THE INDEPENDENT INSTITUTE OF EDUCATION

MODULE NAME:	MODULE CODE:
ARTIFICIAL INTELLIGENCE	AINT8412

ASSESSMENT TYPE: POE (PAPER)

TOTAL MARK ALLOCATION: 300 MARKS

TOTAL HOURS: A minimum of 45 HOURS is suggested to complete this assessment

By submitting this POE, you acknowledge that you have read and understood all the rules as per the terms in the registration contract, in particular the assignment and assessment rules in The IIE Assessment Strategy and Policy (IIE009), the intellectual integrity and plagiarism rules in the Intellectual Integrity Policy (IIE023), as well as any rules and regulations published in the student portal.

NOTE:
This is Part 1, Part 2, and Part 3 (final part) of the POE.

INSTRUCTIONS:
1. ***No material may be copied from original sources, even if referenced correctly, unless it is a direct quote indicated with quotation marks. No more than 10% of the parts and POE may consist of direct quotes.***
2. ***Make a copy of your POE before handing it in.***
3. *POEs must be typed unless otherwise specified.*
4. *All work must be adequately and correctly referenced.*
5. *Follow all instructions on the POE cover sheet.*
6. *This is an individual POE.*

Referencing Rubric

Providing evidence based on valid and referenced academic sources is a fundamental educational principle and the cornerstone of high-quality academic work. Part of achieving this quality is referencing in a way that is consistent and congruent with the requirements of the referencing style being used.

Therefore, inconsistent and/or incongruent referencing will result in a penalty of __a maximum of ten percent__ being deducted from the overall percentage awarded to your assessment submission.

Please note that **evidence of plagiarism** in the form of copied or unreferenced work, absent reference lists, or exceptionally poor referencing **may result in action being taken in accordance with The IIE's Intellectual Integrity and Property Rights Policy (IIE023)**. Similarly, **evidence of excessive AI usage may result in action being taken in accordance with The IIE's Student Conduct, Discipline and Safety Policy (IIE015)**.

Markers are required to provide feedback to students by **circling/underlining the information in the table below that best describes the student's work and by adding constructive commentary where appropriate**. The examples provided are not exhaustive but illustrate the errors.

<u>Deductions</u>
- Where the student's work contains **five or more errors** aligned to the **minor errors column** below, __deduct 5% from the overall percentage.__

- Where the student's work contains **five or more errors** aligned to the **major errors column** below, __deduct 10% from the overall percentage.__

- __Where both minor and major errors__ (e.g. two minor and three major, etc.) are present, __deduct 10% only__ (and not 5% or 15%) from the overall percentage.

Required: Consistent and congruent referencing	Minor errors Deduct 5% from overall percentage. Example: if the response receives 70%, deduct 5%. The final mark is 65%.	Major errors Deduct 10% from the overall percentage. Example: if the response receives 70%, deduct 10%. The final mark is 60%.
Consistency • The **correct referencing style** for the **discipline** – i.e., either **Harvard**, OR **APA** (for Psychology**)**, OR **Law**, OR **IEEE** (for ICT/Engineering) – has been used consistently for all in-text references and in the bibliography/reference list. • **Concepts** and **ideas** that are **quoted** and/or **paraphrased** are referenced consistently throughout. • **Position of the in-text reference**: an in-text reference is positioned consistently where appropriate for every quote and paraphrase.	Minor inconsistencies: • The referencing style used is generally consistent with what is required, but there are one or two changes/errors in the format of in-text referencing and/or in the bibliography/reference list. • For example, page numbers for direct quotes in-text have been provided for one source, but not in another. Or, two book chapters in the bibliography/reference list have been referenced in two different formats. Or, the publication year has been placed after the author name in one bibliography/reference list entry, and after the source title in another, etc. • Concepts and ideas in quotes and/or paraphrases are typically referenced, but a full in-text reference is missing or incomplete from one or two small sections of the work. • Position of the references: in-text references are only given at the beginning and/or end of every paragraph.	Major inconsistencies: • Poor and wholly inconsistent referencing style used in-text and/or in the bibliography/reference list. • Multiple referencing styles for the same source types have been used. • For example, the format for direct quotes in-text and/or book chapters in the bibliography/reference list and/or year of publication in the bibliography/reference list is different across multiple instances. • Concepts and ideas in quotes and/or paraphrases are haphazardly referenced in-text. • Position of the references: in-text references are only given at the beginning or end of large sections of work.
Feedback on referencing consistency:		
Congruency • **Each source** reflected within **in-text references** is included accurately in the **bibliography/reference list.** • All **bibliography/reference list** entries are in the **required order** for the referencing style used (e.g., alphabetical, alphabetical under subheadings, numerical). • All **direct quotes** and **paraphrases** have been __integrated__ **appropriately** into the text using introductory phrases, accurate grammar, etc.	Minor incongruences: • There is largely a match between the sources presented in-text and those in the bibliography/reference list, but one or two sources that appear in-text do not appear in the bibliography/reference list, or vice versa. Or key source information is missing from one or two in-text references or bibliography/reference list entries only (e.g., publication year, city of publication, URL date accessed, etc.). • There is a clear and largely accurate ordering of sources in the bibliography/reference list as required by the referencing style used, but with one or two references out of order. • An attempt has been made for source integration into the text using appropriate introductory phrases and grammar, but one or two quotes or paraphrases do not flow as clearly or logically within the sentence structure as they could.	Major incongruences: • No relationship/several incongruencies between the in-text referencing and the bibliography/reference list. • For example, multiple sources are included in-text, but not in the bibliography, and/or vice versa. Key source information is missing from multiple in-text references and/or reference list entries. A URL link, rather than the actual reference, is provided in the bibliography. Sources are repeated in the reference list, etc. • Most sources are listed in a haphazard order throughout the bibliography/reference list. • Few to no appropriate introductory phrases or rules of grammar have been applied, and many direct quotes and/or paraphrases feel disconnected from the flow of the text.
Feedback on referencing congruency:		
Overall feedback on referencing, with suggested improvements:		

Portfolio of Evidence (PoE) – Background

A portfolio of evidence (PoE) is a collection of materials that illustrates a person's skills and capabilities. Through a PoE, students can recognise their own growth and learn new skills. Students can also show possible employers what their capabilities are.

The PoE is the place (usually a file) where students collect together critical documents that they can use for one or both of the following purposes:

- To demonstrate their competence by putting together evidence of what they did.
- To keep in one place some of the documents they may wish to show a potential employer as evidence of their learning.

In this module, you will be expected to complete PoE PARTS. Ensure that you keep a soft copy of the completed PoE parts. Use your creativity and be as innovative as possible in the creation of the final solution. Use the marking guidelines provided for each activity to guide you through the minimum content that you are required to submit for evaluation. This PoE will require you to work consistently during the semester in order to achieve the best results.

PoE Parts and Allocation of Marks

Description	Mark Allocation	Weight
PoE Part 1	100 marks	25%
PoE Part 2	100 marks	30%
Final PoE Part	100 marks	35%
TOTAL		**90%**

Your Final PoE Part requires you to use feedback and suggestions provided by your lecturer (PoE Part 1 and PoE Part 2). Therefore, ensure that you are provided with detailed feedback for PoE Part 1 and PoE Part 2.

POE Part 1   **(Marks: 100)**

Part 1 of the POE assessed the mastery of concepts. In this part, you are required to work on concepts covered in Learning Units 1 to 4.

Complete the following activities:

Summary of Activities:

ACTIVITY	WEIGHTING OF MARKS
Activity A	25 marks
Activity B	25 marks
Activity C	25 marks
Activity D	25 marks
TOTAL	**100 marks**

You have been tasked to design and develop a <u>short</u> tutorial on the stages of artificial intelligence and its branches/components.

Your tutorial is divided into four parts or sections:

A.   The seven stages of artificial intelligence.

B.   Machine learning.

C.   Natural language processing.

D.   Neural Networks.

Each tutorial document must follow the structure below. Please check the marking rubric for mark allocation.

1.   Cover page.

2.   Title of the tutorial

3.   Brief description of the tutorial *(not exceeding one paragraph).*

4.   Disclaimer *(not exceeding one paragraph).*

5.   Introduction *(not exceeding two paragraphs).*

6.   Definition of concepts *(not exceeding two paragraphs).*

7.   USE CASE example of applications of the concept *(not exceeding three paragraphs).* Any one USE CASE example is acceptable.

8.   Future direction or trends *(not exceeding two paragraphs).*

9.   Conclusion.

ACTIVITY A: Marking Rubric - The Seven Stages of Artificial Intelligence					
	Required				**Mark Allocation**
1.	Title of the tutorial Disclaimer.				-
2.	Brief description.				3

3.	Introduction:
	
	• Purpose of the tutorial.
	
	   o *5 marks: Outstanding introduction.*
	
	   o *4 marks: Adequate introduction.*
	
	   o *3 marks: Partially adequate introduction.*
	
	   o *1 – 2 marks: Inadequate introduction.*
					5

4.	Definition of concepts.				10
	Inadequate	**Partially Adequate**	**Adequate**	**Outstanding**	
	1 – 2	**3 – 5**	**6 – 8**	**9 - 10**	
	The definition of concepts is inadequate. Lack of various concepts defined. Requires attention.	The definition of concepts is partially adequate. Least concepts are defined. Can do better.	The definition of concepts is adequate. Most concepts are defined. Meeting expectations.	The definition of concepts is outstanding. Sufficient concepts defined. Beyond expectations.	

5.	Future direction or trends				5
	Inadequate	**Partially Adequate**	**Adequate**	**Outstanding**	
	1	**2 – 3**	**4**	**5**	
	The explanation of future direction or trends is inadequate. The explanation lacks the required detail. Requires attention.	The explanation of future direction or trends is partially adequate. The explanation lacks most required detail. Can do better.	The explanation of future direction or trends is adequate. The explanation lacks some required detail. Meeting expectations.	The explanation of future direction or trends is outstanding. The explanation provides sufficient required detail. Beyond expectations.	

6.	Conclusion • *2 marks: Adequate conclusion.* • *1 mark: Inadequate conclusion.*				2
TOTAL					**25**

	Required	Mark Allocation
ACTIVITY B: Marking Rubric - Machine Learning		
1.	Title of the tutorial Disclaimer.	-
2.	Brief description.	3

3.	Introduction:
	
	• Purpose of the tutorial.
	
	    o *5 marks: Outstanding introduction.*
	
	    o *4 marks: Adequate introduction.*
	
	    o *3 marks: Partially adequate introduction.*
	
	    o *1 – 2 marks: Inadequate introduction.*
		5

4. Definition of concepts.

Inadequate	Partially Adequate	Adequate	Outstanding	
1	2 – 3	4	5	
The definition of concepts is inadequate. Lack of various concepts defined. Requires attention.	The definition of concepts is partially adequate. Least concepts are defined. Can do better.	The definition of concepts is adequate. Most concepts are defined. Meeting expectations.	The definition of concepts is outstanding. Sufficient concepts defined. Beyond expectations.	5

5. USE CASE example of applications of the concept (branch). Any one USE CASE is acceptable.

Inadequate	Partially Adequate	Adequate	Outstanding	
1	2 – 3	4	5	
The use case or example is inadequate. The example demonstrates inadequate mastery of concepts. Requires attention.	The explanation of how it works is partially adequate. The example demonstrates partial mastery of concepts. Can do better.	The explanation of how it works is adequate. The example demonstrates adequate mastery of concepts. Meeting expectations.	The explanation of how it works is outstanding. The example demonstrates outstanding mastery of concepts. Beyond expectations.	5

6.	Future direction or trends				5
	Inadequate	**Partially Adequate**	**Adequate**	**Outstanding**	
	1	**2 – 3**	**4**	**5**	
	The explanation of future direction or trends is inadequate. The explanation lacks the required detail. Requires attention.	The explanation of future direction or trends is partially adequate. The explanation lacks most required detail. Can do better.	The explanation of future direction or trends is adequate. The explanation lacks some required detail. Meeting expectations.	The explanation of future direction or trends is outstanding. The explanation provides sufficient required detail. Beyond expectations.	
7.	Conclusion • *2 marks: Adequate conclusion.* • *1 mark: Inadequate conclusion.*				2
TOTAL					**25**

	Required				**Mark Allocation**
	ACTIVITY C: Marking Rubric - Natural Language Processing				
1.	Title of the tutorial Disclaimer.				-
2.	Brief description.				3

3.	Introduction:
	
	• Purpose of the tutorial.
	
	   o *5 marks: Outstanding introduction.*
	
	   o *4 marks: Adequate introduction.*
	
	   o *3 marks: Partially adequate introduction.*
	
	   o *1 – 2 marks: Inadequate introduction.*
					5

4.	Definition of concepts.				5
	Inadequate	**Partially Adequate**	**Adequate**	**Outstanding**	
	1	**2 – 3**	**4**	**5**	
	The definition of concepts is inadequate. Lack of various concepts defined. Requires attention.	The definition of concepts is partially adequate. The least concepts are defined. Can do better.	The definition of concepts is adequate. Most concepts are defined. Meeting expectations.	The definition of concepts is outstanding. Sufficient concepts defined. Beyond expectations.	

5.	USE CASE example of applications of the concept (branch). Any one USE CASE is acceptable.				5
	Inadequate	**Partially Adequate**	**Adequate**	**Outstanding**	
	1	**2 – 3**	**4**	**5**	
	The use case or example is inadequate. The example demonstrates inadequate mastery of concepts. Requires attention.	The explanation of how it works is partially adequate. The example demonstrates partial mastery of concepts. Can do better.	The explanation of how it works is adequate. The example demonstrates adequate mastery of concepts. Meeting expectations.	The explanation of how it works is outstanding. The example demonstrates outstanding mastery of concepts. Beyond expectations.	

6.	Future direction or trends				5
	Inadequate	**Partially Adequate**	**Adequate**	**Outstanding**	
	1	**2 – 3**	**4**	**5**	
	The explanation of future direction or trends is inadequate. The explanation lacks the required detail. Requires attention.	The explanation of future direction or trends is partially adequate. The explanation lacks most required detail. Can do better.	The explanation of future direction or trends is adequate. The explanation lacks some required detail. Meeting expectations.	The explanation of future direction or trends is outstanding. The explanation provides sufficient required detail. Beyond expectations.	
7.	Conclusion • *2 marks: Adequate conclusion.* • *1 mark: Inadequate conclusion.*				2
TOTAL					**25**

ACTIVITY D: Marking Rubric - Neural Networks					
	Required				**Mark Allocation**
1.	Title of the tutorial Disclaimer.				-
2.	Brief description.				3

3.	Introduction:
	
	• Purpose of the tutorial.
	
	    ○ *5 marks: Outstanding introduction.*
	
	    ○ *4 marks: Adequate introduction.*
	
	    ○ *3 marks: Partially adequate introduction.*
	
	    ○ *1 – 2 marks: Inadequate introduction.*
					5

4.	Definition of concepts.				5
	Inadequate	**Partially Adequate**	**Adequate**	**Outstanding**	
	1	**2 – 3**	**4**	**5**	
	The definition of concepts is inadequate. Lack of various concepts defined. Requires attention.	The definition of concepts is partially adequate. The least concepts are defined. Can do better.	The definition of concepts is adequate. Most concepts are defined. Meeting expectations.	The definition of concepts is outstanding. Sufficient concepts defined. Beyond expectations.	

5.	A brief USE CASE example of applications of the concept (branch). Any one USE CASE is acceptable.				5
	Inadequate	**Partially Adequate**	**Adequate**	**Outstanding**	
	1	**2 – 3**	**4**	**5**	
	The use case or example is inadequate. The example demonstrates inadequate mastery of concepts. Requires attention.	The explanation of how it works is partially adequate. The example demonstrates partial mastery of concepts. Can do better.	The explanation of how it works is adequate. The example demonstrates adequate mastery of concepts. Meeting expectations.	The explanation of how it works is outstanding. The example demonstrates outstanding mastery of concepts. Beyond expectations.	

6.	Future direction or trends				5
	Inadequate	**Partially Adequate**	**Adequate**	**Outstanding**	
	1	**2 – 3**	**4**	**5**	
	The explanation of future direction or trends is inadequate. The explanation lacks the required detail. Requires attention.	The explanation of future direction or trends is partially adequate. The explanation lacks most required detail. Can do better.	The explanation of future direction or trends is adequate. The explanation lacks some required detail. Meeting expectations.	The explanation of future direction or trends is outstanding. The explanation provides sufficient required detail. Beyond expectations.	
7.	Conclusion • *2 marks: Adequate conclusion.* • *1 mark: Inadequate conclusion.*				2
TOTAL					**25**

[TOTAL MARKS: 100]

REMEMBER	*Your marked submitted work showing the marks obtained AND the lecturer's feedback will be submitted as part of the final PoE. You will be required to implement this feedback in PoE Part 2 and the PoE Final Task.*

END OF POE Part 1

PoE Part 2   **(Marks: 100)**

Part 2 of the PoE requires you to complete theoretical, experiential, and reflection activities. The activities will provide guidelines and build knowledge and selected practical skills to complete the final part of the PoE. Therefore, the activities include:

- Exploring theoretical knowledge of AI concepts.
- Self-reflection reports.

TO DO:

1. Visit the website https://www.sciencebuddies.org/blog/artificial-intelligence-ai-science-projects, which lists hands-on projects.
2. Select the two projects to explore.

The list of all projects is available at:

https://www.sciencebuddies.org/science-fair-projects/science-projects/artificial-intelligence

3. For each project:
   a. Read the project requirements carefully to understand the purpose, requirements, design process, and step-by-step instructions on how the project is developed.
   b. Take note of all the instructions and tips provided.
   c. Explore how the project is achieved. You may also make use of the videos available for brief explanations of concepts, tools, and procedures.

ACTIVITIES

Complete the following activities:

Activity 1	40 marks
Activity 2	20 marks
Activity 3	20 marks
Activity 4	20 marks
TOTAL	**100 marks**

Activity 1: Analysis of the projects (40 marks)

1. Explore the **two** projects selected.

2. For each project:

    a.   Create a document to report on the details of the project and how it was completed.

    b.   The document must include:

A.	Project Name or Title
B.	Project description
C.	The problem the project wants to solve (project solution objective)
D.	Type of design process (describe)
E.	Summary of Step-by-step design/procedure
F.	The explanation of how the project solves the identified problem using AI tools and technologies.

ALL of the above, in particular, (B – F) must be short descriptions/explanations, not exceeding two paragraphs each.

Requirement		Mark Allocation
PROJECT 1		
• The document report provides an adequate description of the project. The name or title of the project is included in the report. *2=adequate; 1=inadequate*	2	
• The document report provides an adequate explanation of the problem the project intends to solve. *3 =adequate; 2=partially adequate; 1=inadequate*	3	20
• The document report provides an adequate description of the project design process. *5=outstanding; 3 - 4=adequate; 2=partially adequate; 1=inadequate*	5	
• The document report provides an adequate summary of the steps of how the project is developed. *5=outstanding; 3 - 4=adequate; 2=partially adequate; 1=inadequate*	5	

• The document report provides an adequate explanation of how the project solves the identified problem using project AI tools and technologies. *5=outstanding; 3 - 4=adequate; 2=partially adequate; 1=inadequate*	5	
PROJECT 2		
• The document report provides an adequate description of the project. The name or title of the project is included in the report. *2=adequate; 1=inadequate*	2	
• The document report provides an adequate explanation of the problem the project intends to solve. *3 =adequate; 2=partially adequate; 1=inadequate*	3	
• The document report provides an adequate description of the project design process. *5=outstanding; 3 - 4=adequate; 2=partially adequate; 1=inadequate*	5	20
• The document report provides an adequate summary of the steps of how the project is developed. *5=outstanding; 3 - 4=adequate; 2=partially adequate; 1=inadequate*	5	
• The document report provides an adequate explanation of how the project solves the identified problem using project AI tools and technologies. *5=outstanding; 3 - 4=adequate; 2=partially adequate; 1=inadequate*	5	
TOTAL		**40**

Activity 2: ARTIFICIAL INTELLIGENCE CONCEPTS (20 Marks)

In this activity, you are required to identify artificial intelligence (AI) concepts applied and/or used in each of the projects in Activity 1.

Copy the table below and below and complete it for each project:

	Column A	Column B	Column C	Column D
	Project Title or Name	Short project description (copy from activity 1 and paste here)	List the aspects of AI used to develop the solution to the project	An explanation of how AI concepts and tools in Column C are used to develop and achieve the objective of the solution.
1.				
2.				
3.				
4.				

Allocation of marks:

	Column A	Column B	Column C	Column D
	Project Title or Name	Short project description (copy from activity 1 and paste here)	List the aspects of AI used to develop the solution to the project	An explanation of how AI concepts and tools in Column C are used to develop and achieve the objective of the solution.
1.			(3 mark)	(2 mark)
2.			(3 mark)	(2 mark)
3.			(3 mark)	(2 mark)
4.			(3 mark)	(2 mark)
			12	8
TOTAL				**20**

2-MARK	**3-Marks**
• 2 Marks – Adequate • 1 Mark – Inadequate	• 3 Marks – Adequate • 2 Marks – Partially Adequate • 1 Mark – Inadequate

Activity 3: REFLECTION REPORT (20 Marks)

In this activity, you are required to complete a reflective report of <u>**not more than two pages**</u>.

Write clearly and format your report creatively to enhance the presentation and organisation of your report.

Using the reporting structure below, complete the reflective report regarding the completed Activity 1 and Activity 2 in POE Part 2.

Include both the questions and answers in your report.

STUDENT NUMBER: _____

STUDENT NAME: _____

REFLECTION REPORT

1.   How would you define **reflection**?
2.   What did you learn from completing Activity 1 and Activity 2 of Part 2 of the PoE?
3.   On a scale of 1 – 10, 1 being poor and 10 excellent, to what extent have activities 1 and 2 developed and improved your **awareness** of the possibility of problem-solving using AI tools and technologies? Motivate your scale.
4.   On a scale of 1 – 10, 1 being poor and 10 excellent, to what extent have activities 1 and 2 developed and improved your **understanding** of the possibility of problem-solving using AI tools and technologies? Motivate your scale.
5.   To what extent have activities 1 and 2 developed and improved your **awareness** of how AI tools and technologies can be used to develop AI-powered solutions?
6.   On a scale of 1 – 10, 1 being too easy and 10 too difficult, how would you rate the level of difficulty of Project 1? Name the project.
7.   On a scale of 1 – 10, 1 being too easy and 10 too difficult, how would you rate the level of difficulty of Project 2? Name the project.
8.   Would you recommend peers to try and complete any of the projects? Why?
9.   Which project best appealed to you, and why?

REFLECTION REPORT MARKING RUBRIC

Criteria	Excellent (5)	Good (4)	Satisfactory (3)	Needs Improvement (2)	Unsatisfactory (1)
Understanding of Project Activities	Demonstrates a comprehensive understanding of all four project activities. Thoroughly analyses each activity with critical insights and links them to relevant theories or frameworks.	Demonstrates a good understanding of the project activities with a clear analysis. Some connections to theories or frameworks are made.	Shows a general understanding of the project activities. Analysis is basic with limited connection to theories or frameworks.	Limited understanding of the project activities. Analysis is superficial, and connections to theories or frameworks are weak or absent.	Shows little to no understanding of the project activities. No meaningful analysis or connections are made.
Critical Reflection	Engages in deep critical reflection, examining personal learning, challenges, and opportunities. Offers insights into how the activities have influenced personal or academic development in AI.	Provides a thoughtful reflection on learning and challenges, with some consideration of personal or academic development in AI.	Reflection is present but tends to be descriptive rather than critical. Limited discussion of personal or academic development in AI.	Reflection is superficial with minimal critical thinking. Little to no discussion of the personal or academic development in AI.	No reflection or self-assessment is evident. Report is purely descriptive.
Integration of Learning and Application of Theory	Shows exemplary integration of theory and application of concepts from project resources, with clear learning development from project activities based on the feedback received.	Shows good integration of application of concepts and practice, with noticeable learning development from project activities.	Some integration of theory and application of concepts is evident, but learning development from project activities is limited.	Minimal integration of feedback. Little to no learning development from project activities is evident.	No evidence of feedback integration. No learning or changes in learning development from project activities are evident.
Organisation and Clarity	Report is exceptionally well-organised and clearly written. Ideas flow logically with excellent coherence and transition between sections.	Report is well-organised and clearly written. Ideas are mostly coherent with good transitions between sections.	Report is adequately organised but may lack clarity in some areas. Some ideas may not flow logically.	Report is poorly organised with limited clarity. Ideas are disjointed and difficult to follow.	Report is disorganised and unclear. Ideas are presented haphazardly with no logical flow.

Points/ Marks Awarded:

Criteria 1 (5 points)	Criteria 2 (5 points)	Criteria 3 (5 points)	Criteria 4 (5 points)	Total (20 points)
Understanding of Project Activities	Critical Reflection	Integration of Learning and Application of Theory	Organisation and Clarity	

Activity 4: PROMPT ENGINEERING (20 Marks)

Prompt engineering is the process of designing and refining the input text given to AI models, especially language models, to elicit the most accurate, relevant, and creative responses.

It may be beneficial to visit the resources below to guide you when completing this activity:

Prompt Engineering, Examples, Techniques, and Practical Applications:
https://clickup.com/blog/prompt-engineering-examples/?utm_source=google-pmax&utm_medium=cpc&utm_campaign=gpm_cpc_ar_nnc_pro_trial_all-devices_tcpa_lp_x_all-departments_x_pmax&utm_content=&utm_creative=_____&gad_source=1&gclid=Cj0KCQjw0Oq2BhCCARIsAA5hubU9fiDiepvInkN1v2wlD9uMLEiuRZT74Kfc6CJwQsA1WijeJJ3kMZYaArV1EALw_wcB

Examples of Prompts:
https://www.promptingguide.ai/introduction/examples

Examples of AI tools that can be used are:
OpenAI's ChatGPT: https://chatgpt.com/
Google's Gemini: https://gemini.google.com/app?hl=en_GB

In this activity, you are required to use any one of the LLM platforms (such as GPT (Generative Pre-trained Transformer)) to **identify an idea or a problem** and **generate a solution**.

Use the platform to generate an idea or problem that needs to be solved.
Use the platform to generate drafts of the solution.
Provide the final solution to the problem.

The activity requires you to demonstrate:

- Mastery of fundamentals of prompt engineering.
- Fair and ethical use of the LLM (no plagiarism, copy and paste must be evidenced).
- Ability to generate a proposed solution for the identified problem.
- Document prompting techniques used using examples, motivating for such and supported by applying prompting best methods and practices.

	In a document, provide the following:
1.	The problem you want to generate a solution for.
2.	The examples of prompts used.
	In this case,
	• Provide all prompts attempted. Order the prompt from first to last use.
	• Mention the prompting method used.
3.	Explain what each problem produced.
4.	Compilation of a draft solution (copy and paste from the platform).
5.	Final solution
	(modified draft)

Mark Allocation:

	Required	Mark Allocation
1.	Mastery of prompt engineering.	4
	a. Principles of prompt engineering are adequately applied.	
	b. Best practices are adequately applied.	
	c. The above (a and b) is adequately evidenced and documented.	
	• *4 Marks - Outstanding*	
	• *3 Marks – Adequate*	
	• *2 Marks – Partially Adequate*	
	• *1 Mark – Inadequate*	
2.	Fair and ethical use of the LLM	4
	a. All prompts used are provided. (2 marks)	
	b. All original outputs are provided. (2 marks)	
3.	Ability to generate a problem and its proposed solution. (No plagiarism, copy and paste must not be evidenced in the final solution).	8
	a. Evidence of how original outputs are only used as drafts and adequately modified. (8 marks)	
	• *7 – 8 Marks - Outstanding*	
	• *5 – 6 Marks – Adequate*	
	• *3 – 4 Marks – Partially Adequate*	
	• *1 – 2 Marks – Inadequate*	

4.	Document prompting techniques or methods used, using examples • *4 Marks - Outstanding* • *3 Marks – Adequate* • *2 Marks – Partially Adequate* • *1 Mark – Inadequate*	4
TOTAL		**20**

REMEMBER	*Your marked submitted work showing the marks obtained AND the lecturer's feedback will be submitted as part of the final PoE. You will be required to implement this feedback in the PoE Final Task.*

END OF POE PART 2

PORTFOLIO OF EVIDENCE (FINAL PART)   **(Marks: 100)**

Your final part of the PoE is structured as follows:

Assessment/ Deliverable	Format	Marks	Total
SECTION A			
Activity 1	Submission of corrected Part 1, feedback, and report *(report document)*	5	
Activity 2	Submission of corrected Part 2, feedback, and report *(report document)*	5	
SECTION B			
Activity 1: AI-Powered Solution and documentation	Solution Proposal *(proposal document)*	60	80
Activity 2: Research Article Review	Review *(report document)*	20	
SECTION C			
Activity 1: Self-Evaluation	Document/Rubric *(report document + marking rubric)*	10	10
TOTAL MARK			100

SECTION A

Complete the activities in the following questions.

Summary of Activities:

ACTIVITY	WEIGHING OF MARKS
Activity 1	5 marks
Activity 2	5 marks
TOTAL	**10 marks**

Activity 1: POE Part 1 Review

This task is the collection of the PoE Part 1 activities submitted in the semester. Ensure that you submit or include:

A. The marked PoE Part 1 shows the final mark and the lecturer's feedback.

B. An updated and corrected PoE Part 1 as per the lecturer's feedback.

C. A brief explanation of what was recommended and how you have implemented the recommendations.

Activity 2: POE Part 2 Review

This task is the collection of the PoE Part 2 activities submitted in the semester. Ensure that you submit or include:

A. The marked PoE Part 2 shows the final mark and the lecturer's feedback.

B. An updated and corrected PoE Part 2 as per the lecturer's feedback.

C. A brief explanation of what was recommended and how you have implemented the recommendations.

Required		Mark Allocation
Activity 1 (Part 1 of the PoE)		
Submission of Part 1 with feedback.	2	5
Evidence that the lecturer's feedback has been addressed.	1	
Evidence that the recommendations were implemented.	1	
Report documenting the above	1	
Activity 2 (Part 2 of the PoE)		
Submission of Part 2 with feedback.	2	5
Evidence that the lecturer's feedback has been addressed.	1	
Evidence that the recommendations were implemented.	1	
Report documenting the above	1	
TOTAL		**10**

SECTION B

Complete the following activities.

Summary of Activities:

ACTIVITY	WEIGHING OF MARKS
Activity 1	60 marks
Activity 2	20 marks
TOTAL	**80 marks**

Using your own AI-powered solution idea or example, complete the following:

1.   Think of an area in South Africa (private or public services) where artificial intelligence (AI) can significantly solve a problem.

2.   Use this area to identify an idea or a problem and then propose a solution.

3.   Your focus is on Artificial Intelligence (AI) and its branches. You need not select or apply all the branches in the proposal of the solution.

4.   See the diagrams below as a reference.

You are required to identify a problem (idea) and propose an AI-powered solution that can benefit the community.

Assumptions:
- No financial limitations.
- No technological restrictions.
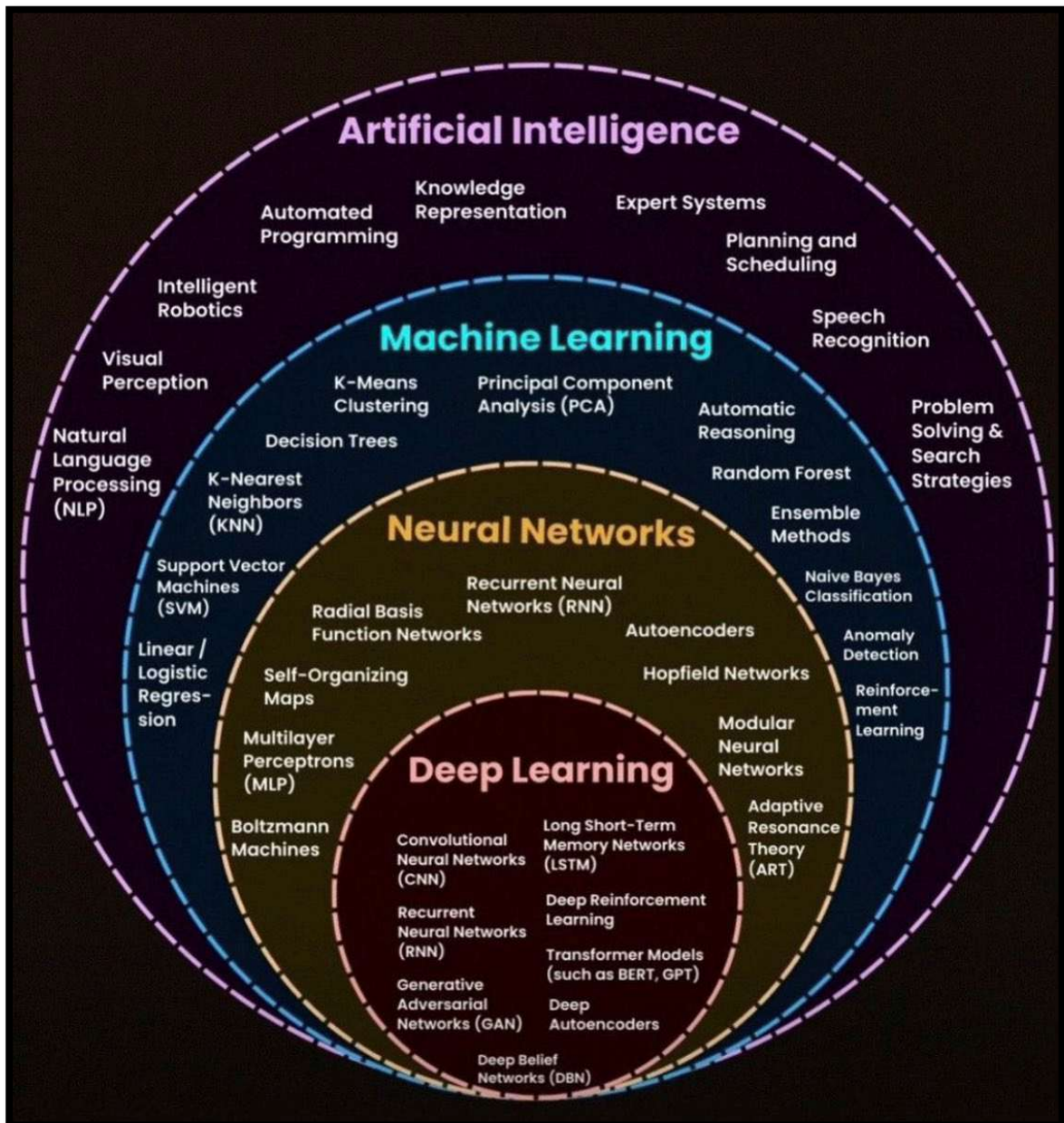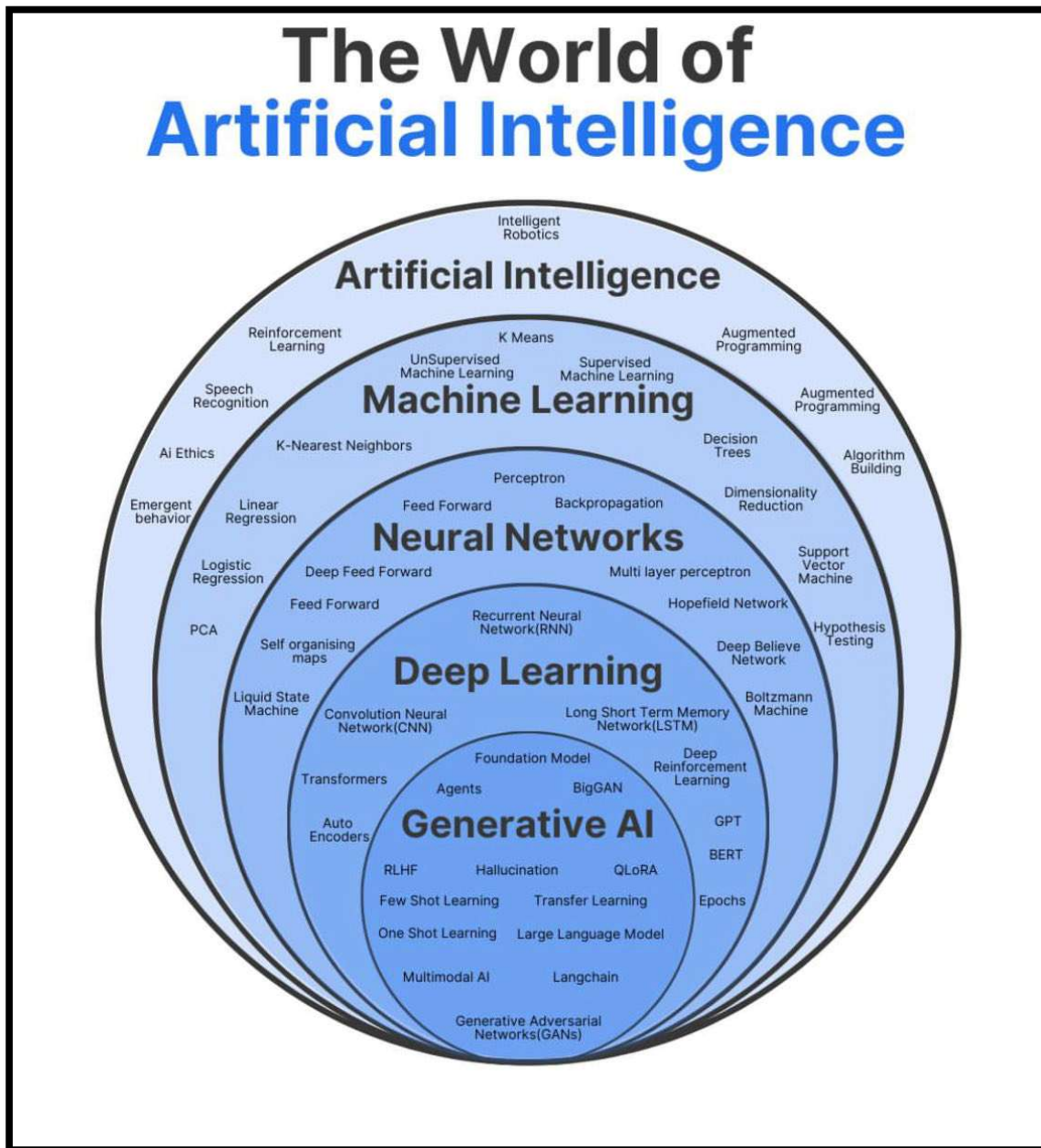- Ethical implications are carefully considered.

Diagram 1:

Diagram 2:

The World of Artificial Intelligence

ACTIVITY 1: Solution Proposal (60 Marks)

In this activity, you are expected to describe and give sufficient detail about the AI-powered solution. Complete this by answering these questions:

- Describe the problem the solution is trying to solve.

- Give an overview of the solution (approximately 1 page).

- Explain how the solution is solving the problem. Use examples.

- Describe the involvement and application of any of the branches of AI in your solution. Examples are:

    o   Machine Learning and/ or Deep Learning

    o   Natural Language Processing

    o   Neural Networks

    o   Reinforcement Learning.

In this section, you are required to write the AI solution proposal. Write a proposal report (technical document) following the structure below.

1.   Cover page
2.   Table of contents
3.   Disclaimer
4.   Describe the problem the solution is trying to solve.
5.   Give an overview of the solution (approximately 1 page).
6.   Explain how the solution is solving the problem. Use examples.
7.   Describe the involvement and application of the AI branches. Examples are:

    a.   Machine Learning and/ or Deep Learning

    b.   Natural Language Processing

    c.   Neural Networks

    d.   Reinforcement Learning.

8.   List a selection (sample) of devices/ hardware and an explanation of why these devices/ hardware are needed - the infrastructure.

9.   Outline at least two ethical implications.

Requirement	Mark Allocation
SOLUTION PROPOSAL	
1. Cover page (project title and other relevant details)	-
2. Table of contents	2
3. Disclaimer	2
4. Describe the problem the solution is trying to solve. a. *4 marks – outstanding description of the problem identified.* b. *3 marks – adequate description of the problem identified.* c. *2 marks – partially adequate description of the problem identified.* d. *1 mark – inadequate description of the problem identified.*	4
5. Give an overview of the solution a. *4 marks – outstanding summary or overview of the solution* b. *3 marks – adequate summary or overview of the solution* c. *2 marks – partially adequate summary or overview of the solution* d. *1 mark – inadequate summary or overview of the solution*	4
6. Explain how the solution is solving the problem. a. *4 marks – outstanding explanation of how the solution is solving the problem* b. *3 marks – adequate explanation of how the solution solves the problem* c. *2 marks – partially adequate explanation of how the solution solves the problem* d. *1 mark – inadequate explanation of how the solution solves the problem*	4

7. Outline the involvement and application of any AI and AI branches:				Mark
Outstanding	**Adequate**	**Partially Adequate**	**Inadequate**	
19 - 25 marks	**16 – 20 marks**	**11 – 15 marks**	**1 – 10 marks**	25
Outstanding explanation of the involvement and application of any AI and AI branches	Adequate explanation of the involvement and application of any AI and AI branches	Partially adequate explanation of the involvement and application of any AI and AI branches	Inadequate explanation of the involvement and application of any AI and AI branches	

8. Outline ethical implications	
Two ethical implications are adequately documented. *a. 4 marks – outstanding outline of two ethical implications* *b. 3 marks – adequate outline of two ethical implications* *c. 2 marks – partially adequate outline of two ethical implications* *d. 1 mark – inadequate outline of two ethical implications*	4

9. Outline (selection) of devices/ hardware and explanation is needed or required - the infrastructure.

Outstanding	Adequate	Partially Adequate	Inadequate	15
15 - 11 marks	**10 –5 marks**	**4 – 2 marks**	**1 mark**	
Outstanding outline (selection) of devices/ hardware and explanation - the infrastructure.	Adequate outline (selection) of devices/ hardware and explanation - the infrastructure.	Partially adequate outline (selection) of devices/ hardware and explanation - the infrastructure.	Inadequate outline (selection) of devices/ hardware and explanation - the infrastructure.	

TOTAL	**60**

ACTIVITY 2:

Research Article Review (20 Marks)

In this activity, you are required to review one scholarly research article. The research article must be in the area of artificial intelligence.

Instructions:

1. **Comprehend the Article**: Summarise the main points and supporting details of the article accurately.

2. **Analyse Critically**: Evaluate the strengths and weaknesses of the article, supporting your arguments with evidence from the text.

3. **Think Critically**: Question assumptions, evaluate the evidence, and consider the implications and contexts of the article's arguments.

4. **Organise Your Review**: Structure your review with a clear introduction, body, and conclusion. Ensure smooth transitions between sections.

5. **Use Evidence**: Integrate evidence from the article to support your analysis and arguments, citing sources correctly.

6. **Write Clearly**: Ensure your writing is clear, concise, and free of errors, demonstrating academic writing proficiency.

Marking Rubric for Scholarly Research Article Review

Criteria	Excellent 5	Good 4	Satisfactory 3	Needs Improvement 2	Unsatisfactory 1	Marks
Comprehension	Demonstrates a thorough understanding of the article's main ideas and supporting details. Clearly summarises key points accurately.	Demonstrates a good understanding of the article's main ideas and supporting details. Summarises key points with minor inaccuracies.	Demonstrates an adequate understanding of the article's main ideas and supporting details. Summarises key points but misses some important details.	Shows limited understanding of the article's main ideas and supporting details. Summarises key points inaccurately or incompletely.	Shows little to no understanding of the article's main ideas and supporting details. Fails to summarise key points.	5
Analysis	Provides insightful analysis of the article's strengths and weaknesses, with well-supported arguments.	Provides good analysis of the article's strengths and weaknesses, with generally well-supported arguments.	Provides basic analysis of the article's strengths and weaknesses, but arguments are not always well-supported.	Provides limited analysis of the article's strengths and weaknesses, with poorly supported arguments.	Provides little to no analysis of the article's strengths and weaknesses.	5
Critical Thinking	Exhibits a high level of critical thinking. Questions assumptions, evaluates evidence, and considers implications and contexts.	Exhibits good critical thinking. Questions some assumptions, evaluate some evidence, and consider some implications and contexts.	Exhibits basic critical thinking. Questions a few assumptions, evaluates limited evidence, and considers limited implications and contexts.	Exhibits limited critical thinking. Rarely questions assumptions, evaluates little evidence, or considers implications and contexts.	Exhibits little to no critical thinking. Does not question assumptions, evaluate evidence, or consider implications and contexts.	5
Structure and Organisation	The review is well-organised with a clear, logical structure. Includes an introduction, body, and conclusion. Transitions are smooth.	The review is organised with a clear structure, though some parts may lack clarity. Includes an introduction, body, and conclusion. Transitions are generally smooth.	Review has a basic structure but may lack clarity or coherence in places. Includes an introduction, body, and conclusion, but transitions may be awkward.	The review is poorly organised, with an unclear structure. Introduction, body, and conclusion may be incomplete or poorly defined. Transitions are lacking.	The review lacks structure and organisation. No clear introduction, body, or conclusion.	5
TOTAL						20
NB: Bonus mark = 5 marks						

SECTION C

Activity 1

In this activity, you are required to write a reflective report on the learning experience. Once completed, a self-evaluation must be completed to reflect on your learning experience. Use the rubric provided.

Ensure to include the following:

1   How would you define **reflection**?

2   What did you learn from completing Part 1, Part 2, and the PoE?

3   What did you learn from having to correct Part 1 and Part 2 as per the feedback from your lecturer?

4   What did you learn from having to use the updated Part 1 and Part 2 to complete your final PoE Part?

5   Was the way the activities were designed in Part 1, Part 2, and the final PoE Part helping you to understand how a project may be managed and administered from start to end? Provide the reason for your answer.

SELF-EVALUATION

Student Number: _____

(Each student must complete one of these rubrics as part of their PoE submission. Review their self-evaluation, and if you disagree, then change the marks accordingly.)

Criteria	1 You have learned something, but you are not proving it.	2 You are on the right track, but you can do better.	3 Well done. You have done exceptionally well.	Score
Reflection	• Reflection shows no thoughtfulness. • Reflection has no details. • Reflection is incomplete.	• Reflection shows little thoughtfulness. • Reflection has few details or examples. • Most parts of the reflection are incomplete.	• Reflection shows thorough thoughtfulness. • Reflection has several supporting details and examples. • All parts of the reflection are complete and done well.	
Demonstration of learning	• Reflection does not move beyond the description of the event/experience.	• The reflection demonstrates a student's attempt to analyse the event/experience, but fails to demonstrate the depth of analysis.	• Clearly explains what was learned. • Reflection is beyond a simple description of an event/experience to an analysis of how it contributed to learning and understanding.	
The organisation of the report and the clarity of the report	• Ideas are disorganised. • Language is unclear and confusing throughout.	• Ideas are organised, but paragraphs are not well constructed. • Frequent lapses in clarity.	• Ideas are very well-organised with well-constructed paragraphs. • The language is clear and expressive. • The reader can create a mental picture of the situation being described. • Explanation of concepts makes sense to an uninformed reader.	
Demonstration that learning has taken place by addressing comments and feedback provided by the lecturer **(1 mark)**				
TOTAL				**/10**

END OF POE