IV B.Tech I Sem

23A05703	**PROMPT ENGINEERING** **Skill Enhancement Course**	**L**	**T**	**P**	**C**
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Course Objective:
This course delves into prompt engineering principles, strategies, and best practices, a crucial aspect in shaping AI models' behaviour and performance. Understanding Prompt Engineering is a comprehensive course designed to equip learners with the knowledge and skills to effectively generate and utilize prompts in natural language processing (NLP) and machine learning (ML) applications. This course delves into prompt engineering principles, strategies, and best practices, a crucial aspect in shaping AI models' behaviour and performance.

Course Out comes:
- Under standing the fundamentals and evolution of prompt engineering.
- Gaining the ability to craft effective closed-ended, open-ended, and role-based prompts.
- Learning to probe and stress-test AI models for bias and robustness.
- Applying prompt optimization techniques and performance evaluation methods.
- Mitigating bias and promoting ethical prompting practices in NLP/ML systems.

Module 1: Introduction to Prompt Engineering

- *Lesson 1: Foundations of Prompt Engineering*
    - Overview of prompt engineering and its significance in NLP and ML.
    - Historical context and evolution of prompt-based approaches.

Module 2: Types of Prompts and Their Applications

- *Lesson 2: Closed-Ended Prompts*
    - Under standing and creating prompts for specific answers.
    - Applications in question- answering systems.
- *Lesson 3: Open-Ended Prompts*
    - Crafting prompts for creative responses.
    - Applications in language generation models.

Module 3: Strategies for Effective Prompting

- *Lesson 4: Probing Prompts*
    - Designing prompts to reveal model biases.
    - Ethical considerations in using probing prompts.
- *Lesson 5: Adversarial Prompts*
    - Creating prompts to stress-test models.
    - Enhancing robustness through adversarial prompting.

Module 4: Fine-Tuning and Optimizing with Prompts

- *Lesson 6: Fine-Tuning Models with Prompts*
    - Techniques for incorporating prompts during model training.
    - Balancing prompt influence and generalization.
- *Lesson 7: Optimizing Prompt Selection*
    - Methods for selecting optimal prompts for specific tasks.
    - Customizing prompts based on model behavior.

Module 5: Evaluation and Bias Mitigation

- *Lesson 8: Evaluating Prompt Performance*
    - Metrics and methodologies for assessing model performance with prompts.
    - Interpreting and analyzing results.
- *Lesson 9: Bias Mitigation in Prompt Engineering*
    - Strategies to identify and address biases introduced by prompts.
    - Ensuring fairness and inclusivity in prompt-based models.

Module 6: Real-World Applications and Case Studies

- *Lesson 10: Case Studies in Prompt Engineering*
- *Exploration of successful implementations and challenges in real-world scenarios.*
- *Guest lectures from industry experts sharing their experiences.*

Text books:

1. **"**Prompt Engineering in Action" – *Danny D. Sullivan*
2. "The Art of Prompt Engineering with Chat GPT: A Hands-On Guide" – *Nathan Hunter.*

Reference Books:

1. **"**Prompt Engineering in Practice" – *Michael F. Lewis*
2. "Mastering AI Prompt Engineering: The Ultimate Guide for Chat GPT Users" – *Adriano Damiao*
3. "Writing AI Prompts For Dummies" – *Stephanie Diamond and Jeffrey Allan*
4. "Prompt Engineering Guide" (Online Resource) – *promptingguide.ai*

Online Resource link :

https://www.udemy.com/course/understanding-prompt-engineering/?couponCode=NVDINCTA35TRT