AC – 20/04/2024
Item No. – 6.6 Sem. II (3b)

As Per NEP 2020

University of Mumbai

Syllabus for Basket of OE/ Minor/AEC	
Board of Studies in Data Science	
UG First Year Programme	
Semester	**II**
Title of Paper	**Credits 2/ 4**
I. DS_Generative AI (Open Elective)[OE]	**2**
From the Academic Year	**2024-2025**

Name of the Course: IT_Generative AI

Sr.No.	Heading	Particulars
1	**Description the course : Including but Not limited to:**	This syllabus provides comprehensive overview of Generative AI. It covers various aspects of language models and LLM architecture. It covers various domains that uses Generative AI. The syllabus provides introduction to different Generative AI tools.
2	**Vertical :**	**Open Elective**
3	**Type :**	Theory
4	**Credits :**	2 credits
5	**Hours Allotted :**	30 Hours
6	**Marks Allotted:**	50 Marks
7	**Course Objectives(CO):** CO 1. To learn concept of Generative AI CO 2. To understand different Generative models. CO 3. To know ethical consideration and challenges in AI. CO 4. To understand LLM architecture. CO 5. To introduce GPT significance and application CO 6. To understand applications and implementation of various Generative tools.	
8	**Course Outcomes (OC):** OC 1. Ability to acquire knowledge of Generative AI. OC 2. Proficiency in different Generative models. OC 3. Ability to gain information about ethical consideration and challenges in AI. OC 4. Acquire knowledge of LLM architecture. OC 5. To attain various significance and application of GPT. OC 6. To deploy various Generative AI tools.	
9	**Modules:-**	
	Module 1:	
	1. Introduction to Generative Al, Definition and scope of Generative Al, Overview of generative models and their applications. 2. Importance of Generative Al in various domains Brief discussion on ethical considerations and challenges, Language Models and LLM Architectures. 3. Introduction to language models and their role in AI Traditional approaches to language modelling 4. Overview of popular LLM architectures: RNNs, LSTMs, and Transformers.	
	Module 2:	

	1. Introduction to GPT and its significance, Pre-training and fine-tuning processes in GPT Architecture and working of GPT models 2. Overview of GPT variants and their use cases. 3. ChatGPT: A Practical Application of GPT Introduction to ChatGPT and Its purpose 4. Ethical Considerations in Generative Al, Understanding the ethical implications of generative models 5. Overview of various domains and industries benefiting from Generative Al 6. Generative AI tools introduction and application: Tools for: STORY TELLING,TEXT TO IMAGE, CHATBOTS, TEXT TO MUSIC, LANGUAGE TRANSLATION,TRAVEL ITINERARY,PRESENTATION TOOLS, TEAMBUILDING,EDUCATION	
10	**Text Books** 1. Generative Deep Learning: Teaching Machines to Paint, Write, Compose, and Play" by David Foster: 2. Language Models for Natural Language Processing" by Rajendra Prasad Yadav, M. Shehbaz Khan, and Deepak Gupta 3. Deep Learning" by Ian Goodfellow, Yoshua Bengio, and Aaron Courville	
11	**Reference Books** 1. Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition" by Daniel Jurafsky and James H. Martin: 2. https://cdn.openai.com/research-covers/language unsupervised/language_understanding_paper.pdf 3. https://www.techtarget.com/searchenterpriseai/definition/generative-AI 4. https://www.ucl.ac.uk/teaching-learning/generative-ai-hub/introduction-generative-ai 5. https://www.techtarget.com/searchenterpriseai/tip/Successful-generative-AI-examples-worth-noting	
12	**Internal Continuous Assessment: 40%**	**Semester End Examination: 60%**
13	**Continuous Evaluation through:** Quizzes, Class Tests, presentation, project, role play, creative writing, assignment etc.(at least 3)	30 marks Semester End Examination
14	**Format of Question Paper: (Semester End Examination : 30 Marks. Duration:1 hour)** Q1: Attempt any two (out of four) from Module 1 (15 marks) Q2: Attempt any two (out of four) from Module 2 (15 marks)	

Sign of Chairperson
Dr. Mrs. R. Srivaramangai
Ad-hoc BoS (Data Science)

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