# Session 1: Image Generation — Instructor Guide

This guide supports instructors delivering the Newegg AI Workshop – Session 1 (Image Generation). It includes session flow, teaching tips, key concepts, and challenge solutions.

## Session Overview

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| Session Title | Session 1: Image Generation |
| Duration | 90 minutes |
| Objective | Students learn how AI models can generate images from text prompts using tools like Stable Diffusion or OpenAI models. |
| Materials | Jupyter Notebook, Internet access, GPU-enabled environment (e.g., NiceGPU), PPT slides |

## Teaching Flow

**1. Introduction (10 min):** Briefly explain how AI models generate images using text-to-image techniques. **2. Demo (15 min):** Show a live example of generating images from prompts. **3. Guided Practice (40 min):** Students run provided notebook cells to generate and modify images. **4. Creative Challenge (20 min):** Students design prompts to achieve specific image effects. **5. Wrap-Up & Reflection (5 min):** Discuss what they learned and real-world applications of AI image generation.

## Key Concepts

• Text-to-Image AI models: converting text into visual representations.  
• Diffusion models: step-by-step denoising process to create realistic images.  
• Prompt engineering: improving results through descriptive and structured prompts.  
• Safety & ethics: discuss responsible use of generative AI.

## Instructor Notes

⚙️ Emphasize creativity: Encourage students to try various adjectives, moods, and compositions in their prompts.  
💡 Relate to daily life: Ask them how AI-generated images might affect e-commerce, marketing, or entertainment.  
🧠 Encourage exploration: Let them experiment with seed values and resolution for variation.  
🎯 Discuss prompt refinement: Compare a simple prompt ('a cat') with a detailed one ('a photorealistic cat sitting on a windowsill at sunset').

## Challenge Questions (Student Version)

1. Try to generate the same object with different artistic styles (e.g., watercolor, pixel art, oil painting).  
2. Create two prompts that produce similar compositions but different moods.  
3. Experiment with changing seed values to compare image variation.  
4. Bonus: Try generating an image relevant to e-commerce (e.g., 'a stylish gaming laptop product photo').

## Challenge Solutions (Instructor Reference)

1. Artistic style variations show how prompt keywords guide model output. Students can observe differences and discuss which styles are more realistic.  
2. Mood variation: 'A forest at sunrise' vs. 'A dark misty forest at night'. Encourage reflection on lighting and color influence.  
3. Changing seed values leads to different random noise initialization — highlight reproducibility with fixed seeds.  
4. E-commerce relevance: Discuss how product images can be auto-generated for marketing or listing mockups.