CBSE | DEPARTMENT OF SKILL EDUCATION
CURRICULUM FOR SESSION 2020-2021

ARTIFICIAL INTELLIGENCE (SUB. CODE 417)

CLASS – X

RATIONALIZED CURRICULUM FOR CLASS–X SESSION 2020-21

Total Marks: 100 (Theory-50 + Practical-50)

	UNITS	NO. OF HOURS for Theory and Practical 200	MAX. MARKS for Theory and Practical 100
PART A	**Employability Skills**		
	Unit 1 : Communication Skills-II	10	10
	Unit 2 : Self-Management Skills-II	10	
	Unit 3 : ICT Skills-II	10	
	Unit 4 : Entrepreneurial Skills-II	15	
	Unit 5 : Green Skills-II	05	
	Total	**50**	**10**
PART B	**Subject Specific Skills**		**Marks**
	Unit 1: Introduction to Artificial Intelligence (AI)		40
	Unit 2: AI Project Cycle		
	Unit 3: Advance Python* (*To be assessed in Practicals only)		
	Unit 4: Data Science* (*To be assessed in Practicals only)		
	Unit 5: Computer Vision* (*To be assessed in Practicals only)		
	Unit 6: Natural Language Processing		
	Unit 7: Evaluation		
	Total		**40**
PART C	**Practical Work:** • Unit 3: Advance Python, • Unit 4: Data Science • Unit 5: Computer Vision		35
	Practical Examination		
	Viva Voce		
	Total		**35**
PART D	**Project Work/Field Visit**		
	Practical File/ Student Portfolio		15
	Viva Voce		
	Total		**15**
	GRAND TOTAL	**200**	**100**

DETAILED CURRICULUM/TOPICS FOR CLASS X:

Part-A: EMPLOYABILITY SKILLS

S. No.	Units	Duration in Hours
1.	Unit 1: Communication Skills-II	10
2.	Unit 2: Self-management Skills-II	10
3.	Unit 3: Basic Information and Communication Technology Skills-II	10
4.	Unit 4: Entrepreneurial Skills-II	15
5.	Unit 5: Green Skills-II	05
	TOTAL	**50**

NOTE: **For Detailed Curriculum/ Topics to be covered under Part A: Employability Skills can be downloaded from CBSE website**.

Part-B – SUBJECT SPECIFIC SKILLS

- Unit 1: Introduction to Artificial Intelligence (AI)
- Unit 2: AI Project Cycle
- Unit 3: Advance Python (To be assessed through Practicals)
- Unit 4: Data Science (To be assessed through Practicals)
- Unit 5: Computer Vision (To be assessed through Practicals)
- Unit 6: Natural Language Processing
- Unit 7: Evaluation

UNIT	SUB-UNIT	SESSION/ ACTIVITY/ PRACTICAL
1. INTRODUCTION TO AI	Foundational concepts of AI	**Session**: What is Intelligence?
		Session: Decision Making. ● How do you make decisions? ● Make your choices!
		Session: what is Artificial Intelligence and what is not?
	Basics of AI: Let's Get Started	**Session**: Introduction to AI and related terminologies. ● Introducing AI, ML & DL. ● Introduction to AI Domains (Data, CV & NLP)
		Session: Applications of AI – A look at Real-life AI implementations
		Session: AI Ethics
2. AI PROJECT CYCLE	Introduction	**Session:** Introduction to AI Project Cycle
	Problem Scoping	**Session:** Understanding Problem Scoping & Sustainable Development Goals
	Data Acquisition	**Session:** Simplifying Data Acquisition
	Data Exploration	**Session:** Visualising Data

UNIT	SUB-UNIT	SESSION/ ACTIVITY/ PRACTICAL
	Modelling	**Session:** Introduction to modelling • Introduction to Rule Based & Learning Based AI Approaches • Introduction to Supervised Unsupervised & Reinforcement Learning Models • Neural Networks
	Evaluation	**Session:** Evaluating the idea!
3. ADVANCE PYTHON* (To be assessed through Practicals)	Recap*	**Session:** Jupyter Notebook/or any other platform*
		Session: Introduction to Python*
		Session: Python Basics*
4. DATA SCIENCES* (To be assessed through Practicals)	Introduction*	**Session:** Introduction to Data Science*
		Session: Applications of Data Science*
		Session: Revisiting AI Project Cycle*
	Concepts of Data Sciences*	**Session**: Python for Data Sciences*
		Session: Statistical Learning & Data Visualisation*
	K-nearest neighbour model ***(Optional)****	**Activity:** Personality Prediction ***(Optional)****
		Session: Understanding K-nearest neighbour model ***(Optional)****
5. COMPUTER VISION* (To be assessed through Practicals)	Introduction*	**Session:** Introduction to Computer Vision*
		Session: Applications of CV*
	Concepts of Computer Vision*	**Session & Activity:** Understanding CV Concepts* • Pixels* • How do computers see images?* • Image Features*
	OpenCV*	**Session:** Introduction to OpenCV*
		Hands-on: Image Processing*
	Convolution Operator ***(Optional)****	**Session:** Understanding Convolution operator ***(Optional)****
		Activity: Convolution Operator ***(Optional)****
	Convolution Neural Network ***(Optional)****	**Session:** Introduction to CNN ***(Optional)****
		Session: Understanding CNN ***(Optional)**** • Kernel • Layers of CNN
		Activity: Testing CNN ***(Optional)****
6. NATURAL LANGUAGE PROCESSING	Introduction	**Session:** Introduction to Natural Language Processing
		Session: NLP Applications
		Session: Revisiting AI Project Cycle
	Chatbots	**Activity:** Introduction to Chatbots

UNIT	SUB-UNIT	SESSION/ ACTIVITY/ PRACTICAL
	Language Differences	**Session:** Human Language VS Computer Language
	Concepts of Natural Language Processing	**Hands-on:** Text processing ● Data Processing ● Bag of Words ● TFIDF ***(Optional)***** ● NLTK
7. EVALUATION	Introduction	**Session:** Introduction to Model Evaluation
	Confusion Matrix	**Session & Activity:** Confusion Matrix
	Evaluation Score Calculation	**Session:** Understanding Accuracy, Precision, Recall & F1 Score
		Activity: Practice Evaluation

*** NOTE: Unit 3, 4 & 5 should be assessed through Practicals only and should not be assessed with the Theory Exam.**

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