NAVY CHILDREN SCHOOL, MUMBAI

SPLIT- UP SYLLABUS FOR AY 2024-25

SUBJECT – ARTIFICIAL INTELLIGENCE (CODE- 417)

CLASS-X

April Part A - Employability Skills: Understanding of human communication Activity Activity April Part A - Employability Skills: Activity Activity	
April Part A - Employability Skills: • Understanding of human communication Activity	
Employability Skills Unit 1: Communication Skills: Methods of communication, Verbal communication, Non- verbal communication, Comunication Cycle and Importance of feedback, Barriers of effective communication, Writing Skills – Part of Speech, Writing Skills – Sentences Learners will be able to prepare and deliver speeches effectively and participate in small group interactions. Activi domai Part B – Subject Specific Skills Unit 1: Introduction to AI- Foundational Concepts of AI What is intelligence? Decision Making, What is Artificial Intelligence and what is not? Introduction to AI- Foundational Concepts of AI What is intelligence and what is not? Understand the concept of Autificial Introduction to AI and related terminologies, Introduction to AI, AI ethics Learners to relate to application of Artificial Intelligence in their daily lives. Moral Ai development, such as AI bias, data privacy and how they can be addressed.	ctivities suggested in CBSE study naterial ctivity:Gamified tools for each omain ata Sciences- Impact Filter (Impact f rise in temperature on different becies) ttps://artsexperiments.withgoogle.co //impactfilter/ V- Autodraw (It pairs machine arning with drawings from talented rtists to help you draw stuff fast.) ttps://www.autodraw.com/ LP- Wordtune (AI writing tool that ewrites, rephrases, and rewords bur writing) ttps://www.wordtune.com/ loral Machine Activity : a platform or gathering a human perspective on ioral decisions made by machine telligence, such as self-driving cars.

May & June	Part A– Employability Skills	 Part A - Employability Skills: Unit 2: Self Management Skills Stress Management Self-awareness-Strength and Weakness Analysis Self-motivation Self-regulation—Goal Setting and Time Management Unit 3: ICT Skills Basic Computer Operations Performing Basic File Operations Computer Care and Maintenance Computer Security and Privacy 	 Students will learn about personal stressors and understand how they affecton their physical, mental, emotional, and spiritual well-being. Practicing mindfulness and self- reflection can enhance self-awareness in managing stress effectively. Students will learn how to Set SMART goals based on self-analysis helps in achieving personal and professional success
July	Part B – Subject Specific Skills	 Part B – Subject Specific Skills Unit 2 : Al Project Cycle Introduction: Introduction to Al Project Cycle Problem Scoping Understanding problem scoping and Sustainable Development Goal Data Acquisition Data Exploration Visualizing Data Modelling Introduction to Rule Based & Learning Based Al Approaches Evaluation 	 Identify the AI Project Cycle framework. Learn problem scoping and ways to set goals for an AI project. Identify data requirements and find reliable sources to obtain relevant data Know various data exploration techniques and its importance Know about the different machine learning algorithms used to train AI models Understand, create and implement the concept of Decision Trees.
	Part–C Practical Work	Unit 3 – Advance Python (To be assessed through practicals) Recap – • Jupyter Notebook • Introduction to Python	 Know the importance of evaluation and various metrics available for evaluation Understand to work with Jupyter Notebook, installing Python Packages. Networks Jupyter Notebook, Introduction to

		Python Basics	• // f c s	Able to write basic Python programs using fundamental concepts such as variables, data types, operators, and control structures.	
Aug	Part–B Subject Specific Skills Part–C Practical Work	Part B – Subject Specific Skills Unit 4: Data Sciences (Theory) Introduction to Data Science, Applications of Data Science, Revisiting AI Project Cycle, Data Collection, Data Access Python Packages(Practical) Python data Sciences (Numpy, Pandas, Matplotlib), Statistics Learning & Data Visualization (Statistics and Standard Deviation) K-nearest neighbour model (Optional)** Personality Prediction, Understanding K-nearest neighbour model	•	Define the concept of Data Science and understand its applications in various fields. Understand the basic concepts of data acquisition, visualization, and exploration. Use Python libraries such as NumPy, Pandas, and Matplotlib for data analysis and visualization.	Revisiting AI Project Cycle, Data Collection, Data Access Activities: Game: Rock, Paper & Scissors <u>https://next.rockpaperscissors.ai/</u> Python for Data Sciences • Numpy • Pandas • Matplotlib

Sep	Part–B Subject Specific Skills Part–C Practical Work Part A– Employability	 Part B – Subject Specific Skills Unit 5 – Computer Vision (Theory) Introduction to Computer Vision, Applications of CV, Understanding CV Concepts (Computer Vision Tasks, Basics of Images-Pixel, Resolution, Pixel value, Grayscale and RGB images) Open CV (Practical) Introduction to Open CV, Image Processing Part A - Employability Skills: Unit 4: Entrepreneurial Skills Entrepreneurship and Society, Qualities and 	• [4 f • [7 0 0 1 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Define the concept of Computer Vision and understand its applications in various fields. Understand the basic concepts of image representation, feature extraction, object detection, and segmentation. Use Python libraries such as OpenCV for basic image processing and computer vision tasks. Flip learning by students on the Entrepreneurial skills	Activities: Game- Emoji Scavenger Hunt https://emojiscavengerhunt.withgoogl e.com/ RGBCalculator: https://www.w3schools.com/colors/c olors_rgb.asp Create your own pixel art: https://www.piskelapp.com/ Create your own convolutions: https://setosa.io/ev/image-kernels/
Oct	Part A– Employability Skills Part–B Subject Specific Skills	Functions of an Entrepreneur Myths about Entrepreneurship, Entrepreneurship as a Career Option Convolution Operator (Optional)** Convolution Neural Network (Optional)** Part A - Employability Skills: Unit 5: Green Skills • Sustainable Development • Our Role in Sustainable Development Part B – Subject Specific Skills Unit 6: Natural Language Processing NLP Applications, Chatbots	• F E • (I	Flip learning by students on the Entrepreneurial skills Understand the concept of Natural Language Processing (NLP) and its importance in the field of Artificial Intelligence (AI)	

		 Human Language VS Computer Language, Text Processing, Data Processing, Bag of Words TFIDF(Optional)**, NLTK(Optional)** Part B – Subject Specific Skills Unit 7: Evaluation Introduction to model evaluation Confusion Matrix Understanding Accuracy Precision, Recall & F1 Score Practice Evaluation 	 Explore the various applications of NLP in everyday life, such as chatbots, sentiment analysis, and automatic summarization. Learn about the Text Normalization technique used in NLP and popular NLP model - Bag-of-Words Understand Different types of Evaluation techniques Underfit, Perfect Fit, OverFit Model Evaluation Terminologies-The Scenario - Prediction, Reality, True Positive, True Negative, False Positive, False Negative Confusion Matrix, Learn to make a confusion matrix for given Scenario Learn about the different types of evaluation techniques in AI, such as Accuracy, Precision, Recall and F1 Score, and their significance. 	Activity: Based on Confusion Matrix, Practice Evaluation
Νον	Revision for Pre-Board Examination			

**NOTE: Optional components shall not be assessed. They are for extra knowledge