Artificial Intelligence (417)
CLASS – X (2023-24)

Part-A: EMPLOYABILITY SKILLS

S. No.	Units
1.	Unit 1: Communication Skills-II
2.	Unit 2: Self-management Skills-II
3.	Unit 3: Information and Communication Technology Skills-II
4.	Unit 4: Entrepreneurial Skills-II
5.	Unit 5: Green Skills-II

Note: **Unit 1: Communication Skills-II and Unit 5: Green Skills-II** units are to be assessed through Internal Assessment/ Student Activities. They are not to be assessed in Theory Exams.

PART-B: SUBJECT SPECIFIC SKILLS

Units to be assessed in theory examinations:

S. No.	Units
1.	Unit 1 : Introduction to Artificial Intelligence (AI)
2.	Unit 2 : AI Project Cycle
3.	Unit 6 : Natural Language Processing
4.	Unit 7 : Evaluation

Units to be assessed through Practical:

S. No.	Units
1.	Unit 3 : Advance Python
2.	Unit 4 : Data Science
3.	Unit 5 : Computer Vision

DETAILS OF THE UNITS:

Units to be assessed in theory examinations:

UNIT	SUB-UNIT	SESSION / ACTIVITY / PRACTICAL
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
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
	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!

		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)***
NATURAL LANGUAGE PROCESSING	Introduction	**Session:** Introduction to Natural Language Processing
		Session: NLP Applications
		Session: Revisiting AI Project Cycle
	Chatbots	Activity: Introduction to Chatbots
	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
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: Optional components shall not be assessed. They are for extra knowledge

Units to be assessed in practical examinations:

UNIT	SUB-UNIT	SESSION / ACTIVITY / PRACTICAL
ADVANCE PYTHON (To be assessed through Practicals)	Recap	**Session:** Jupyter Notebook
		Session: Introduction to Python
		Session: Python Basics
DATA SCIENCES (To be assessed through Practicals)	Introduction	**Session:** Introduction to Data Science
		Session: Applications of Data Science
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)**

* NOTE: To 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