Artificial Intelligence Annual & Weekly Syllabus Split-Up - 2025-26
Grade XII

S.No	Month	No. of Working Days	Week	No. of Days	Topic	Sub Topic	Resources	Activity/Practicals	Mid April Test	Periodic Test 1	Pre Mid Term	Mid Term	PB-1	Revision-1	PB-2	Practice-Test-01	PB-3
1	MARCH		Week 1														
			Week 2	6					✓			✓			✓		✓
			Week 3	5					✓			✓			✓		✓
			Week 4	6													
			Week 5	6													
2	APRIL	23	Week 1	5	PART-B: UNIT 1: PYTHON PROGRAMMING - II	Recap of NumPy library / Recap of Pandas Library / Importing and Exporting Data between CSV Files and DataFrames	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos, https://colab.research.google.com/, https://www.programiz.com/python-programming	Import and Export Data between CSV Files and DataFrames / Implement Linear Regression algorithm on Google Colab or any Python IDE. (**For Advanced Learners),	✓			✓			✓		✓
					UNIT 3: MAKING MACHINES SEE	pip install opencv-python , classification and detection, two algorithm which can be used for object detection, four applications of computer vision., Instance Segmentation, Semantic Segmentation	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos , Image resizer - https://imageresizer.com, Pine tools- https://pinetools.com/grayscale-image/, website https://teachablemachine.withgoogle.com/, https://www.ibm.com/topics/computer-vision	Binary Art: Recreating Images with 0s and 1s, CREATING A WEBSITE CONTAINING AN ML MODEL, Write a Python script using OpenCV to resize an image named "example.jpg" to a fixed size of 300x300 pixels., Write a Python script using OpenCV to convert an image named "example.jpg" into a grayscale.	✓			✓			✓		✓
			Week 2	5	UNIT 2:DATA SCIENCE METHODOLOGY: AN ANALYTIC APPROACH TO CAPSTONE PROJECT	Introduction to Data Science Methodology / Steps for Data Science Methodology / Model Validation Techniques	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos	Calculate MSE and RMSE values for the data given using MS Excel / Calculate Precision, Recall, F1 score, and Accuracy from the given confusion matrix / Python Code to Evaluate a Model (*to be evaluated in practicals only)	✓			✓			✓		✓
					Revision	Python Programming, Data Science and Making Machine See			Mid April Test								
			Week 3	4	**Mid April Test**	**15 April to 22 April 2025**											
			Week 4	6	UNIT 4: AI with Orange Data Mining Tool	Guide students through loading a sample dataset (e.g., Iris flower dataset) and exploring its features using the "Data Table" widget., Histograms:, Scatter Plots ,Box Plots, What is Data Mining? Beneficiaries of Orange data mining, Getting started with Orange tool	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos , 1. https://orangedatamining.com/docs/ 2. https://orangedatamining.com/blog/ 3. www.youtube.com/@OrangeDataMining	Your task is to conduct a Data Science project aiming to differentiate between fruits and vegetables based on their nutritional characteristics., Computer Vision with Orange		✓							
			Week 5	3	UNIT 4: AI with ORANGE DATA MINING Tool	KEY DOMAINS OF AI WITH ORANGE DATA MINING TOOL. -Data science with Orange Data Mining , Computer Vision with Orange Data Mining , Natural Language Process with Orange Data Mining, CLASSIFICATION	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos	Your task is to create your own corpus by selecting a story or article of your choice. Ensure the text is sufficiently long to provide meaningful insights. Once you have your corpus, use Orange Data Mining to perform Text normalization techniques	✓			✓			✓		✓
3	JUNE	19	Week 1	0	UNIT 3: MAKING MACHINES SEE	How Machines See / Working of Computer Vision / Computer Vision Process / Applications of Computer Vision	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos, Boxentriq Pixel Value Extractor - https://www.boxentriq.com/code-breaking/pixel-values-extractor	Introduction to AI Project cycle, Teachable machine, Introduction to supervised, unsupervised and reinforcement learning, Q1. Write down the name of two cuisines, five dishes from each cuisine and the ingredients needed for the five dishes separately									
			Week 2	6	UNIT 5: Introduction to Big Data and Data Analytics	Demystifying Data Types: Structured, Semi-structured, and Unstructured, benefits and limitations of Big Data, Big Data vs. Traditional Data, Big Data Careers and Growth, What is Big Data? Types of Big Data, Advantages and Disadvantages of Big Data, Characteristics of Big Data	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos , • https://www.researchgate.net/publication/259647558_Data_Stream_Mining https://www.ibm.com/topics/big-data-analytics https://www.researchgate.net/figure/olume-scale-of-Data-from-different-data-sources-26_fig1_324015815Fig	Case Study: How a Company Uses 3V and 6V Frameworks for Big Data Company: An OTT Platform 'OnDemandDrama', We will explore how big data analysis can be performed using Orange Data Mining.		✓		✓			✓		✓
			Week 3	6	UNIT 5: Introduction to Big Data and Data Analytics	Big Data Analytics , Mining Data Streams, Future of Big Data Analytics	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos, Data Analytics Tools – Tableau, APACHE Hadoop, Cassandra, MongoDB, SaS , https://www.youtube.com/watch?v=37x5dKW-X5U			✓		✓			✓		✓
			Week 4	6	UNIT 6: Understanding Neural Networks	WHAT IS A NEURAL NETWORK?, Parts of a neural network ,Components of a neural network. Working of a neural network,Types of neural networks, such as feedforward, convolutional, and recurrent, Impact of neural network on society, key components of a Neural Network, Exploring Different Architectures:	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos , Image source : https://www.bombaysoftwares.com/blog/feed-forward-propagation, https://www.youtube.com/watch?v=K_BHnszRTpA&t=1s]	Activity 1: (for Practical Concepts Only) , Machine Learning for Kids url: https://machinelearningforkids.co.uk/, Activity 2: Problem: Convert from Celsius to Fahrenheit where the formula is: $f = c \times 1.8 + 32$		✓		✓			✓		✓
			Week 5	1	UNIT 6: Understanding Neural Networks - REVISION	Differentiate between FNN and RNN	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos , www.machinelearningforkids.co.uk/#!/projects Types of Neural Networks and Definition of Neural Network (mygreatlearning.com)	Activity 3: Creating Neural Network with Python , Activity 4: TensorFlow Playground		✓		✓			✓		✓
4	JULY	27	Week 1	5	**Periodic Test 1**	**30 June to 7 July 2025**				Periodic Test 1							
			Week 2	6	UNIT 7: Generative AI	Introduction to Generative AI, Working of Generative AI, Generative and Discriminative models, Applications of Generative AI, LLM- Large Language Model, Future of Generative AI, Ethical and Social Implications of Generative AI, From Inspiration to Creation: Understanding Generative AI, Differences between Generative AI and Discriminative AI:	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos , Canva, DALL-E, Stability AI and Stable Diffusion, Canva will generate multiple images based on your input. Browse through the generated images to find the one that best matches your vision	ChatGPT, Gemini, Claude, and DALL-E. , Deepfake Technology:				✓			✓		✓
			Week 3	6	UNIT 7: Generative AI	LLM- Large Language Model, Transformers in LLMs: Applications of LLMs: Text Generation, Audio Generation, Image Generation, Video Generation, Bias and Discrimination	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos , OpenAI's GPT-4o:, Activity 1. Signing Up for Canva for Education, https://gemini.google.com/app , https://www.veed.io/tools/ai-video/ai-music-video-generator , Signing Up for Animaker, Activity 5. ChatGPT	Using Google Gemini's AI Text Generation, to create a customized Chatbot with the help of Gemini API.				✓					✓
			Week 4	6	UNIT 8: Data Storytelling	Introduction to Storytelling, benefits of stories, storytelling a powerful tool, Essential elements of Data Storytelling , Narrative structure of a data story	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos	Using available data on student enrollment, attendance, and dropout rates, create a compelling data story that explores the impact of the Mid-Day Meal Scheme (MDMS) since its launch in 1995				✓			✓		✓
			Week 5	4	UNIT 8: Data Storytelling	Visualizations for different data , Freytag's Pyramid	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos , Link for storytelling: https://www.khanacademy.org/humanities/hass-storytelling/storytellingpixar-in-a-box/ah-piab-we-are-all-storytellers/v/storytelling-introb					✓			✓		✓
5	AUGUST	23	Week 1	2	**Pre Mid Term Exam**	**1 Aug to 8 Aug 2025**					Pre Mid Term Exam		✓		✓		✓
			Week 2	5	PART-A: Unit 1: Communication Skills-IV	Active Listening , Listening Skills , Effective Communication, Writing Sentences, Parts of Speech, Simple , Complex Sentences	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos	Grup Discussion :Factors affective active listening, Poster Making - Active Listening, Depicting conversation betweentwo friends, Parent-child conversation.					✓		✓		✓
			Week 3	5	Unit 2: Self-Management Skills-IV	Optimism, Stress Management, Being result oriented, Self Awareness		Describe yourself in five words, Describe what is your spark / passion, Constructing sentences						✓	✓		✓

#	Month	Days	Week	Periods	Unit/Topic	Details	Resources	Activity			Assessment			
			Week 4	6	Revision									
			Week 5	5	Revision									
6	SEPTEMBER	25	Week 1	5	**Term 1**	**4 Sept to 18 Sept 2025**					Term 1 Part-A: Unit 1 & 2 Part-B: Unit 1 to 8			
			Week 2	6	**Term 1**	**4 Sept to 18 Sept 2025**								
			Week 3	6	**Term 1**	**4 Sept to 18 Sept 2025**								
			Week 4	6	Unit 3: ICT Skills-IV	Spreadsheet, Basic Operation in a Spreadsheet, Workbook, Data manipulation, Advance features in Calc, Impress, Advantages of Presentation software	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos , Google Slides, Google Presentation, Open Office, LibreOffice , Microsoft	Spreadsheet - SUM, COUNT, MIN, MAX, AVERAGE - Prezy, Sway , India's flagship initiative				✓	✓	✓
			Week 5	2	Unit 3: ICT Skills-IV							✓	✓	✓
7	OCTOBER	13	Week 1	3	Unit 4: Entrepreneurial Skills-IV	Entrepreneur and Entrepreneurship, Types, Function of an Entrepreneur, Barriers, Attitudes, Competencies	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos	Group Discussion: An entrepreneur is not born but created. Material required: Notebook , Pen etc				✓	✓	✓
			Week 2	6	Unit 4: Entrepreneurial Skills-IV							✓	✓	✓
			Week 3	4	Unit 5: Green Skills-IV	Protecting our Environment, Green Jobs, Significance of Green Jobs, 17 SGD Goals	Text Book, E-Book, Practice Worksheet, Synopsis(Summary), Comp Lab, Videos , sdg.org	Skill council for green Jobs, CNG, UNEP				✓	✓	✓
			Week 4	0	Capstone Projects, Logbook	Design Thinking, Stages of DT, MSE, RMSE, MAPE, Deep Thinking	Google Collab, Git Hub, Video : Machine Learning , K-fold cross validation, Train data , Test Data	Cross Validation, Train test Split				✓	✓	✓
			Week 5	0	Capstone Projects, Logbook	MAPE, Deep Thinking	K-fold cross validation, Train data , Test Data	Cross Validation, Train test Split				✓	✓	✓
8	NOVEMBER	23	Week 1	0	**Pre Board 1**	**4 Nov to 17 Nov 2025**					Pre Board 1			
			Week 2	5	**Pre Board 1**	**4 Nov to 17 Nov 2025**								
			Week 3	6	**Pre Board 1**	**4 Nov to 17 Nov 2025**								
			Week 4	6	**Revision**	**Revision**								
			Week 5	6	**Revision**	**Revision**								
9	DECEMBER	20	Week 1	6	**Revision**	**Revision**								
			Week 2	6	**Pre Board 2**	**9 Dec to 19 Dec 2025**								Pre Board II
			Week 3	6	**Pre Board 2**	**9 Dec to 19 Dec 2025**								
			Week 4	2	**Practice Test 1**	**25 Dec to 31 Dec 2025**								
			Week 5	0	**Practice Test 1**	**25 Dec to 31 Dec 2025**								
10	JANUARY	22	Week 1	0										
			Week 2	6	**Pre Board 3**	**6 Jan to 27 Jan 2026**								Pre Board III
			Week 3	5	**Pre Board 3**	**6 Jan to 27 Jan 2026**								
			Week 4	6	**Pre Board 3**	**6 Jan to 27 Jan 2026**								
			Week 5	5										
11	FEBRUARY	23	Week 1	6										
			Week 2	6										
			Week 3	5										
			Week 4	6										
			Week 5	0										
12	MARCH	22	Week 1	5										
			Week 2	6										
			Week 3	5										
			Week 4	5										
			Week 5	1										