CBSE | DEPARTMENT OF SKILL EDUCATION

ARTIFICIAL INTELLIGENCE (SUBJECT CODE - 843)

Class XII (Session 2023-2024)

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

	UNITS	NO. OF HOURS (Theory +Practical)	MAX. MARKS (Theory + Practical)
PART – A	**Employability Skills**		
	Unit 1: Communication Skills-IV	10	2
	Unit 2: Self-Management Skills-IV	10	2
	Unit 3: ICT Skills-IV	10	2
	Unit 4: Entrepreneurial Skills-IV	15	2
	Unit 5: Green Skills-IV	05	2
	Total	**50**	**10**
PART – B	**Subject Specific Skills (THEORY)**		
	Unit 1: Capstone Project	30	10
	Unit 2: Model Lifecycle	20	10
	Unit 3: Storytelling Through Data	30	20
	Total	**80**	**40**
PART – C	**Student Capstone Project (PRACTICAL)**		
	Student AI project Development & Presentation (Team work): Submission of Project Logbook and Video presentation	30	50
	Total	**30**	**50**
	GRAND TOTAL	**160 Hours**	**100**

DETAILED CURRICULUM/ TOPICS FOR CLASS XII

PART-A: EMPLOYABILITY SKILLS

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

Note: The detailed curriculum/ topics to be covered under Part A: Employability Skills can be downloaded from CBSE website

Part-B – SUBJECT SPECIFIC SKILLS

Level 3: AI Innovate	• Unit 1: Capstone Project • Unit 2: Model lifecycle (Knowledge)

Level 3: AI Innovate	• Unit 3: Storytelling through data (Critical and Creative thinking Skills)

DETAILED CURRICULUM/ TOPICS

AI Innovate - (Level 3)		

Unit 1: Capstone Project	• Understanding the problem
	• Decomposing the problem through DT framework
	• Analytic Approach
	• Data Requirements
	• Data Collection
	• Modelling approach
	• How to validate model quality
	  ➢ By test-train split
	  ➢ Introduce concept of cross validation
	• Metrics of model quality by simple Maths and examples from small datasets – scaled up to capstone project (Apply)
	  ➢ RMSE- Root Mean Squared Error
	  ➢ MSE – Mean Squared Error
	  ➢ MAPE – Mean Absolute Percent Error
	• Introduction to commonly used algorithms and the science behind them
	• Showcase through a compelling story
		10 hours to complete basic levels.

Unit 2: Model lifecycle (Knowledge)	• Different aspects of Model
	  ➢ Train, test, validate,
	  ➢ What are hyper parameters
	  ➢ Commonly used platforms to build and run models (Introduction)
	  ➢ Recommended tools
	  ➢ Links to different platforms
	  o Watson
	• Lifecycle of an AI model
	  ➢ Build
	  ➢ Deploy
	  ➢ Retrain
		10 hours to complete basic levels.

Unit 3: Story- telling throughdata (Critical and Creative thinking Skills)	• The Need for Storytelling
	  o Information processing and recalling stories
	  o Why is storytelling important?
	  o Structure that story!
	• How to create stories?
	  o Begin with a pen-paper approach
	  o Dig deeper to identify the sole purpose of your story
	  o Use powerful headings
	  o Design a Road-Map
	  o Conclude with brevity
	• Ethics of storytelling
	• Types of Data and Suitable Charts
	  o Text [Wordclouds]
	  o Mixed [Facet Grids]
	  o Numeric [Line Charts/ Bar Charts]
	  o Stocks [Candlestick Charts]
		15 hours to complete basic levels.

AI Innovate - (Level 3)		
	○ Geographic [Maps] • Stories During the Steps of Predictive Modeling ○ Data Exploration ○ Feature Visualizing ○ Model Creation ○ Model Comparisons • Best Practices of Storytelling • Reference Material /Online Resources: ○ Analytics Vidhya (https://www.analyticsvidhya.com/blog/2020/05/art-storytelling-analytics-data-science/) ○ Udemy: (https://www.udemy.com/course/tell-a-story-with-data/) ○ Coursera: (https://www.coursera.org/learn/intro-business-analytics) ○ Coursera: • (https://www.coursera.org/learn/communicate-with-impact)	
Student ProjectWork (Practical)	Student capstone project development • Students to form teams and work on developing an AI based project • Resources like the AI Project Guide and AI Project LogBook to be used	30 hours

LIST OF EQUIPMENT/ MATERIALS:

The list given below is suggestive and an exhaustive list should be compiled by the teacher(s) teaching the subject. Only basic tools, equipment and accessories should be procured by the Institution so that the routine tasks can be performed by the students regularly for practice and acquiring adequate practical experience.

- Desktop Computer/ Laptop / Tablet
- Web cam (in case of desktop)
- Scanner
- Projector & Screen
- Printer
- Software: Microsoft Office Applications, Anaconda Navigator, Web Browser (preferably Google Chrome and/or Mozilla Firefox)
- Hub/switch
- Internet

CAREER OPPORTUNITIES:

- Data Scientist
- Data Architect
- ML Engineer
- Data Analyst
- Game Programmer
- Business Intelligence Developer
- Software Engineer – AI
- AI Research Scientist