

Course Name	Exploring Large Language Models & Google Generative AI
Course Duration	3 Days (24 hours)
Time Division	Break: 1 Hr. 15 Minutes/day Session: 6 Hrs. 45 Minutes /day
Target Audience	-
Course Outcomes	Able to understand LLM's, RAG and Hands-on
	Able to understand NLP, Transformers
	Vertex AI, Prompt designing using PALM

Important Note:

- Courseware – Reference material/ppt along with lab files/exercises will be provided.
- Note: Client needs to have their own google cloud free subscription via their own credit card:
<https://cloud.google.com/free>

Module	Content
Module 01	Advancements in Language Models (Day 1)
Note	Lab performance on open-source library
1.1	Welcome and Introductions Language Chain: Unravelling Linguistic Complexity
1.2	RAG (Retrieval-Augmented Generation): Enhancing Contextual Understanding
1.3	Multilanguage Extractors - extractors facilitate cross-lingual data analysis and comprehension
1.4	LLM (Large Language Models) for Structured Data: SQL, PDFs, Docs- Summarization, QA, Text translation
Module 02	Mastering Advanced AI Technologies (Day 2)
Note	Lab performance on open-source library
2.1	Reinforcement Learning - Understanding the principles of Reinforcement Learning. Exploring applications in robotics, gaming, and decision-making systems
2.2	Natural Language Processing (NLP) - Delving into the fundamentals of NLP and its applications, Unravelling the intricacies of sentiment analysis and language modelling, Hands-on experience with popular NLP libraries and frameworks
2.3	Time Series Sequences - Grasping the significance of time series data in predictive modelling. Implementing time series analysis techniques for trend forecasting
2.4	Encoder-Decoder Architecture - Understanding the core concepts behind Encoder-Decoder architecture. Implementing sequence-to-sequence tasks in machine translation. Exploring use cases in image captioning
2.5	Transformer and BERT Models - Practical applications in text classification and named entity recognition
Module 03	Mastering Generative AI (Day 3)
Note	Lab performance on open-source library (Vertex AI workbench)

3.1	<p>Introduction to Generative AI Studio - Overview of Generative AI and its applications in Retail and Telecom. Introduction to the Generative AI studio environment.</p>
3.2	<p>Prompt Design with PALM (Pattern-Aware Language Model) - Understanding the significance of well-crafted prompts. Hands-on practice with prompt design using PALM. Practical Examples of effective prompts for Retail and Telecom scenarios.</p> <p>Generative AI Explorer – Vertex AI – Models in the Vertex AI PaLM API family, including text-bison, chat-bison, and text embedding-gecko. Prompt design, best practices, and how it can be used for ideation, text classification, text extraction, text summarization.</p> <p>Fine-Tuning Models for Industry-Specific Tasks: Importance of fine-tuning pre-trained models for specific use cases. Step-by-step guide to fine-tune models using industry-specific datasets. Real-world Practical examples of successful fine-tuning in Retail and Telecom.</p> <p>Finding and Mitigating Bias in Generative AI: Awareness of biases in AI models and their implications. Techniques for identifying and mitigating bias in Generative AI. Practical exercises to address bias in Retail and Telecom contexts.</p>
3.3	<p>Real-Time Exercise: Retail and Telecom Applications in Python: Demo on Call Centre intelligence via OpenAI : sample accelerator for Call Centre Intelligence powered by Azure AI (including new Azure OpenAI GPT-3)</p>