TECEP® Test Description for TES-1110

AI Unlocked: Tools, Prompts, and Possibilities

How is Artificial Intelligence (AI) transforming industries, enhancing human capabilities, and driving technological progress? In this exam, students will examine the evolution of AI from simple automation to sophisticated systems capable of autonomous decision-making.

Students will demonstrate their ability to define AI, identify appropriate AI tools for specific tasks, and recognize key concepts related to prompt design and AI interaction. The exam also covers foundational knowledge of AI applications, privacy concerns, and the ethical and legal considerations surrounding AI use. Through this assessment, students will show proficiency in core AI concepts and their implications in personal, professional, and societal contexts. (1 credit)

- **Test format:** 60 multiple choice questions (1 point each).
- **Passing score: 70**% (42 points).Your grade will be reported as CR (credit) or NC (no credit).
- **Time limit:** 2 hours.

OUTCOMES ASSESSED ON THE TEST

- Describe the foundational concepts, historical development, and key characteristics of Artificial Intelligence (AI), distinguishing it from human intelligence and traditional computing.
- Demonstrate the ability to communicate AI concepts clearly to technical and non-technical audiences using written, oral, and visual formats.
- Compare AI tools for professional and personal applications in terms of their capabilities, limitations, and ethical considerations.
- Critically evaluate the ethical, legal, and privacy implications of AI systems, including bias, security, and transparency, and propose mitigation strategies.
- Develop AI prompts to optimize model responses while considering bias, clarity, and contextual appropriateness.
- Assess AI's influence on global perspectives, cultural diversity, and inclusivity across different applications.
- Investigate emerging trends and innovations in AI, and their societal and technological impacts.

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

TOPICS ON THE TEST AND THEIR APPROXIMATE DISTRIBUTION

The table below indicates the main topics covered by this exam and the approximate percentage of the exam devoted to each main topic. Under the main topic heading is a list of related–but more specific–topics. It is important to review these topics to determine how much prior knowledge you have and/or how much additional study is necessary.

Understanding AI Fundamentals (17%)	
Sub-Outcomes Assessed: **TS 1.1** Differentiate Artificial Intelligence from traditional computing and human intelligence. **TS 1.2** Describe the historical development and evolution of AI. **TS 1.3** Explain the significance of AI in contemporary technological advancements.	
Topic	**Resource**
Definition of Artificial Intelligence (AI)	• CompTIA *AI Essentials* 1.1 Defining AI
Differences between AI, human intelligence, and traditional computing	• CompTIA *AI Essentials* 1.1 Defining AI
Evolution of AI over time	• CompTIA *AI Essentials* 1.1 Defining AI

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Getting started with AI	• CompTIA *AI Essentials* 1.2 Getting Started with AI • CompTIA *AI Essentials* 1.3 Applying AI Solutions in Business

Communicating AI Concepts (16%)

Sub-Outcomes Assessed:

TS 2.1 Communicate AI concepts using clear and simplified language.

TS 2.2 Explain an AI tool and its benefits and impacts

TS 2.3 Discuss collaborative approaches between humans and AI.

Topic	Resource
Simplifying AI concepts for diverse audiences	• CompTIA *AI Essentials* 1.6 Talking to Coworkers about AI
Effective communication techniques (written and oral)	• CompTIA *AI Essentials* 1.5 Using AI to Support Your Team • CompTIA *AI Essentials* 1.6 Talking to Coworkers about AI
Collaboration between humans and AI	• CompTIA *AI Essentials* 1.4 Exploring AI as a Collaborative Partner • CompTIA *AI Essentials* 1.5 Using AI to Support Your Team

Exploring Generative AI (16%)

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Sub-Outcomes Assessed:

TS 3.1 Explain the role of neural networks in Generative AI and how they contribute to content generation.

TS 3.2 Assess the benefits and limitations of Generative AI in enhancing productivity within specific industries.

TS 3.3 Evaluate the role of human oversight in Generative AI applications to ensure ethical and effective implementation.

Topic	Resource
Introduction to Generative AI and neural networks	• CompTIA *AI Essentials* 2.1 Types of Generative AI
Applications of Generative AI in business and everyday tasks	• CompTIA *AI Essentials* 2.1 Types of Generative AI • CompTIA *AI Essentials* 2.2 Using the Right Tool
Overview of popular Generative AI tools and their capabilities	• CompTIA *AI Essentials* 2.2 Using the Right Tool
Ethical considerations and limitations of Generative AI	• CompTIA *AI Essentials* 2.1 Types of Generative AI • CompTIA *AI Essentials* 2.2 Using the Right Tool

Prompt Engineering (17%)

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Sub-Outcomes Assessed:

TS 4.1 Describe the importance of prompt engineering and its role in effective AI interactions.

TS 4.2 Create and refine prompts for text, image, and audio generation to achieve desired AI outputs

TS 4.3 Analyze AI-generated outputs for accuracy, relevance, and inclusivity, and apply best practices for improvement

TS 4.4 Identify potential biases in AI responses and develop strategies to mitigate them.

Topic	**Resource**
Defining Prompt engineering	• CompTIA *AI Essentials* 3.1 What is Prompt Engineering?
Types of prompts • question • persona • structured	• CompTIA *AI Essentials* 3.1 What is Prompt Engineering?
Biases and ethical considerations in prompt crafting	• CompTIA *AI Essentials* 3.1 What is Prompt Engineering?
Best practices for writing effective prompts	• CompTIA *AI Essentials* 3.2 Practicing Prompt Engineering
Writing prompts for generating text, images, and audio	• CompTIA *AI Essentials* 3.1 What is Prompt Engineering? • CompTIA *AI Essentials* 3.2 Practicing Prompt Engineering

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Refining and iterating prompts for better outputs	• CompTIA *AI Essentials* 3.1 What is Prompt Engineering? • CompTIA *AI Essentials* 3.2 Practicing Prompt Engineering
Best practices for ensuring accuracy and relevance	• CompTIA *AI Essentials* 3.1 What is Prompt Engineering? • CompTIA *AI Essentials* 3.2 Practicing Prompt Engineering
Inclusive AI for a diverse world	• CompTIA *AI Essentials* 3.1 What is Prompt Engineering? • CompTIA *AI Essentials* 3.2 Practicing Prompt Engineering

Ethical and Legal Implications of AI (17%)

Sub-Outcomes Assessed:

TS 5.1 Explain key legal and ethical challenges related to AI, including privacy and intellectual property concerns.

TS 5.2 Evaluate the importance of consent and transparency in AI practices.

TS 5.3 Discuss strategies for addressing bias and ensuring fairness in AI-driven decision-making.

Topic	Resource
Legal and ethical challenges in AI	• CompTIA *AI Essentials* 4.2 Addressing AI Legal and Ethical Issues
Privacy concerns and data ownership	• CompTIA *AI Essentials* 4.2 Addressing AI Legal and Ethical Issues
Intellectual property and AI-generated content	• CompTIA *AI Essentials* 4.2 Addressing AI Legal and Ethical Issues

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

The right to explanation for AI decisions	• CompTIA *AI Essentials* 4.2 Addressing AI Legal and Ethical Issues

Future Trends and Innovations in AI (17%)

Sub-Outcomes Assessed:

TS 6.1 Identify and analyze emerging trends and innovations in AI.

TS 6.2 Evaluate strategies for balancing innovation and risk in AI-driven cybersecurity practices.

TS 6.3 Examine the impact of AI on daily life and across industries.

TS 6.4 Reflect on ethical challenges and societal considerations related to advanced AI tools.

Topic	Resource
Emerging trends in AI technologies	• CompTIA *AI Essentials* 5.1 Anticipating What Comes Next in AI • CompTIA *AI Essentials* 5.2 Preparing for the Future with AI
Applications of AI in daily life (e.g. healthcare, transportation, education)	• CompTIA *AI Essentials* 5.1 Anticipating What Comes Next in AI • CompTIA *AI Essentials* 5.2 Preparing for the Future with AI
Advanced AI tools (e.g. digital twins, generative models)	• CompTIA *AI Essentials* 5.1 Anticipating What Comes Next in AI • CompTIA *AI Essentials* 5.2 Preparing for the Future with AI
Ethical and societal implications of AI innovation	• CompTIA *AI Essentials* 5.1 Anticipating What Comes Next in AI • CompTIA *AI Essentials* 5.2 Preparing for the Future with AI

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Threats posed by AI in cybersecurity	• CompTIA *AI Essentials* 4.1 Examining Roles in Cybersecurity • WatchGuard Technologies. (2024, March 22). AI in Cybersecurity: The Good, the Bad, & the Ugly [Video]. YouTube.
Addressing phishing and deep fake scams	• CompTIA *AI Essentials* 4.1 Examining Roles in Cybersecurity • WatchGuard Technologies. (2024, March 22). AI in Cybersecurity: The Good, the Bad, & the Ugly [Video]. YouTube.
Balancing benefits and challenges of AI in security	• CompTIA *AI Essentials* 4.1 Examining Roles in Cybersecurity • WatchGuard Technologies. (2024, March 22). AI in Cybersecurity: The Good, the Bad, & the Ugly [Video]. YouTube.

STUDY MATERIALS

Below is a list of recommended study materials to help prepare you for your exam. Most textbooks in this subject include the topics listed above and will prepare you for the test. If you choose another text, be sure to compare its table of contents against the topic list to make sure all topics are covered.

Title
• CompTIA *AI Essentials* course ISBN: 978-1-64274-550-4 • CompTIA *AI Essentials* course is an online course that provides foundational knowledge about artificial intelligence and its applications. To access the course, you will need to register and purchase a subscription. **Help video** In this help video, we'll show you how to create your CompTIA account and verify your student status using SheerID. Follow these easy steps to get started: • Log in to or create your CompTIA account on the new web experience. • Submit your student verification details through your customer profile.

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

- Unlock access to special discounts for students.

Verifying your student status is quick and easy, and it ensures you get the most out of your CompTIA journey.

Price list

- CompTIA Course Price List

SAMPLE QUESTIONS

The questions below are designed to help you study for your TECEP. Answering these questions does not guarantee a passing score on your exam.

Please note that the questions below **will not** appear on your exam.

1. **What differentiates AI from traditional computing systems?**

   A) Focus on gaming and media applications
   B) Requires code for every possible outcome
   C) Learns from data to improve over time
   D) Limited ability to process structured input

2. What marks a major milestone in AI's development?

A) The shift from physical filing to digital spreadsheets
B) The replacement of typewriters with word processors
C) The emergence of tools that generate original content
D) The move from floppy disks to external hard drives

3. Why is AI important in modern technology development?

A) It is mainly used for creative design.
B) It enhances data processing and problem-solving.
C) It functions independently of digital infrastructure.
D) It removes the need for user input.

4. What is the primary goal of AI ethics?

A) To promote rapid deployment without oversight
B) To prevent AI from being used outside of research
C) To ensure AI systems are developed and used responsibly
D) To remove humans from all decision-making processes

5. How can AI impact privacy?

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

A) By collecting and analyzing large volumes of personal data
B) By securing all user data with guaranteed encryption
C) By ensuring no information is stored beyond its use
D) By disconnecting from the internet during analysis

6. What is essential for maintaining trust in AI-based cybersecurity tools?

A) Reducing the complexity of threat analysis procedures
B) Minimizing the role of system-wide accountability
C) Focusing on storage rather than threat detection
D) Ensuring transparency and clear accountability in AI decisions

7. Which of the following is an ethical consideration in AI development?

A) Releasing AI to market quickly
B) Reducing bias to promote fairness
C) Restricting access to public data
D) Increasing profits for developers

8. How can you explain AI to someone with no technical background?

A) AI is when machines act without using any rules or data.
B) AI is software that only follows simple, fixed instructions.
C) AI is when machines use data to make decisions or predictions.
D) AI is hardware that speeds up your computer's operating system.

9. What is the primary function of a recommendation algorithm on a streaming platform?

A) To suggest content based on a user's viewing history and preferences
B) To manage the company's internet bandwidth manually
C) To send advertisements directly to customer service teams
D) To control how video files are compressed during upload

10. What is a challenge when humans work with AI systems?

A) Increasing physical labor to support AI functions
B) Interpreting AI results and communicating them effectively
C) Slowing AI operations to match human speed
D) Granting full autonomy to AI without oversight

11. What is one way AI supports sustainability efforts?

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

A) Reducing storage needs for environmental reports
B) Sorting paper records for recycling centers
C) Calculating energy usage using manual tools
D) Analyzing environmental data to detect patterns and trends

12. How is a neural network best described?

A) A tool used to display stored data visually
B) A physical circuit that powers AI hardware
C) A machine learning model inspired by the human brain
D) A fixed script that runs sequential instructions

13. In what way can Generative AI act as a creative partner?

A) By coordinating supply deliveries
B) By automating administrative filing
C) By assisting with idea generation
D) By sending out standardized emails

14. How does DALL-E generate visual content?

A) By retrieving stock images based on search keywords
B) By using diffusion models to create images from text
C) By compiling image databases from camera inputs
D) By editing existing visuals in image libraries

15. What is a major ethical concern associated with Generative AI?

A) Inability to store data efficiently
B) Generation of content that may be false, biased, or harmful
C) Overuse of manual data entry systems
D) Limiting physical access to creative tools

16. How should the effectiveness of Generative AI tools be assessed?

A) By how many emails it can organize
B) By its speed in performing manual tasks
C) By how well it meets task-specific goals
D) By its ability to store large datasets

17. What is the primary goal of prompt engineering in AI applications?

A) Improving the clarity and relevance of AI responses

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

B) Performing calculations in financial spreadsheets
C) Sorting emails based on user preferences
D) Monitoring hardware performance in real time

18. How can prompt engineering reduce bias in AI outputs?

A) By training the model on personal user preferences
B) By avoiding language that reinforces harmful assumptions
C) By replacing open-ended questions with numeric input
D) By limiting prompts to predefined formats only

19. Why should a prompt specify output length?

A) To help reduce the model's training time
B) To prevent errors in automated formatting
C) To avoid requiring user input for follow-up clarification
D) To ensure the response fits the desired level of detail

20. What should be prioritized when writing prompts for audio generation?

A) Allowing the AI to interpret tone without guidance
B) Using abstract language to encourage novelty
C) Providing clear details about content and style
D) Including as many technical terms as possible

21. How does globalization affect AI development and use?

A) Increases language barriers for AI tools
B) Requires more manual security systems
C) Creates uncertainty around legal jurisdictions
D) Restricts access to cloud-based resources

22. What is a key intellectual property concern with AI-generated content?

A) Sorting and flagging internal emails
B) Determining who owns rights to content created by AI
C) Performing routine accounting tasks
D) Managing supply chains manually

23. How are digital twins used in modern industries?

A) To archive documents through analog filing systems
B) To print barcode labels for inventory systems
C) To process customer feedback via manual surveys
D) To simulate, monitor, and improve real-world operations

24. What is one way AI benefits the healthcare industry?

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

A) Reducing the use of electronic medical records
B) Replacing diagnostic tools with paper forms
C) Improving diagnosis accuracy and personalized care plans
D) Limiting the need for clinical decision support

25. How might cybercriminals misuse AI technologies?

A) By processing employee records manually
B) By reducing software compatibility issues
C) By developing malware that evades detection
D) By printing email threads for documentation

26. How can AI detect new forms of malware?

A) By comparing the code to stored file names
B) By analyzing unfamiliar behavior patterns
C) By sorting malware into existing categories
D) By printing audit logs for later inspection

27. How can AI be used to prevent phishing scams?

A) By helping users write stronger passwords
B) By detecting and flagging suspicious emails and links
C) By verifying employee time cards manually
D) By archiving financial data for quarterly reports

28. How does AI benefit cybercriminals in automating attacks?

A) By requesting manual approval for system access
B) By generating malicious scripts that execute efficiently
C) By blocking outdated encryption protocols
D) By creating backup files for audit review

29. What is a common red flag in a phishing email?

A) A reminder to review updated safety policies
B) A request for usernames, passwords, or banking details
C) A notice about a completed file upload
D) An invitation to a workplace celebration

30. What is artificial noise in deep fake audio?

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

A) Static produced by older recording devices
B) Subtle distortions added by AI to mimic real audio environments
C) Echoes created by room acoustics during filming
D) Feedback from wireless microphones

ANSWERS TO SAMPLE QUESTIONS

1. (**c**)
2. (**c**)
3. (**b**)
4. (**c**)
5. (**a**)
6. (**d**)
7. (**b**)
8. (**c**)
9. (**a**)
10. (**b**)
11. (**d**)
12. (**c**)
13. (**c**)
14. (**b**)
15. (**b**)
16. (**c**)
17. (**a**)
18. (**b**)
19. (d)
20. (**c**)
21. (**c**)
22. (**b**)
23. (**d**)
24. (**c**)

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

25. (**c**)
26. (**b**)
27. (**b**)
28. (**b**)
29. (**b**)
30. (**b**)

TECEP Test Description for TES-1110-TE by Thomas Edison State University is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.