

**Artificial Intelligence (417)**  
**CLASS – X (2022-23)**

<b>Part-A: EMPLOYABILITY SKILLS</b>	
<b>S. No.</b>	<b>Units</b>
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.

<b>PART-B: SUBJECT SPECIFIC SKILLS</b>	
<b>Units to be assessed in theory examinations:</b>	
<b>S. No.</b>	<b>Units</b>
1.	Unit 1 : Introduction to Artificial Intelligence (AI)
2.	Unit 2 : AI Project Cycle
3.	Unit 6 : Natural Language Processing
4.	Unit 7 : Evaluation
<b>Units to be assessed through Practical:</b>	
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:**

<b>UNIT</b>	<b>SUB-UNIT</b>	<b>SESSION / ACTIVITY / PRACTICAL</b>
<b>INTRODUCTION TO AI</b>	Foundational concepts of AI	<b>Session:</b> What is Intelligence?
		<b>Session:</b> Decision Making. <ul style="list-style-type: none"> <li>• How do you make decisions?</li> <li>• Make your choices!</li> </ul>
		<b>Session:</b> what is Artificial Intelligence and what is not?
	Basics of AI: Let's Get Started	<b>Session:</b> Introduction to AI and related terminologies. <ul style="list-style-type: none"> <li>• Introducing AI, ML &amp; DL.</li> <li>• Introduction to AI Domains (Data, CV &amp; NLP)</li> </ul>
		<b>Session:</b> Applications of AI – A look at Real-life AI implementations
		<b>Session:</b> AI Ethics
<b>AI PROJECT CYCLE</b>	Introduction	<b>Session:</b> Introduction to AI Project Cycle
	Problem Scoping	<b>Session:</b> Understanding Problem Scoping & Sustainable Development Goals
	Data Acquisition	<b>Session:</b> Simplifying Data Acquisition
	Data Exploration	<b>Session:</b> Visualising Data
	Modelling	<b>Session:</b> Introduction to modelling <ul style="list-style-type: none"> <li>• Introduction to Rule Based &amp; Learning Based AI Approaches</li> <li>• Introduction to Supervised Unsupervised &amp; Reinforcement Learning Models</li> <li>• Neural Networks</li> </ul>
	Evaluation	<b>Session:</b> Evaluating the idea!

		<b>Session:</b> Revisiting AI Project Cycle
	Concepts of Data Sciences	<b>Session:</b> Python for Data Sciences
		<b>Session:</b> Statistical Learning & Data Visualisation
	K-nearest neighbour model (Optional)**	<b>Activity:</b> Personality Prediction (Optional)**
		<b>Session:</b> Understanding K-nearest neighbour model (Optional)**
<b>NATURAL LANGUAGE PROCESSING</b>	Introduction	<b>Session:</b> Introduction to Natural Language Processing
		<b>Session:</b> NLP Applications
		<b>Session:</b> Revisiting AI Project Cycle
	Chatbots	<b>Activity:</b> Introduction to Chatbots
	Language Differences	<b>Session:</b> Human Language VS Computer Language
	Concepts of Natural Language Processing	<b>Hands-on:</b> Text processing <ul style="list-style-type: none"> <li>• Data Processing</li> <li>• Bag of Words</li> <li>• TFIDF (Optional)**</li> <li>• NLTK</li> </ul>
<b>EVALUATION</b>	Introduction	<b>Session:</b> Introduction to Model Evaluation
	Confusion Matrix	<b>Session &amp; Activity:</b> Confusion Matrix
	Evaluation Score Calculation	<b>Session:</b> Understanding Accuracy, Precision, Recall & F1 Score
<b>Activity:</b> 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
<b>ADVANCE PYTHON</b> (To be assessed through Practicals)	Recap	Session: Jupyter Notebook
		Session: Introduction to Python
		Session: Python Basics
<b>DATA SCIENCES</b> (To be assessed through Practicals)	Introduction	Session: Introduction to Data Science
		Session: Applications of Data Science
<b>COMPUTER VISION</b> (To be assessed through Practicals)	Introduction	Session: Introduction to Computer Vision
		Session: Applications of CV
	Concepts of Computer Vision	<b>Session &amp; Activity: Understanding CV Concepts</b> <ul style="list-style-type: none"> <li>• Pixels</li> <li>• How do computers see images?</li> <li>• Image Features</li> </ul>
	OpenCV	Session: Introduction to OpenCV
		Hands-on: Image Processing
	Convolution Operator <i>(Optional)**</i>	Session: Understanding Convolution operator <i>(Optional)**</i>
		Activity: Convolution Operator <i>(Optional)**</i>
	Convolution Neural Network <i>(Optional)**</i>	Session: Introduction to CNN <i>(Optional)**</i>
		<b>Session: Understanding CNN <i>(Optional)**</i></b> <ul style="list-style-type: none"> <li>• Kernel</li> <li>• Layers of CNN</li> </ul>
		Activity: Testing CNN <i>(Optional)**</i>

**\* NOTE: To be assessed through Practicals only and should not be assessed with the Theory Exam.**

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