ Disinformation Buster **Purpose**	The purpose of the Counter Ad/Buster is very clear.	The purpose of the Counter Ad/Buster is somewhat clear.	The purpose of the Counter Ad/Buster is vague.	The purpose of the Counter Ad/Buster was not stated/presented.
Counter Ad/ Disinformation Buster **Content**	The ad is completely focused on debunking the disinformation and not on the person or organization who posted/created it.	Ad is somewhat focused on debunking the disinformation and not on the person or organization who posted/created it.	Ad is somewhat focused on the person or organization who posted/created it, rather than debunking the disinformation.	Ad is totally focused on the person or organization who posted/created it, rather than debunking the disinformation.
Effectivity	The disinformation buster/Ad is very appropriate for the target audience and channel.	The disinformation buster/Ad is somewhat appropriate for the target audience and channel.	The disinformation buster/Ad is appropriate for the target audience but not for the channel.	The disinformation buster/Ad is inappropriate for the target audience and channel.
	Addressed all disinformation. Countered the result of the disinformation.	Addressed some disinformation. Somewhat countered the result of the disinformation.	Addressed few disinformation	Disinformation was not addressed.
Creativity	Highly creative disinformation buster/ad. The ideas/materials/methods used are very novel and effective.	Creative disinformation buster/ad. The ideas/materials/methods used are novel and effective.	Somewhat creative disinformation buster/ad. The ideas/materials/methods used are somewhat familiar.	The disinformation buster/ad is not creative. The ideas/materials/methods used are flat and predictable.

		Followed all 4 instructions completely and correctly.	Followed 3/4 instructions correctly.	Followed 2/4 instructions correctly.	Followed 1/4 instructions correctly.	
	Following of Instructions					

Total: 30 points

Template A

What, **S**o What, **N**ow What **(WSNW)**

What	So, What	Now What

Note: the group/pair may add more rows to this.

Template B

Examples of What? So What? Now What? Questions

WHAT	SO WHAT	NOW WHAT
What is the problem we are facing?	What did this experience make you feel?	What would you like to learn from this experience?
What did you notice?	What conclusions can be made from this experience?	What do you need to do to address challenges from this?
What did you learn?	What did you learn about yourself?	What would you like to learn about this experience?
What did you find surprising?	What emotions did this evoke?	How will you apply what you learned from this?

*PM-TRAINING

Template C

Scientific Diagram of Disinformation

Name/Title of Disinformation Ad or Post : _____

Link/Picture of the Disinformation Ad or Post : _____

Date Posted : _____

Number of Views : _____

Category : _____

Initiator	Channel	Target	Goal	Result

Initiator – who started or where did the information started?
Channel – where did they posted the information?
Target – who are the targeted individuals?
Goal – what are the goals of the initiator/disinformation?
Result – outcome of disinformation.

Source: Diagram is adapted from Research Gate – Brexit: visualization of the disinformation campaign.

Module 4 Title	Confronting Uncertainty: Climate Change, Agency, Citizenship
Modular Learning	1. Discuss the relevance of climate change to political economy and decisions. 2. Explain how we can contribute to the solution needed in the country in relation to climate change. 3. Create a one-minute campaign that will educate people on how to work against climate change and heal the earth.
Resource materials	**PILS:** Confronting Uncertainty: Climate Change, Agency, Citizenship by Renato Redentor Constantino Part 1:https://youtu.be/mhfE6WkVca8 Part 2: https://youtu.be/peiiMOqEZcA Additional materials: https://www.decadeonrestoration.org/follow-generationrestoration #GenerationRestoration — Forest Frontliners	Stand For Truth https://youtu.be/GPTG0pwsbMQ
Reminders	1. Ask the students to watch the PILS at home. 2. Decide if you would want this to be a paired work or a group activity. 3. Ensure that the students include the names of their partner/group members in the comment section of Canvas. 4. Provide working time/time allotment for the activities. 5. Make sure to facilitate learning by going around every groups/pair to check for learning and understanding or ask questions to ensure participation and learning. 6. Ensure that students will upload their video link in Canvas for FA#5. 7. Discuss the rubric on how each group and/or individual will be marked for the FA4 and FA5.

1. Classroom engagement

A. Preliminary Activities These are initial activities that learners will do	Divide the class into four (4) groups. Each group will pick one from the following categories: a. food we consume b. cellphone applications

to exhaust the content of the resource material.	c. clothes we wear d. appliances at home The students will be asked to discuss within the group if their chosen topic contributes to climate change and how. Let the students put in their answers in an online document (Canva, PPT or Mentimeter) They will present their discussion in class. 5 – 10 minutes
B. Deepening of understanding These are activities that learners will do to analyze, evaluate, and/or synthesize the content of the resource material.	Let the students answer the following questions in each group: a. What is climate change? b. Why is climate change dangerous? c. What are the reversible and irreversible impacts of climate change? d. What government policies should be implemented to lessen the impact of climate change? 3 - 5 minutes group discussion 5 – 10 minutes presentation
C. Graded formative assessment This would refer to ungraded/graded activities that will assess students' demonstration of understanding and skills, using the resource material as a vehicle to build learning base.	**FA4** **Problem, Effect, Cause and Solution (PECS)** Each group will contribute to the completion of the table based on the PILS. See Template A. Instructions: 1. List 4 problems brought by climate change. 2. Explain its cause/s and effect/s. 3. Provide a solution to every problem that will involve different agencies and citizens of our country. *Note:* 1. All groups will be required to present their PECS output in class. 2. Before the presentation, ask the students to submit their completed table in Canvas using the following format: <Surname of Group Members>_GED0104_<Section#>_FA4-STS (e.g., CRUZ-DELACRUZ-SANTOS_GED0104_Section1_FA4-STS).

	3. Only one member will submit the output in Canvas since this is a group assessment.
D. Closure and synthesis These are activities that learners will do to reflect on what transpired in the whole teaching-learning episode.	1. What government policies should be implemented to ensure that our country will contribute to the protection and revival of our local ecosystem? 2. What political and economic decisions should be made towards restoring a healthy ecosystem and planet? 3. As citizens, how can we contribute to the solution needed in the country in relation to climate change?

2. Asynchronous online engagement

| **A. Work-along activities**
This would refer to ungraded activities that will allow students to explore the resource material and further their ideas. | While watching the PILS create a *Jump Start Journal* – Ask students to collect and organize their thoughts about the PILS. They may use these guide questions:

1. What is anthropogenic influence?
2. Can we still remake the societies that we are in?
3. How crucial is time concerning the remaking of the societies that we are in?
4. Who will experience the impacts of activities and/or solutions done before and are being done presently?
5. What can you infer from Michael Mann's 1998 Hockey stick graph?
6. How do we bring back the carbon dioxide emission to a safe level and/or control its rise?
7. What does "water wars" mean?
8. What are the effects of Antarctic Ice Shelves melting from below?
9. What are the reversible and irreversible impacts of climate change?
10. What is "Representative Concentration Pathways" or RCP?
11. What are stranded assets?
12. Why is there a need to stop approving coal plants?
13. How do bad economic decisions affect climate change?
14. How can we have a good climate policy?
15. Do you agree that empowering women will help in managing climate change? Why? |

3. *Graded formative assessment*

A. Assessment task This refers to what output or performance students are expected to accomplish as evidence of demonstrating the learning outcomes.	FA5 Speak Up! #GenerationRestoration Create a one-minute infomercial, a campaign against climate change that would create noise and impact in restoring and healing earth.
B. Instructions This refers to specific instructions in accomplishing the tasks and would be communicated to the students.	1. Students must follow this format: - One-minute video must be uploaded on YouTube. Upload the video link in Canvas for submission. - Place all the names of the group members in the comment section of Canvas. No need to put it in the video. - Students are highly encouraged to share their videos on social media pages. - Create a title for the Infomercial. - Use the hashtag #GenerationRestoration **Reminder to TAs:** 1. This is a group assessment (maximum of 5). 2. Let the students submit this assessment in Canvas. Only one member will submit the file to avoid duplicate submissions. 3. Tell your students to cite their sources, especially if the ideas are not their own. Include this in the last part of the video. 4. Publish the assessment early in Canvas. **Suggested Timeline for Module 4:** *October 23 – October 28* (Preliminary Activity/Discussion and Group Presentations, Deepening of Understanding – Group Presentations and Q&A Portion) *October 30 – November 4* (Asynchronous - Giving of FA4 Instructions, Brainstorming for FA4) *November 6 – November 11* (Submission and Presentation of FA4 per Group, Synthesis and Closure)

	November 13 – November 15 (Submission and In-Class Watching of FA5 – Informercial, and Critiquing of Output. *You may set the deadline anytime between the stipulated dates.*

C. Rubric
This refers to the criteria for grading the assessment task.

FA4 PECS Rubric

Criteria	Proficient 10 – 8	High Intermediate 7 – 5	Low Intermediate 4 – 2	Beginning 1 – 0
Problem	Students accurately define problems	Students define problems	Vaguely define the problems	Students fail to cite a problem
Cause and Effects	Cause and effect are clearly stated and written with support from the PILS or other reliable resources.	Cause and effect are stated and written with support from the PILS or other reliable resources.	Some evidence of cause and effect is stated.	Cause and effect were not given.
Solution	Students accurately provide solutions with support from PILS.	Students provide solutions.	Students vaguely provide solutions to the problem.	Students fail to provide a solution to the problem.

FA5 Informercial Rubric

	Excellent 10 – 9	Good 8 – 6	Fair 5 – 3	Poor 2 – 1	Missing 0

Organization	Excellently presents information in logical, interesting sequence which the audience can follow.	Presents information in logical sequence which the audience can follow.	Presents information but the sequence is not logical, making it hard for the audience to understand.	Audience has difficulty following presentation	The audience cannot understand the presentation because there is no sequence of information.
Creativity and Originality	The infomercial demonstrates original personal expression and outstanding problem-solving skills that will capture audience attention.	The infomercial demonstrates some personal expression and outstanding problem-solving skills that will capture audience attention.	The infomercial demonstrates average personal expression and outstanding problem-solving skills that will capture audience attention.	The infomercial demonstrates minimal personal expression and outstanding problem-solving skills that will capture audience attention.	The infomercial lacks personal expression and outstanding problem-solving skills that will capture audience attention.
Content	Demonstrates full knowledge on how to campaign against climate change. Video includes realistic ideas that will create an	Demonstrates some knowledge on how to campaign against climate change. Video includes some ideas that will create an	Demonstrates average knowledge on how to campaign against climate change. Video includes few ideas that will create an impact in	Demonstrates minimal knowledge on how to campaign against climate change. Video includes very minimal ideas that will create an	Lacks ideas on how to campaign against climate change. Video lack ideas that will create an impact in restoring and healing the earth.

	impact in restoring and healing the earth.	impact in restoring and healing the earth.	restoring and healing earth.	impact in restoring and healing the earth.	
Volume and Clarity	Uses very clear audio and correct, precise pronunciation of terms.	The audio is somewhat clear. Pronounces most words correctly.	The audio is low. Student incorrectly pronounces terms.	Audio is extremely poor. Students incorrectly pronounce terms.	Unable to hear the audio which leads to missing or incomplete information.
Following of Instructions	Followed all instructions correctly.	Failed to follow one of the instructions correctly.	Failed to follow two of the instructions correctly.	Failed to follow three of the instructions correctly.	Failed to follow a lot of instructions correctly.

Template A

Problem, Effect, Cause and Solution (PECS)

Problems	Effects	Cause	Solution
1.			
2.			
3.			
4.			

Module 5 Title	Philippine Hazards and the Use of Science and Technology
Modular Learning Outcomes	1. Integrate information about the evolution and impact of Philippine scientific research and technological advancement through a Big Question Map 2. Examine through a Big Question Map your potential to contribute to addressing current challenges in society using science and technology. 3. Create a research-based infographic that presents understandable information on current challenges and advancements in Philippine climate change adaptation and disaster risk reduction
Resource materials	**PILS:** Philippine Hazards: Use of Science and Technology for CCA – DRR by Dr. Alfredo Mahar Lagmay. Part 1: https://youtu.be/5xOyZX3Z_xI Part 2: https://youtu.be/H5D590aAMKU
Reminders	1. Ask the students to watch the PILS at home. 2. Provide working time/time allotment for the activity. Ask the students if they need an extension to accomplish the work. 3. Make sure to facilitate learning by going around every group/pair to check for learning and understanding or ask questions to ensure participation and learning. 4. Discuss how the students will be graded using the rubric for the Infographic.

1. Classroom engagement

A. Preliminary Activities These are initial activities that learners will do to exhaust the content of the resource material.	Complete the Big Question Map (see Template A) to note key points *from the video*. **Answer in bullet form**.
B. Deepening of understanding These are activities that	Discuss and probe the groups' answers in the Big Question Map.

learners will do to analyze, evaluate, and/or synthesize the content of the resource material.	
C. Ungraded formative assessment This would refer to ungraded activities that will assess students' demonstration of understanding and skills, using the resource material as a vehicle to build learning base.	Presentation of the Big Question Map. Each group will present their answers on the big Question Map. Assign two questions to each group for discussion. Let them compare and probe their answers right after every question.
D. Closure and synthesis These are activities that learners will do to reflect on what transpired in the whole teaching-learning episode.	1. What are the **current challenges** in Philippine disaster risk reduction and climate change adaptation? 2. How can we contribute to addressing current challenges in society using science and technology? 3. What information could be useful in addressing current challenges and advancements in Philippine climate change adaptation and disaster risk reduction?

2. *Asynchronous online engagement*

A. Work-along activities This would refer to ungraded activities that	While watching the PILS create a *Jump Start Journal* – Ask students to collect and organize their thoughts about the PILS. Be sure to answer these guide questions: a. What

will allow students to explore the resource material and further their ideas.	• What are the **current challenges** in Philippine disaster risk reduction and climate change adaptation? • What research and advancements are **being done to address** these challenges using science and technology? b. When • When did these **advancements begin**? c. Where • Where are the areas exposed to **disaster risk** located? • Where are the scientific data and hazard maps **available**? d. Who • Who are **responsible** for these hazardous phenomena? • Who must **increase capacity** on awareness, engagement, and preparation? e. Why • Why (or why not) is science and technology **relevant** for society's social and environmental awareness? f. How • As students and young citizens, how can you use science and technology to **respond to these challenges**? • How can these research and advancements in science and technology be further brought to Philippine communities, **especially the indigenous and indigent**?

3. Graded formative assessment

A. Assessment task This refers to what output or performance students are expected to accomplish as evidence of demonstrating the learning outcomes.	FA6 Infographic 1. Read and reflect on your answers in the Big Question Map. 2. Utilize your answers to create an infographic on the **research and advancements being done using science and technology** to address current challenges in Philippine climate change adaptation and disaster risk reduction and (CCA-DRR). 3. Keep in mind your **target audience**: *Who are exposed to disaster risk? To whom should scientific data and innovations be available? Who must increase capacity on awareness, engagement, and preparation? How about the indigenous and indigent?* Use language that may be understood by your target audience.

	4. Aside from those presented in the PILS, research on **Philippine CCA-DRR tools, apps, gadgets, programs, research currently utilized with science and technology**.
	
	5. Be guided by the following guide questions in creating your infographic:
	    a. What is this advancement all about?
	    b. When did it begin?
	    c. Where can it be utilized?
	    d. Who can benefit from it?
	    e. Why is it relevant to the society?
	    f. As a student and young citizen, how can you use this to address current challenges? How can this advancement be further brought to Philippine communities, especially the indigenous and indigent?

B. Instructions This refers to specific instructions in accomplishing the tasks and would be communicated to the students.	Students must follow this format: • Create your infographic following this format: 8.5" x 11", portrait. • Ensure that font, color, graphics, and effects aid the overall presentation and not distract the communication of information. • Save your infographic as **PNG, JPG or PDF**, with filename: **GED0104-STS_FA6_Surnames** (e.g., GED0104-STS_FA6_Cruz-Santos-Valdez) • Place all the names of the group members (minimum of 3, maximum of 5) in the comment section of Canvas. No need to put it in the infographic. • Ensure proper citation/reference. **Reminder to TAs:** 5. This is a group assessment (maximum of 5). 6. Let the students submit this assessment in Canvas. Only one member will submit the file to avoid duplicate submissions. 7. Tell your students to cite their sources, especially if the ideas are not their own. 8. Publish the assessment early in Canvas. **Suggested Timeline for Module 5:** *November 11 – November 15* (Provide the PILS to students) *November 16 – November 22* (Preliminary Activity/Discussion and Group Presentations, Deepening of Understanding – Group Presentations and Q&A Portion, Giving of FA6 instructions)

	November 23 – November 25 (Submission and Presentation of FA6 per Group, Synthesis and Closure) *You may set the deadline anytime between the stipulated dates.*

C. Rubric
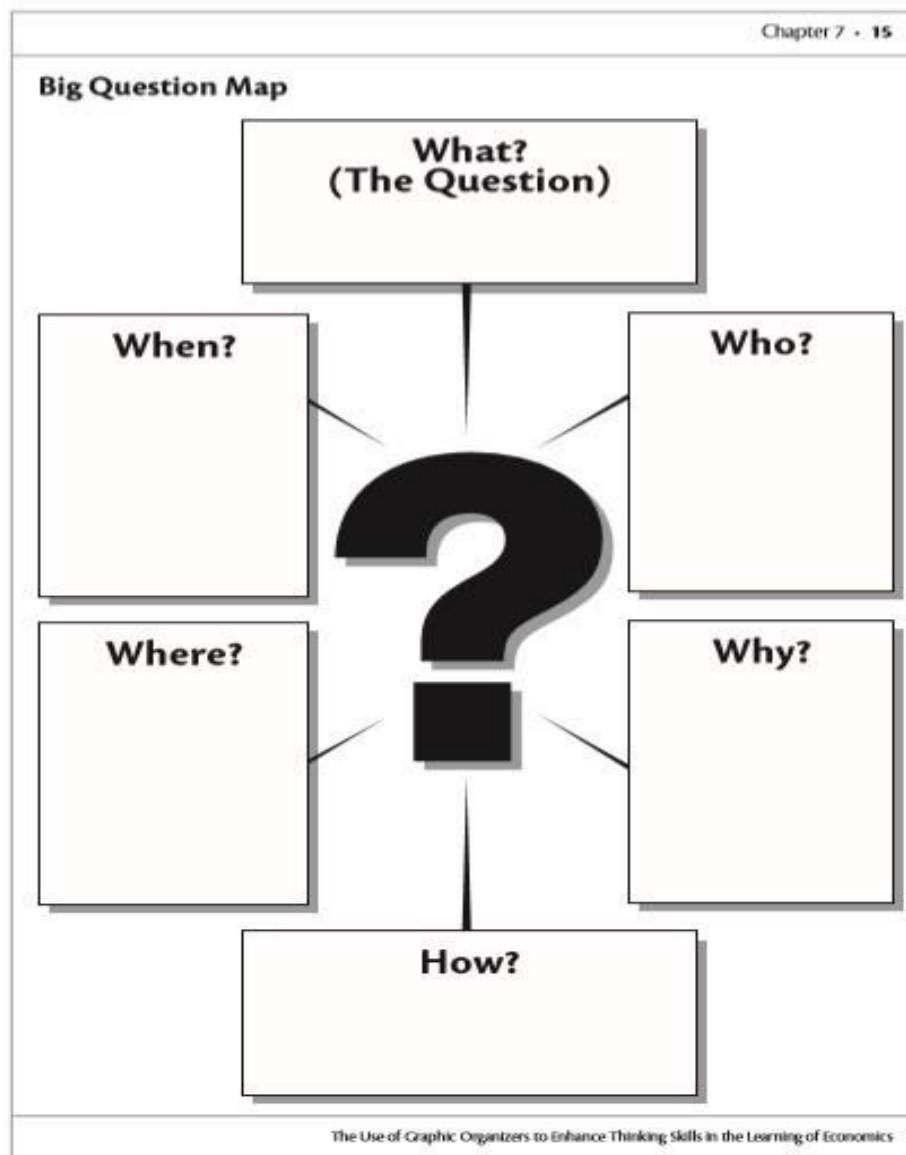This refers to the criteria for grading the assessment task.

Criteria	Full Marks 10 – 8	Good 7 – 5	Fair 4 – 2	Needs Improvement 1 – 0
Clarity of Topic and Main Ideas	Topic and main ideas of infographic are clear, easily understood, and are excellently written.	The topic and main ideas are moderately clear and are somehow easily understood.	The topic is given but main ideas are not that clear or is incomplete.	Topic and/or main ideas are unclear or incomplete.
Research-based Knowledge	Details (including labels) support the main idea without distracting with clutter. Content is well researched and supported with proper evidence.	Detail is added to support each main idea with minimal clutter. Content is researched but lacks proper or has incomplete evidence.	More detail is needed for understanding. Some are distracting. Content attempts to be grounded on research and evidence.	Very little detail is provided for the main ideas and understanding is limited. Content needs to be grounded in research and evidence.
Relevance of Graphics to Information	All graphics represent information appropriately.	Most graphics represent information appropriately, but some are not related.	Graphics attempt to relate to the topic but are not sufficient to represent information.	Graphics relate to the topic but do not represent information appropriately.
Overall Layout	Color, shape, size, and arrangement of graphics contribute meaning to the overall message. Layout is neat, clear, and visually appealing.	Color, shape, size, and arrangement are eye catching and contribute some meaning. Design/layout is attractive and a bit neat.	Color, shape, size, and arrangement are present but do not add to the information. Design/layout is acceptably attractive but a bit distracting.	Color, shape, size, and arrangement are distracting or misleading. Design/layout is distracting, inadequately attractive, or ineffectively designed.

Following of Instructions	Followed all discussed and written instructions.	Missed following one out of all the discussed and written instructions.	Missed following two out of all the discussed and written instructions.	Missed to follow three or more instructions discussed and written.

Template A

Big Question Map

Chapter 7 · 15

What? (The Question)

When?

Who?

Where?

Why?

How?

The Use of Graphic Organizers to Enhance Thinking Skills in the Learning of Economics

Module 6 Title	Exploring the Societal Impact of Artificial Intelligence
Modular Learning Outcomes	1. Demonstrate a comprehensive understanding of artificial intelligence, including its definitions and the impact on education, current available careers, and future jobs. 2. Develop the ability to critically assess AI applications, considering ethical implications and making informed decisions regarding AI use. 3. Analyze and reflect on the societal impact of AI, its role in creating and perpetuating biases, and the importance of reflective thinking/metacognition in education and work.
Resource materials	**PILS:** The Rise of AI – Implications to Current Available Courses and Future Jobs by Ms. Chesa Caparas. Links: 1. https://www.youtube.com/watch?v=MPj3yUwdVyE (Part 1 – 32 mins and 20 secs) 2. https://www.youtube.com/watch?v=bIrFdSm4D3s (Part 2 – 10 mins and 42 secs) Supplementary Material: Tai, M.-T. (2020). The impact of artificial intelligence on human society and bioethics. *Tzu Chi Medical Journal, 32*(4), 339. https://doi.org/10.4103/tcmj.tcmj_71_20
Reminders	1. Ask the students to watch the PILS at home. 2. Provide working time/time allotment for the activity. Ask the students if they need an extension to accomplish the work. 3. Make sure to facilitate learning by going around every group/pair to check for learning and understanding or ask questions to ensure participation and learning. 4. Discuss how the students will be graded using the rubric for the SWOT Analysis activity.

1. Classroom engagement

A. Preliminary Activities These are initial activities that	Students (per group) will provide **5 insights** based on the given learning materials. They are required to probe assumptions, provide rationale and evidence, and question viewpoints and perspectives. Students will present it via **tabular form** (Insights Column, Rationale and

learners will do to exhaust the content of the resource material.	Evidence/Example Column, Contrasting Viewpoints/Perspectives Column – if applicable).
B. Deepening of understanding These are activities that learners will do to analyze, evaluate, and/or synthesize the content of the resource material.	Discuss and probe the groups' answers (e.g., content, responses, or outcomes) in their accomplished table.
C. Ungraded formative assessment This would refer to ungraded activities that will assess students' demonstration of understanding and skills, using the resource material as a vehicle to build learning base.	Group Presentation: "***AI Ascension: Do Human Beings Really Need Artificial Intelligence?***" Each group will present their insights that they have compiled in the table. Encourage students to reflect and facilitate a deeper understanding of information presented in the table.
D. Closure and synthesis These are activities that learners will do to reflect on what transpired in the whole teaching-learning episode.	1. How can critical curiosity be cultivated among students and professionals to view AI as a tool for enhancement rather than replacement of work, and what skills are essential for effectively working with AI? 2. How can critical thinking skills be developed and emphasized to navigate the potential biases and limitations of AI, especially in decision-making processes? 3. How can human relationships be built and maintained to discern authenticity in a world where AI plays an increasingly prevalent role in various aspects of our lives?

2. Asynchronous online engagement

A. Work-along activities This would refer to ungraded activities that will allow students to explore the resource material and further their ideas.	While watching the PILS create a *Jump Start Journal* – Ask students to collect and organize their thoughts about the PILS. Be sure to answer these guide questions: 1. What are the ethical considerations in the use of AI, and how can individuals be educated to make ethical decisions regarding AI? 2. What steps can be taken to mitigate the potential negative impacts of AI on jobs, particularly in higher income sectors, and how can AI be effectively integrated into our job (e.g., healthcare) without compromising human-centric care/connection? 3. In what ways can AI be harnessed to combat misinformation/disinformation, and what responsibilities do individuals and institutions have in ensuring the truthful use of AI-generated content? 4. How can AI literacy contribute to understanding and addressing biases, such as those reflected in Google Autocomplete, and what role does education play in minimizing harmful content perpetuated by AI? 5. How can educational systems encourage and embrace wonder and curiosity to foster human intelligence alongside the integration of AI technologies?

1. *Graded formative assessment*

A. Assessment task This refers to what output or performance students are expected to accomplish as evidence of demonstrating the learning outcomes.	**FA7: SWOT Analysis** 1. Students will work in groups to **conduct a SWOT (Strengths, Weaknesses, Opportunities, and Threats) Analysis** of the impact of Artificial Intelligence (AI) on various aspects of society. 2. Each group will **create a table (4 Quadrants, see sample templates below)** outlining the strengths, weaknesses, opportunities, and threats related to AI's influence. During the presentation, each group will discuss the table's content, focusing on the strengths and weaknesses of AI's societal impact, as well as opportunities and potential threats it poses. 3. Additionally, each group will **address the question** of *how AI utilization aligns with personal growth and societal progress*.

B. Instructions	Students must follow this format:
This refers to specific instructions in accomplishing the tasks and would be communicated to the students.	- Create your SWOT Analysis following this format: 8.5" x 11", portrait. - Save your SWOT Analysis output as **PNG, JPG or PDF**, with filename: **GED0104-STS_FA7_Surnames** (e.g., GED0104-STS_FA7_Cruz-Santos-Valdez) - Place all the names of the group members (minimum of 3, maximum of 5) in the comment section of Canvas. - Ensure proper citation/reference. **Reminder to TAs:** 9. This is a group assessment (maximum of 5). 10. Let the students submit this assessment in Canvas. Only one member will submit the file to avoid duplicate submissions. 11. Tell your students to cite their sources, especially if the ideas are not their own. 12. Publish the assessment early in Canvas. **Suggested Timeline for Module 6:** *November 23 – November 26* (Provide the PILS to students) *November 27 – December 2* (Preliminary Activity/Discussion and Group Presentations, Deepening of Understanding – Group Presentations and Q&A Portion, Giving of FA7 instructions) *December 4 – December 9* (Submission and Presentation of FA7 per Group, Synthesis and Closure) *You may set the deadline anytime between the stipulated dates.*

C. Rubric
This refers to the criteria for grading the assessment task.

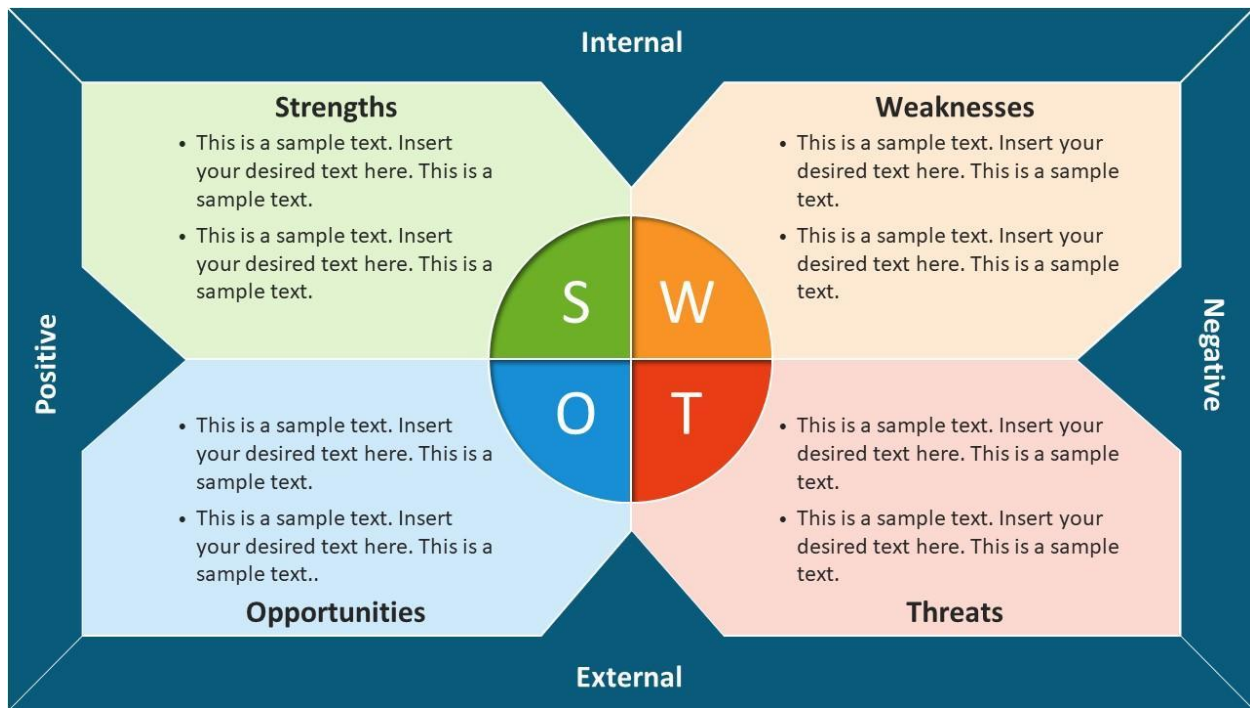| Criteria	Outstanding 10 – 8	Proficient 7 – 5	Basic 4 – 2	Needs Improvement 1 – 0

Group Work and Collaboration	Demonstrates exceptional teamwork and collaboration. Contributions from all members are outstanding, leading to a comprehensive and well-coordinated SWOT analysis.	Shows effective teamwork and collaboration. Contributions from all members are solid, resulting in a well-developed SWOT analysis.	Demonstrates some teamwork and collaboration, but there are areas where contributions are uneven or lack depth.	Limited evidence of teamwork and collaboration. Contributions are uneven or insufficient.
SWOT Analysis Content	The SWOT analysis is thorough, insightful, and effectively covers all aspects (strengths, weaknesses, opportunities, threats) related to AI's impact on society. Content demonstrates a deep understanding.	The SWOT analysis is well-developed, covering all aspects of AI's impact with good insights. Content shows a solid understanding of strengths, weaknesses, opportunities, and threats.	The SWOT analysis is basic, covering some aspects of AI's impact but lacks depth or insight. Content indicates a limited understanding of strengths, weaknesses, opportunities, and threats.	The SWOT analysis is incomplete or significantly lacks depth. It does not effectively cover AI's impact on society. Content demonstrates a minimal understanding of strengths, weaknesses, opportunities, and threats.
Presentation Skills	Exceptional presentation skills. The group effectively communicates their SWOT analysis, engages the audience, and clearly articulates the alignment of AI utilization with personal growth and societal progress.	Proficient presentation skills. The group communicates their SWOT analysis well, with good engagement and clarity regarding the alignment of AI utilization with personal growth and societal progress.	Basic presentation skills. The group communicates the SWOT analysis adequately, but there may be some lack of clarity or engagement. The alignment of AI utilization with personal growth and societal progress is mentioned, but not strongly emphasized.	Weak presentation skills. The group struggles to communicate the SWOT analysis, lacking clarity and engagement. The alignment of AI utilization with personal growth and societal progress is unclear or not effectively addressed.

Alignment with Personal Growth and Societal Progress	The group provides a compelling and insightful analysis of how AI utilization aligns with both personal growth and societal progress, demonstrating a deep understanding of the topic.	The group effectively addresses how AI utilization aligns with personal growth and societal progress, providing relevant insights.	The group provides a basic explanation of how AI utilization aligns with personal growth and societal progress, but the insights may lack depth.	The group's explanation of how AI utilization aligns with personal growth and societal progress is unclear or superficial.

SWOT Analysis Sample Template
Reference: https://clickup.com/blog/swot-analysis-templates/

SWOT Analysis PowerPoint Design

STRENGTHS

This is a sample text. Insert your desired text here. This is a sample text. Insert your desired text here.

WEAKNESSES

This is a sample text. Insert your desired text here. This is a sample text. Insert your desired text here.

S W O T

OPPORTUNITIES

This is a sample text. Insert your desired text here. This is a sample text. Insert your desired text here.

THREATS

This is a sample text. Insert your desired text here. This is a sample text. Insert your desired text here.